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# WHO guideline for non-surgical management of chronic primary low back pain in adults in primary and community care settings

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# Abbreviations and acronyms

<b>AHRQ</b>	Agency for Healthcare Research and Quality
<b>BDZ</b>	benzodiazepine
<b>BMI</b>	body mass index
<b>CBT</b>	cognitive behavioural therapy
<b>CERQual</b>	confidence in the evidence from reviews of qualitative research
<b>CI</b>	confidence interval
<b>COX-2</b>	cyclo-oxygenase-2 inhibitor
<b>CPLBP</b>	chronic primary low back pain
<b>CU</b>	confidentiality undertaking
<b>DOI</b>	declaration of interests
<b>EMG</b>	electromyography
<b>EPOC</b>	Cochrane Effective Practice and Organisation of Care
<b>ERG</b>	External Review Group
<b>EtD</b>	Evidence-to-Decision
<b>GBD</b>	Global Burden of Disease
<b>GDG</b>	Guideline Development Group
<b>GRADE</b>	Grading of Recommendations, Assessment, Development and Evaluation
<b>GRC</b>	Guideline Review Committee
<b>HIC</b>	high-income country
<b>HRQoL</b>	health-related quality of life
<b>IASP</b>	International Association for the Study of Pain
<b>ICD</b>	International Classification of Diseases
<b>ICOPE</b>	Integrated Care for Older People
<b>IHME</b>	Institute for Health Metrics and Evaluation
<b>kg</b>	kilogram
<b>LIC</b>	low-income country
<b>LBP</b>	low back pain
<b>LMIC</b>	lower middle-income country
<b>MBSR</b>	mindfulness-based stress reduction
<b>MCA</b>	Department of Maternal, Newborn, Child and Adolescent Health and Ageing
<b>MCID</b>	minimal clinically important difference
<b>MD</b>	mean difference
<b>mg/dL</b>	milligram per decilitre





<b>mhGAP</b>	mental health Gap Action Programme
<b>MHz</b>	megahertz
<b>mmol/L</b>	millimole per litre
<b>n</b>	sample size
<b>NCD</b>	noncommunicable disease
<b>NSAID</b>	non-steroidal anti-inflammatory drug
<b>PICO</b>	population, intervention, comparator and outcome
<b>QES</b>	qualitative evidence synthesis
<b>RCT</b>	randomized controlled trial
<b>RR</b>	risk ratio
<b>SD</b>	standard deviation
<b>SMD</b>	standardized mean difference
<b>SMT</b>	spinal manipulative therapy
<b>SNRI</b>	serotonin and noradrenaline reuptake inhibitor
<b>spp.</b>	species (plural)
<b>TC</b>	tricyclic
<b>TCI</b>	traditional, complementary and integrative medicine
<b>TCM</b>	traditional Chinese medicine
<b>TENS</b>	transcutaneous electrical nerve stimulation
<b>UHC</b>	universal health coverage
<b>UMIC</b>	upper middle-income country
<b>W/cm<sup>2</sup></b>	Watt per square centimetre
<b>WHO</b>	World Health Organization
<b>YLD</b>	years lived with disability

# Glossary

## **Assistive products**

Any external product which serves to maintain or improve an individual's functioning and independence, and thereby promote well-being. In the context of care for people with low back pain, assistive products comprise two main categories: non-rigid and rigid lumbar braces, belts, and supports which limit mobility and reduce physical demand on the lower back; and mobility assistive products which include wheelchairs, mobility scooters, tricycles, crutches, walking sticks and walkers.

## **Biopsychosocial**

Refers to the multiple factors and their interactions that may influence a person's experience of chronic primary low back pain, including biological, psychological and social factors. Adopting a biopsychosocial approach to assessment and care is more likely to address the factors that influence the experience of pain in a person-centred manner.

## **Chronic primary low back pain and chronic secondary low back pain**

The ICD-11 classification system for chronic pain identifies chronic pain as either primary (MG30.0) or secondary owing to an underlying disease or structural lesion or deformity (MG30.3-MG30.6). Chronic primary low back pain (CPLBP) is a subclassification of chronic primary musculoskeletal pain (MG30.02), under the parent classification of chronic primary pain. The International Association for the Study of Pain (IASP) defines CPLBP, previously referred to as "non-specific low back pain", as pain that persists or recurs for longer than three months, and is associated with emotional distress and/or functional disability, and symptoms that cannot be better accounted for by another diagnosis, such as tissue damage or a disease process (1). Chronic secondary low back pain arises from an identifiable underlying disease process (e.g. cancer, inflammatory disease) or structural lesion/deformity (e.g. a fracture). For the purpose of the guideline, CPLBP was defined as pain that persists or recurs for longer than three months and is associated with symptoms that cannot be better accounted for by another diagnosis, such as a structural lesion or a disease process. No criteria were applied relating to an experience of emotional distress or functional disability.

## **Community-dwelling adults**

Refers to adults who live independently in the community, compared with adults who are hospital inpatients or live in residential facilities (e.g. nursing home, assisted living facility).

**Health practitioner**

Any health worker who has acquired health-related qualifications. The term comprises both health professionals and health associate professionals<sup>1</sup>.

**Health worker**

Health workers are all people primarily engaged in actions with the primary intent of enhancing health<sup>1</sup>.

**Herbal medicines**

WHO defines herbal medicines as products that contain, as active ingredients, parts of plants, other plant materials or combinations of both (2).

**Injectable local anaesthetics**

Injectable local anaesthetics include the subcutaneous, myofascial or intramuscular delivery of anaesthetic agents into tissues in the lower back region between the 12th rib and gluteal fold. The injectate is delivered only to extraspinal soft/connective tissue.

**Intrinsic capacity**

The composite of all the physical and mental capacities of an individual (3).

**Massage**

Massage is the manual manipulation of soft body tissues, such as muscle and connective tissue, with the aim of improving health and well-being. Massage includes any soft-tissue manipulation using hands or other mechanical device, inclusive of traditional, complementary and integrative (TCI) medicine massage therapies. It may be applied to any body part, lumbar region only or the whole body.

**Multicomponent biopsychosocial care**

Multicomponent biopsychosocial care involves delivery of at least two of the three components of care associated with the biopsychosocial model (physical, psychological or social), delivered by a single provider or a multidisciplinary team. These components align with the biopsychosocial model of chronic pain and its applicability to older people. Multicomponent biopsychosocial care adopts a rehabilitation approach that aims to optimize function and reduce disability in individuals with health conditions in interaction with their environment. For the purpose of the guideline, trials of all types of interventions for multicomponent biopsychosocial care were included where they satisfied the criterion of a multicomponent intervention that targets functioning (body structures and functions, activities and participation). The intervention should target at least two domains of the biopsychosocial model: either the biological component targeting physical aspects of

<sup>1</sup> Health workforce core terminology, 2021, [United Nations Terminology Database](#)

functioning such as body structures or functions (e.g. an exercise programme targeting an increase in muscle strength), psychological component (e.g. addressing coping with pain) or social and occupational component (e.g. addressing involvement in meaningful life roles including work).

### **Needling therapies (traditional Chinese medicine acupuncture and other dry needling modalities)**

Needling therapies considered in the guideline included traditional Chinese medicine (TCM) acupuncture and other dry needling modalities (myofascial trigger point needling, neuroreflexotherapy and Western medical acupuncture). These modalities are defined as any intervention where needles are inserted into classical meridian points (TCM acupuncture) or soft-tissue trigger points (other dry needling modalities).

### **Placebo**

A placebo is a comparator group in a clinical trial, most commonly for testing the benefits and harms of a medicine. Research participants who are randomized to a placebo group receive an inactive treatment (e.g. a pill that has no therapeutic value), while the other group receives the active treatment.

### **Psychological interventions**

Psychological interventions considered for the guideline comprised five interventions: operant, respondent, cognitive, cognitive behavioural and mindfulness-based stress reduction therapies. Three interventions (operant, respondent and cognitive therapies) aligned with an earlier Cochrane review of behavioural treatments for LBP (4). Each of these interventions focuses on modifying one of the three response systems which characterize emotional experiences: behaviour, physiological reactivity and cognition, respectively. However, there is an acceptance that psychological interventions are complex and multifaceted and that treatment for chronic pain may not be appropriately bound by this classification (5). These three interventions are therefore often applied in a combined treatment approach, commonly referred to as cognitive behavioural therapy (CBT). Acceptance and commitment therapy, an extension of CBT, was not considered for the guideline. Mindfulness-based stress reduction was also considered as an intervention for the guideline. This intervention aims to reduce pain through improved tolerance/acceptance of body sensations. Further definition of each intervention is provided below:

- **Operant therapy** aims to replace pain-related behaviours with helpful, healthy behaviours (e.g. exercise, work). Time-contingent exercises (i.e. quotas) and encouraging people to increase their activity levels are its main principles. This type of therapy is aligned with behavioural activation therapy.
- **Respondent therapy** aims to modify the physiological response system to pain by reducing muscular tension through biofeedback, progressive relaxation and applied relaxation. This type of therapy is aligned with relaxation therapy.
- **Cognitive therapy** aims to identify and modify cognition regarding pain and disability. It is proposed that beliefs about the meaning of pain and expectations regarding control over

pain can be directly modified using cognitive restructuring techniques such as imagery and attention diversion.

- **Cognitive behavioural therapy (CBT)** is based on a multidimensional model of pain and focuses on reducing pain and distress by modifying physical sensation, catastrophic thinking and unhelpful behaviour(s). Treatment may include education about a multidimensional view of pain, identifying pain-eliciting and pain-aggravating situations, thoughts and behaviours, and using coping strategies and applied relaxation; in sum, integrating components of operant, respondent and cognitive therapies. Goal-setting and activity increases are encouraged as the basis of CBT to reduce feelings of helplessness and help the person gain control over their pain experience.
- **Mindfulness-based stress reduction (MBSR)** therapy aims to reduce stress by developing mindfulness: a non-judgemental, moment-by-moment acceptance of awareness. The intervention is free of any cultural, religious and ideological factors, but it is associated with the Buddhist origins of mindfulness.

### **Spinal manipulative therapy**

Spinal manipulative therapy is considered any “hands-on” treatment that involves movement of the spinal joints. Mobilization uses low-grade velocity (relative to manipulation) and small or large amplitude passive movement techniques within the person’s spinal joint range of motion and control, while manipulation uses a high-velocity impulse or thrust applied to a synovial joint over a short amplitude.

### **Sham**

A sham is a comparator group in a clinical trial. Research participants who are randomized to a sham group receive a treatment/intervention that is designed to mimic as closely as possible the intervention being studied, without receiving the actual intervention. For example, in sham ultrasound, the machine’s capacity to deliver an ultrasonic wave may be disabled.

### **Standardized mean difference**

A summary statistic in meta-analyses when a variety of studies all assess the same outcome but measure it in different ways: results have to be standardized to a uniform scale before being amalgamated. The standardized mean difference (SMD) therefore expresses the size of any intervention effect in a study relative to the observed variability.

### **Structured and standardized education and/or advice**

“Education and/or advice” aims to improve the understanding of the pain experience for a person with CPLBP and guide their self-management and well-being. Evidence reviewed for the guideline included “structured and standardized education and/or advice”, defined as the provision of structured and standardized information delivered by health workers(s) to a person with CPLBP. This is distinct and separate from education and/or advice provided by a health worker to a person with CPLBP as part of a clinical encounter. Structured and standardized advice may not be tailored or personalized. Among the trials identified to inform the guideline, this intervention was delivered by health practitioners.

### **Structured exercise therapies or programmes**

Exercise is a subcategory of physical activity that is planned, structured, repetitive and purposeful in the sense that improvement or maintenance of one or more components of physical fitness is its objective. Structured exercise therapies or programmes are prescribed or planned by health workers, often delivered with instruction and supervision and may be standardized or individualized. These therapies are broadly defined as “a series of specific movements with the aim of training or developing physical capacity (e.g. muscle and joint strength and function, range of motion or aerobic capacity) by repetition or as physical training to promote good physical health” with the goal of reducing pain and functional limitations (6). They include adopting postures, movements or activities, or a combination (e.g. strengthening, stretching, aerobic exercise) of varying duration, frequency and intensity. Exercise modalities considered for the guideline included: aerobic exercise; muscle strength training; stretching, flexibility or mobilizing exercises; Yoga; core strengthening; motor control exercise; functional restoration exercise; Pilates; Tai Chi; Qigong; aquatic/hydrotherapy; and mixed exercise therapies (i.e. two or more types of exercise in which one did not clearly predominate). Among the trials identified to inform the guideline, this intervention was delivered by health practitioners.

### **Therapeutic ultrasound**

Therapeutic ultrasound is an electrophysical treatment modality postulated to deliver sonic energy to deep tissue sites through ultrasonic waves, to increase tissue temperature and create non-thermal physiological changes, which are purported to improve symptoms and promote or accelerate tissue healing.

### **Traction**

Traction is the application of a distraction force along the long axis of the spine, and is achieved using body weight, external weights or pulleys. It may be mechanical or motorized, manual, self-operated (auto-traction), underwater, gravitational or inverted, delivered intermittently or continuously, and applied for a few seconds to several hours.

### **Transcutaneous electrical nerve stimulation (TENS)**

TENS is a non-invasive electrical stimulation modality applied to the skin using surface electrodes which generate a low-voltage electrical current to modify the perception of pain.





# Executive summary

## Introduction

Low back pain (LBP) is a very common condition experienced by most people across their life course. In 2020, approximately one in 13 people globally experienced LBP, equating to an estimated 619 million people; this represents a 60% increase in cases since 1990. Within this same period, absolute global disability estimates attributed to LBP have increased by about the same amount, being largely ascribed to population growth and ageing, with the largest increases observed in low- and middle-income countries. LBP is currently the leading cause of disability globally across all ages and in both sexes, while prevalence and disability estimates are consistently higher in females and older people. Among health conditions that may benefit from rehabilitation, LBP is the condition which represents the greatest number of people for whom benefits may be experienced. For these reasons, among others, LBP is an important global public health issue.

The prevalence, health burden and economic cost associated with LBP care and participation restriction continue to rise, care variation and critical knowledge and skills gaps among health workers persist, and delivery of care that is not evidence-based remains commonplace. No guideline has been produced that considers management of chronic LBP in adults, and in particular for older people, from a global public health perspective that takes into account universal health coverage (UHC) and the different levels of economic development across countries. The present guideline fills this gap, supports other activities undertaken by WHO in improving outcomes for adults with LBP and

supports the WHO Integrated care for older people (ICOPE) approach in primary care – one of the action areas of the UN Decade of Healthy Ageing (2021–2030).

Most people who experience an episode of acute LBP experience time-limited, low-to-moderate levels of disability and a favourable clinical course. Often, the experience of LBP is recurrent, and acute episodes become more frequent in older age. In some people, concurrent spine-related leg pain may also be experienced. There is a group of people who experience persisting symptoms beyond three months, which is defined as chronic LBP. Chronic LBP is often associated with a reduced ability to participate in family, social and work roles, and incurs major costs to families, communities and health systems. People who experience chronic LBP, particularly older people, are more likely to experience poverty, prematurely exit the workforce and accumulate less retirement wealth. In all settings, disabling LBP and early retirement owing to chronic symptoms are more common among people with lower socioeconomic status, thus contributing to poverty and inequity. Optimizing the clinical management of people with chronic LBP is therefore a current priority for Member States.

Among older people, an experience of LBP is common and often gives rise to loss of physical and mental capacities (i.e. intrinsic capacity). For many older people, LBP is particularly burdensome because it restricts mobility and thus the ability to participate in society, thereby leading to psychosocial impacts. It is also associated with significant comorbidities



and higher mortality, and is strongly related to a decrease in health-related quality of life, particularly when spine-related leg pain is also present. Concurrent musculoskeletal pain, loss of mobility, frailty, falls, urinary incontinence and poor sleep are important adverse health outcomes associated with chronic LBP in older people.

### **Purpose, scope and target audience**

The purpose of the guideline is to provide evidence-based recommendations on non-surgical interventions for chronic primary LBP (CPLBP) in adults, including older people, that can be delivered in primary and community care settings to improve CPLBP-related health and well-being outcomes. For this reason, the guideline does not consider interventions typically delivered in secondary or tertiary care settings (e.g. surgical or other invasive procedures) or workplace interventions.

The target audience is health workers of all disciplines working in the primary and community care settings. In this context, the guideline is intended to be discipline neutral. The guidelines will be of use to clinical staff including medical doctors, nurses, allied health workers including chiropractors, occupational therapists, physiotherapists, pharmacists, psychologists and community health workers, as well as public health programme and system managers.

### **Chronic primary low back pain (CPLBP)**

A persistent or recurrent pain experience of more than three months that is not reliably attributed to an underlying disease process or structural lesion.

Five classes of interventions for the management of CPLBP in adults were considered for the guideline: A) standardized and structured education; B) physical interventions; C) psychological interventions; D) medicines; and E) multicomponent interventions.

**The guideline addresses the following overarching question:**  
 “What are the health and well-being benefits and harms of non-surgical interventions in the management of chronic primary low back pain, with or without spine-related leg pain, in community-dwelling adults in primary or community care settings, including older people (60 years and older), compared with placebo, no intervention or usual care?”

The guideline does not consider surgical interventions, invasive intraspinal interventions or workplace interventions for people with CPLBP, primary prevention interventions for LBP, management of acute LBP or interventions for chronic secondary LBP.

### **Guideline development methods**

The guideline was developed in accordance with the process described in the [WHO handbook for guideline development](#) (7). The development process was coordinated by the Ageing and Health Unit, with methods advice provided by an independent guidelines methodologist and governance oversight provided by the internal WHO Steering Group and WHO Guideline Review Committee. The external Guideline Development Group (GDG) was responsible for refining the scope of the guideline and defining the population,

priority interventions for systematic evidence reviews, comparators and critical outcomes. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach was used to appraise the certainty of the quantitative evidence for benefits and harms of each prioritized intervention. An evidence synthesis of qualitative studies examining the values and preferences for, and acceptability and feasibility of, the interventions and their outcomes from the perspective of older people was commissioned to support the GDG in formulating recommendations. Confidence in qualitative evidence synthesis findings was appraised using the GRADE-CERQual method. The GDG participated in three meetings to review and interpret evidence and formulate recommendations. The GDG formulated recommendations for each intervention based on the GRADE Evidence-to-Decision (EtD) approach for public health interventions. The independent methodologist guided the GDG in interpreting the evidence of benefits and harms, understanding GRADE certainty-of-evidence assessments and translating evidence into recommendations. This included assessment of the effects (balance of benefits and harms) of interventions on outcomes for people with CPLBP, and consideration of other EtD domains: the values and preferences of people with CPLBP and their families and health workers relating to the interventions and their outcomes, as well as the acceptability and feasibility of the interventions, resources required and equity. The GDG was responsible for determining the worthwhile benefit and risk of harm for an intervention based on effect-size estimates from the systematic reviews and other factors related to the delivery and accessibility of an intervention.

In general, conditional recommendations were made when overall certainty was low or very low, and/or when the judgements in other domains indicated variability or uncertainty. Conditional recommendations in favour suggest the intervention is recommended in most situations, but will not be suitable for everyone and, therefore, shared decision-making and considering appropriateness in certain populations or settings will be required. Conditional recommendations against use suggest the intervention is not recommended in most circumstances, since the harms (or other negative consequences beyond adverse health outcomes) probably outweigh the benefits. A good practice statement reflects a body of indirect evidence that is difficult to summarize and indicates that the desirable consequences of the intervention far outweigh its undesirable consequences and, as such, the intervention is recommended. For each intervention, WHO provides a recommendation other than in circumstances where no evidence was available, where the evidence was too limited to make a judgement, or where the balance between benefits and harms was so equivocal that a judgement could not be made with confidence.

### **Recommendations**









The guideline considers 37 interventions across five intervention classes. There are 24 recommendations, one good practice statement and 12 interventions for which no recommendation was made (*Table 1*). Each recommendation is relevant to community-dwelling adults experiencing CPLBP, with or without spine-related leg pain. While the population definition allowed for the inclusion of comorbid spine-related leg pain, the GDG was not able to confidently interpret the effects of interventions in






subpopulations with and without spine-related leg pain, since classification systems varied across trials and some trials did not report on spine-related leg pain prevalence. Where the included trials report outcomes separately for older people or included older people (adults aged 60 years and over) in their mean age range, or where evidence (direct or indirect) of harms is also relevant to older people, the recommendations also refer to older people. The GDG provided supporting commentaries for its recommendations. These remarks or key considerations are intended to contextualize the recommendations and provide additional guidance for implementation into practice. The GDG foregrounded its recommendations around four Guiding principles: i) holistic and person-centred care; ii) equity; iii) care that is non-stigmatizing and non-discriminatory; and iv) integrated and coordinated care. Clinical practice considerations have also been formulated to support interpretation and translation of the recommendations into practice, service delivery and policy. These broadly include: i) arranging clinical assessment and timely referral, where indicated; ii) providing personalized information and advice; iii) delivering interventions that address the range of factors contributing to a person's CPLBP experience; and iv) selecting and sequencing interventions according to the needs and preferences of the person with CPLBP. For medicines, the GDG foregrounded its recommendations with supporting commentaries around safe medication practices applicable to all medicines, with additional attention to opioid analgesics.

Twelve “no recommendations” were made. The balance between benefits and harms for three psychological interventions and non-pharmacological weight loss were

so equivocal that a recommendation could not be made. The GDG judged that there was insufficient evidence to make a recommendation for five herbal medicines, while no evidence was available concerning the therapeutic use of three medicines to allow recommendations for these products to be formulated: paracetamol (acetaminophen), benzodiazepines and cannabis-related pharmaceutical preparations. Nonetheless, the GDG considered it important to provide guidance on the use of these three products in particular, given their use in Clinical practice (*see Box 1*).

**Table 1:** WHO recommendations for non-surgical management of CPLBP in adults in primary and community care settings.

Intervention by class	Recommendation (strength, direction and certainty of the evidence)
<b>A: EDUCATION</b>	
A.1 Structured and standardized education and/or advice	 Structured and standardized education and/or advice interventions may be offered as part of care to adults, including older people, with CPLBP. <i>(conditional recommendation in favour of use, very low certainty evidence)</i>
<b>B: PHYSICAL INTERVENTIONS</b>	
B.1 Structured exercise therapies or programmes	 A structured exercise therapy or programme may be offered as part of care to adults, including older people, with CPLBP. <i>(conditional recommendation in favour of use, low certainty evidence)</i>
B.2 Needling therapies (traditional Chinese medicine acupuncture and other dry needling modalities)	 Needling therapies such as acupuncture may be offered as part of care to adults, including older people, with CPLBP. <i>(conditional recommendation in favour of use, low certainty evidence)</i>
B.3 Spinal manipulative therapy	 Spinal manipulative therapy may be offered as part of care to adults, including older people, with CPLBP. <i>(conditional recommendation in favour of use, very low certainty evidence)</i>
B.4 Massage	 Massage may be offered as part of care to adults, including older people, with CPLBP. <i>(conditional recommendation in favour of use, very low certainty evidence)</i>
B.5 Traction	 Traction should not be used as part of routine care for adults, including older people, with CPLBP. <i>(conditional recommendation against use, very low certainty evidence)</i>
B.6 Therapeutic ultrasound	 Therapeutic ultrasound should not be used as part of routine care for adults, including older people, with CPLBP. <i>(conditional recommendation against use, low certainty evidence)</i>
B.7 Transcutaneous electrical nerve stimulation (TENS)	 Transcutaneous electrical nerve stimulation (TENS) should not be used as part of routine care for adults, including older people, with CPLBP. <i>(conditional recommendation against use, very low certainty evidence)</i>

Map of interventions, by class, with colour-coding representing recommendations formulated by the GDG. **Green**  indicates a conditional recommendation in favour of use of the intervention; **red**  indicates a conditional recommendation against the use of the intervention; **amber**  indicates a good practice statement; **grey**  indicates that no recommendation was made for the intervention; and **white**  indicates that no, or inadequate, evidence was identified for the intervention and hence no EtD process could be undertaken or recommendation formulated.

## B.8 Assistive products

- B.8.1 Lumbar braces, belts and/or supports**  Lumbar braces, belts and/or supports should not be used as part of routine care for adults, including older people, with CPLBP. *(conditional recommendation against use, very low certainty evidence)*
- B.8.2 Mobility assistive products**  Quality, affordable mobility assistive products should be offered to adults, including older people, with CPLBP, based on a person-centred assessment. *(good practice statement in favour of use)*

## C: PSYCHOLOGICAL INTERVENTIONS

- C.1 Operant therapy**  Operant therapy may be offered as part of care to adults, including older people, with CPLBP. *(conditional recommendation in favour of use, very low certainty evidence)*
- C.2 Respondent therapy**  The balance between the benefits and harms for respondent therapy in managing CPLBP in adults, including older people, is so equivocal that a recommendation cannot be made. *(no recommendation, very low certainty evidence)*
- C.3 Cognitive therapy**  The balance between the benefits and harms for cognitive therapy in managing CPLBP in adults, including older people, is so equivocal that a recommendation cannot be made. *(no recommendation, very low certainty evidence)*
- C.4 Cognitive behavioural therapy (CBT)**  Cognitive behavioural therapy (CBT) may be offered as part of care to adults, including older people, with CPLBP. *(conditional recommendation in favour of use, very low certainty evidence)*
- C.5 Mindfulness-based stress reduction therapy**  The balance between the benefits and harms for mindfulness-based stress reduction therapy in managing CPLBP in adults, including older people, is so equivocal that a recommendation cannot be made. *(no recommendation, low certainty evidence)*

## D: MEDICINES

### D.1 Systemic pharmacotherapies

- D.1.1 Opioid analgesics**  Opioid analgesics should not be used as part of routine care for adults, including older people, with CPLBP. *(conditional recommendation against use, moderate certainty evidence)*
- D.1.2 Non-steroidal anti-inflammatory drugs (NSAIDs)**  NSAIDs may be offered as part of care to adults with CPLBP. *(conditional recommendation in favour of use, moderate certainty evidence)*
- D.1.3 Serotonin and noradrenaline reuptake inhibitor (SNRI) antidepressants**  SNRI antidepressants should not be used as part of routine care for adults, including older people, with CPLBP. *(conditional recommendation against use, low certainty evidence)*

**D.1.4 Tricyclic antidepressants** ○ Tricyclic antidepressants should not be used as part of routine care for adults, including older people, with CPLBP. *(conditional recommendation against use, very low certainty evidence)*

**D.1.5 Anticonvulsants** ○ Anticonvulsants should not be used as part of routine care for adults, including older people, with CPLBP. *(conditional recommendation against use, very low certainty evidence)*

**D.1.6 Skeletal muscle relaxants** ○ Skeletal muscle relaxants should not be used as part of routine care for adults, including older people, with CPLBP. *(conditional recommendation against use, very low certainty evidence)*

**D.1.7 Glucocorticoids** ○ Glucocorticoids should not be used as part of routine care for adults, including older people, with CPLBP. *(conditional recommendation against use, very low certainty evidence)*

**D.1.8 Paracetamol (acetaminophen)** ○ No recommendation. There were no trials identified that evaluated the benefits or harms of paracetamol (acetaminophen) in the management of CPLBP in adults. *(no recommendation, refer to Box 1: Key considerations)*

**D.1.9 Benzodiazepines** ○ No recommendation. There were no trials identified that evaluated the benefits or harms of benzodiazepines in the management of CPLBP in adults. *(no recommendation, refer to Box 1: Key considerations)*

**D.2 Cannabis-related pharmaceutical preparations for therapeutic use** ○ No recommendation. There were no trials identified that evaluated the benefits or harms of cannabis-related pharmaceutical preparations for therapeutic use in the management of CPLBP in adults. *(no recommendation, refer to Box 1: Key considerations)*

**D.3 Injectable local anaesthetics** ○ Injectable local anaesthetics should not be used as part of routine care for adults, including older people, with CPLBP. *(conditional recommendation against use, very low certainty evidence)*

## D.4 Herbal medicines

**D.4.1 Topical Cayenne pepper (*Capsicum frutescens*)** ○ Topical Cayenne pepper (*Capsicum frutescens*) may be offered as part of care to adults with CPLBP, including older people. *(conditional recommendation in favour of use, low certainty evidence)*

**D.4.2 Devil's claw (*Harpagophytum procumbens*)** ○ Devil's claw (*Harpagophytum procumbens*) should not be used as part of routine care for adults, including older people, with CPLBP. *(conditional recommendation against use, very low certainty evidence)*

- D.4.3 White willow**  
(*Salix spp.*)
- White willow (*Salix spp.*) should not be used as part of routine care for adults, including older people, with CPLBP.  
(*conditional recommendation against use, low certainty evidence*)
- D.4.4 Topical Brazilian arnica**  
(*Solidago chilensis*)
- No recommendation. The evidence regarding the benefits and harms of topical Brazilian arnica (*Solidago chilensis*) in managing CPLBP in adults is insufficient to formulate a recommendation.  
(*no recommendation, very low certainty evidence*)
- D.4.5 Ginger**  
(*Zingiber officinale* Roscoe)
- No recommendation. The evidence regarding the benefits and harms of Ginger (*Zingiber officinale* Roscoe) in managing CPLBP in adults is insufficient to formulate a recommendation.  
(*no recommendation, very low certainty evidence*)
- D.4.6 Topical white lily**  
(*Lilium candidum*)
- No recommendation. The evidence regarding the benefits and harms of topical white lily (*Lilium candidum*) in managing CPLBP in adults is insufficient to formulate a recommendation.  
(*no recommendation, very low certainty evidence*)
- D.4.7 Topical combination herbal compress**<sup>a</sup>
- No recommendation. The evidence regarding the benefits and harms of a topical combination herbal compress in managing CPLBP in adults is insufficient to formulate a recommendation.  
(*no recommendation, very low certainty evidence*)
- D.4.8 Topical combination herbal transdermal diffusional patch**<sup>b</sup>
- No recommendation. The evidence regarding the benefits and harms of a topical combination herbal transdermal patch in managing CPLBP in adults is insufficient to formulate a recommendation.  
(*no recommendation, very low certainty evidence*)

## E: MULTICOMPONENT INTERVENTIONS

- E.1.1 Weight management: pharmacological weight loss**
- Pharmacological weight loss should not be used as part of routine care for adults, including older people, with CPLBP.  
(*conditional recommendation against use, very low certainty evidence*)
- E.1.2 Weight management: non-pharmacological weight loss**
- No recommendation: The balance between the benefits and harms for non-pharmacological weight loss in managing CPLBP in adults, including older people, is so equivocal that a recommendation cannot be made.  
(*no recommendation, very low certainty evidence*)
- E.2 Multicomponent biopsychosocial care**
- Multicomponent biopsychosocial care delivered by a multidisciplinary team may be offered as part of care for adults, including older people, with CPLBP.  
(*conditional recommendation in favour of use, low certainty evidence*)

<sup>a</sup> *Zingiber cassumunar* Roxb. rhizomes, *Curcuma longa* L. rhizomes, *Cymbopogon citratus* (DC.), *Stapf* leaves and leaf sheaths, *Croton roxburghii* N.P.Balakar. leaves, *Tamarindus indica* L. leaves, *Citrus hystrix* DC. peels, *Blumea balsamifera* (L.) DC. leaves, *Vitex trifolia* L. leaves and camphor.

<sup>b</sup> *Oleum thymi*, *Oleum limonis*, *Oleum nigra*, *Oleum rosmarini*, *Oleum chamomilla* and *Oleum lauri* expressum.



**Box 1:****Key considerations for paracetamol (acetaminophen), benzodiazepines and cannabis-related pharmaceutical preparations for therapeutic use.**

**Paracetamol (acetaminophen)** is associated with potential cardiovascular, renal and gastrointestinal harms and increased mortality risk, particularly in older people with hepatic or renal impairment. Although paracetamol is commonly used as a first-line analgesic medicine, available evidence for its use in acute LBP suggests it is not superior to placebo in reducing pain, and there is no biological reason why a different effect would be observed in CPLBP.

**Benzodiazepines** are associated with potential harms including memory impairment, misuse, overdose deaths from respiratory depression, somnolence, fatigue and light-headedness potentially leading to falls. Other complications of long-term use of benzodiazepines include development of tolerance, dependence and withdrawal syndrome particularly after abrupt cessation, which can be life-threatening. The unknown efficacy of benzodiazepines in CPLBP and risk of harms suggests benzodiazepines would not be an appropriate first-line medicine choice for CPLBP.

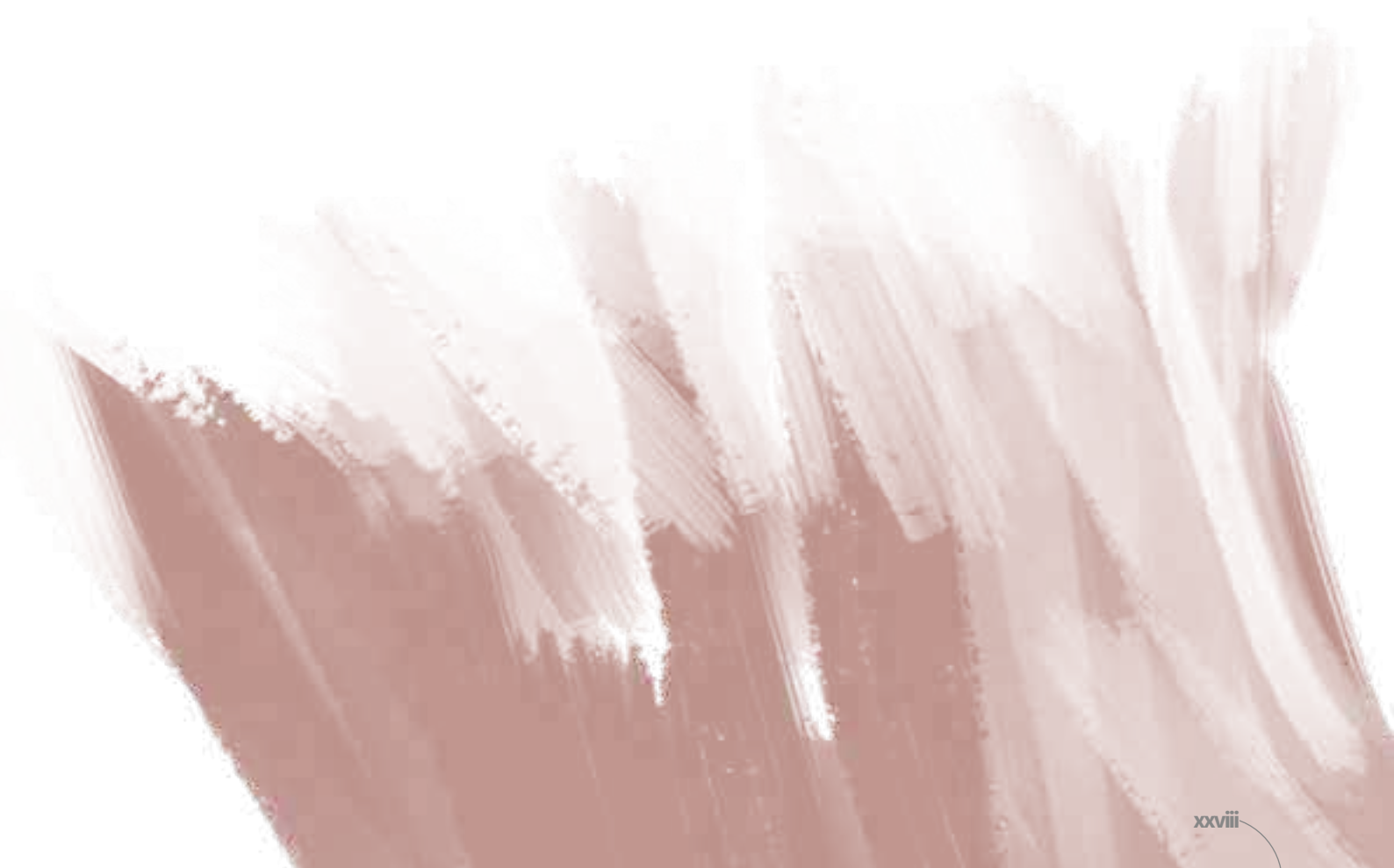
**Cannabis-related pharmaceutical preparations for therapeutic use** are not likely to be an appropriate first-line medicine for the management of CPLBP due to a lack of direct evidence of benefit in this condition and evidence of possible adverse events, including harms associated with its non-medicinal use.

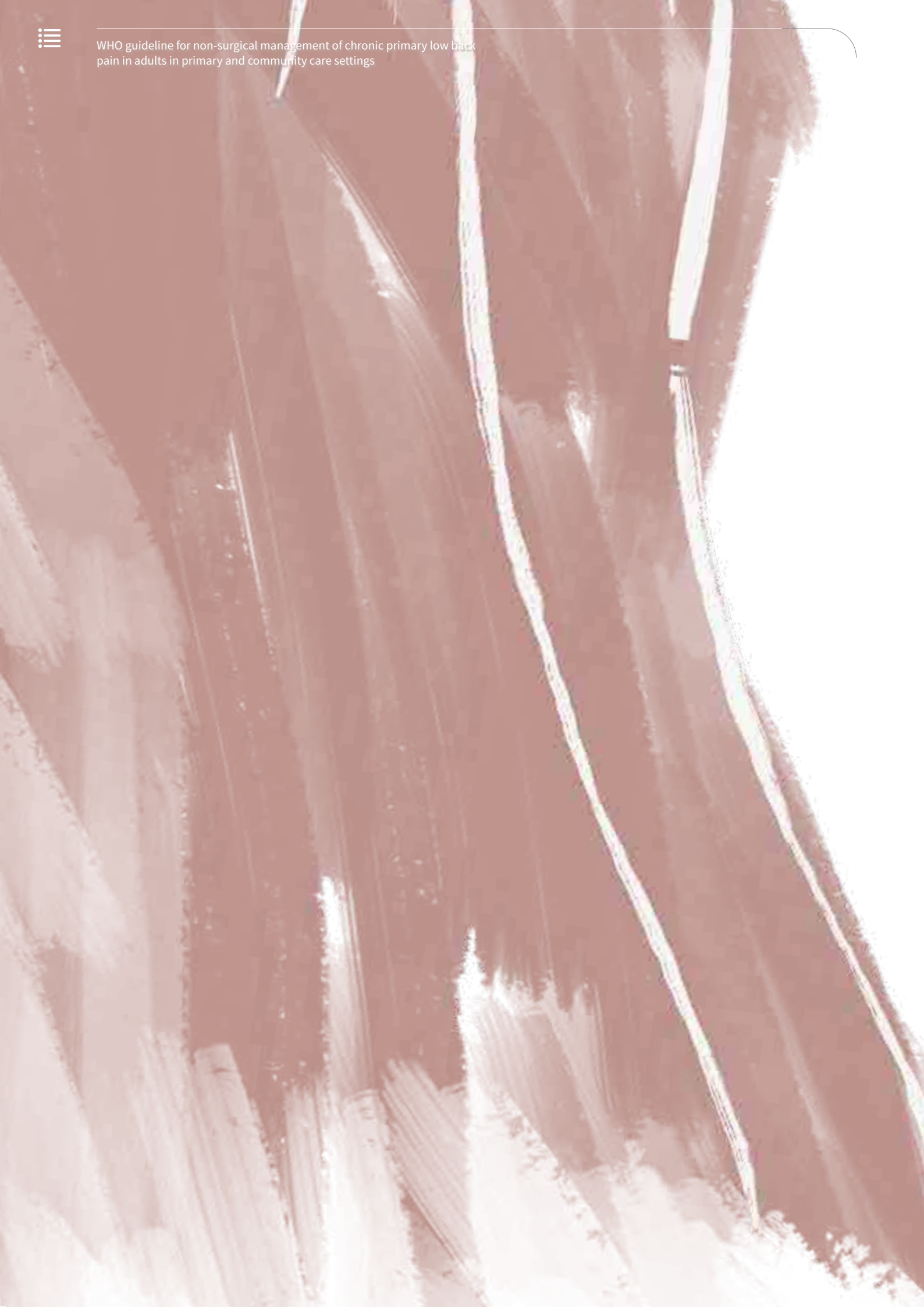
## Interpreting recommendations and their implementation

The recommended interventions are intended to be implemented by countries as a suite of likely effective intervention options to support adults with CPLBP. Given the multifactorial and complex aetiology of CPLBP, a single intervention in isolation may be inadequate to confer benefit, thereby rationalizing the need to provide a suite of effective intervention options from

which health workers can select, tailor and sequence according to the unique needs, preferences and circumstances of individuals, guided by a biopsychosocial perspective and the context of the local health system. For those interventions with conditional against recommendation, discontinuation of routine delivery is recommended in most situations.







# 1

## Introduction

### 1.1 Background

#### **Low back pain in the context of global public health and universal health coverage.**

Low back pain (LBP) is a very common condition experienced by most people at some point in their lifetime (8). The experience of LBP may occur at any point across the life course from childhood to older age (9).

In 2020, an estimated one in 13 people globally experienced LBP (age-standardized point prevalence of 7.5%). This equates to 619 million people, and represents an increase of 60% in cases compared with 1990 estimates (10). The Global Burden of Disease (GBD) study estimates suggest the prevalence rate per 100 000 for LBP increases from about age 15 years and peaks in older age at 85 years. Similarly, the rate of disability (years lived with disability (YLDs) per 100 000) is greatest in older age (80–84 years), highlighting the importance of clinical guidelines for older people. Prevalence and disability estimates are consistently higher in females. While the absolute number of cases and YLDs are greatest in middle age, growth in prevalent cases increased most dramatically in older people from 1990 to 2019: from 46.6 to 92.7 million for adults 70 years and older and from

13.9 to 33.1 million for adults aged 80 years and older. Most of the GBD health estimates for LBP are derived from studies examining chronic LBP.

#### **Low back pain is the leading cause of disability globally across all ages and in both sexes, representing 8% of all YLDs in 2020 (10).**

Similar patterns are observed in four of the six WHO regions (Eastern Mediterranean, Europe, Americas and Western Pacific), although there are limited primary data available for many low- and middle-income countries creating uncertainty in national- and regional level estimates (11). In the WHO regions of Africa and South-East Asia, LBP is ranked second and third for disability burden, respectively. Global disability estimates (YLDs) attributed to LBP increased by 59% from 1990 to 2020, being largely ascribed to population growth and ageing, with the largest increases observed

in low- and middle-income countries (10). The scale of LBP-related disability in low- and middle-income countries is also attributed to lower socioeconomic status and physically demanding occupations (12). Although prevalence data for LBP in these settings are sparse (11) and the experience of musculoskeletal pain varies greatly between cultures (13), synthesized available evidence points to a high prevalence across the life course and significant burden (12, 14). Current health estimates suggest LBP cases and the associated burden will increase globally in coming decades.

**By 2050, the total number of LBP cases is expected to increase by 36% to 843 million people, with the greatest increase expected in the continents of Africa and Asia, largely due to population growth and ageing (10).**

Prevalence, health burden and economic cost associated with LBP continue to rise, care variation and critical knowledge and skills gaps among health workers persist, and delivery of care that is not evidence-based remains commonplace (15, 16). While many national or regional clinical guidelines for chronic LBP have been developed, they have predominately been developed in high-income countries. No global guidelines

exist for the management of chronic LBP in adults. In particular, there is an absence of evidence-based recommendations for the management of chronic LBP in older people. The present guideline addresses chronic LBP as a global public health issue and aims to address this gap for chronic LBP experienced by older people. The guideline supports other activities undertaken by WHO in improving outcomes for adults with LBP and supports the WHO Integrated care for older people (ICOPE) approach – one of the action areas of the UN Decade of Healthy Ageing (2021–2030).

Universal health coverage (UHC) means that all individuals and communities receive the health services they need without suffering financial hardship. It includes the full spectrum of essential, quality health services and products – from health promotion to prevention, treatment, rehabilitation and palliative care across the life course. In consideration of the global health burden attributed to LBP, management of LBP is relevant to UHC. In order to attain UHC, health systems must be oriented towards a primary health care (PHC) approach, which is the most inclusive, equitable, cost-effective and efficient approach. In most settings, chronic primary LBP (CPLBP) is managed initially in primary and community care settings, hence the focus of the guideline on interventions relevant to precisely these settings. It entails improving access to effective and acceptable interventions for people with LBP in local health care settings while engaging and empowering individuals, families, households and communities towards increased social participation and enhanced self-care.



### **Definition of chronic primary low back pain**

Chronic primary low back pain (CPLBP) is defined as a persistent or recurrent pain experience of greater than three months that is not reliably attributed to an underlying disease process (e.g. an inflammatory auto-immune condition such as axial spondyloarthritis, malignancy, infection), structural lesion (e.g. fracture) or deformity. While the experience of pain is often associated with emotional distress and/or functional disability (1), minimum thresholds for distress and disability were not applied when developing the guideline. The ICD-11 classification of CPLBP falls under MG30.02 Chronic primary musculoskeletal pain.

Chronic primary low back pain accounts for the vast majority of chronic LBP presentations in primary care, commonly estimated to be at least 90% of cases (9, 17), due to the inability to reliably identify responsible nociceptive sources arising from body tissues or structures which might explain persistent or recurrent LBP experiences.

For these reasons, the guideline focuses on this classification group and does not consider specific LBP presentations (i.e. chronic secondary low back pain), which represent a minority in primary care practice (18). While effective interventions and pathways of care do exist for some chronic secondary LBP conditions, unwarranted care variation and evidence-practice gaps are largest for CPLBP (8, 9, 15).

Concurrent spine-related leg pain may also be experienced with CPLBP (19, 20), and trials

often sample mixed populations of adults with and without spine-related leg pain. Concurrent spine-related leg pain is usually associated with a higher level of symptom severity and disability (19, 21).

### **Consequences of chronic low back pain in adults**

Most people with an episode of acute LBP experience time-limited, low-to-moderate levels of disability and a favourable clinical course. Often, the experience of LBP is recurrent, with several episodes experienced across the life course (22-24), more frequently in older age (25). Evidence suggests a median 26% of people (range 2–48%) presenting with acute LBP in primary care go on to experience chronic LBP with associated disability at 3–6 months, and 21% (range 7–42%) at 12 months (26). Other data highlight that up to two thirds of people who experience an episode of acute LBP continue to experience symptoms that persist beyond 12 months, often in a fluctuating pattern (27, 28), while in older people persistence of symptoms is common (29). Importantly, people experiencing CPLBP and high levels of disability account for the majority of all disability and costs attributed to LBP (8), and the societal costs of chronic pain (of which chronic LBP is the major contributor) exceed those of cancer and diabetes combined (30).

In low- and middle-income countries, the experience of chronic LBP is 2.5 times more prevalent in working populations compared to non-working populations (31). Optimizing clinical management of people with CPLBP is therefore a current global public health priority.

The impacts of LBP are cross-sectoral and wide-ranging (8). Chronic LBP is often associated with significant disability,

reduced ability to participate in family, social and work roles, and incurs major costs to families, communities and health systems (e.g. up to US\$ 100 billion per annum when indirect costs are also considered) (32). People with chronic symptoms, particularly older people, are more likely to experience poverty, prematurely exit the workforce (33) and accumulate less retirement wealth (34). In both high-income and low- and middle-income countries, experiences of disabling LBP and early retirement because of chronic symptoms are more common among people of lower socioeconomic status, thus contributing to further poverty and social inequity (35-39). Despite people commonly seeking care for LBP and substantial healthcare spending, health outcomes have not improved over time (40, 41).

### **Low back pain and healthy ageing**

In older people, LBP is very common and the most common health problem that results in loss of intrinsic capacity (physical and mental capacities) (42); it is a common reason for care seeking (40).

## **Rapid population ageing, particularly in low- and middle-income countries, will increase the number of older people experiencing LBP.**

Compared to younger people, adults aged 60 years and over are more likely to experience disabling, persistent and recurrent episodes of LBP (43-45). In 2019, the point prevalence of LBP among older people ranged from 12.9 to 19.1% at age 60–64 to 20.4 to 25.3% at age

80–84 years across WHO regions (Institute for Health Metrics and Evaluation data source, powered by [WHO Maternal, newborn, child and adolescent health and ageing data portal](#)). For many older people, LBP is particularly burdensome because it restricts mobility and thus the ability to be active and participate in society (27), thereby leading to possible psychosocial impacts (46-48). LBP in older people is associated with comorbidities and higher mortality when compared with older people who do not report LBP (42, 49-53). LBP in older people is strongly related to a decrease in health-related quality of life, particularly when spine-related leg pain is also experienced (54). In particular, concurrent musculoskeletal pain, loss of mobility, falls, urinary incontinence and poor sleep are important adverse health outcomes associated with LBP in older people (20, 55, 56), and a bidirectional relationship has been established between chronic musculoskeletal pain and frailty in older people (57). The [WHO integrated care for older people \(ICOPE\)](#) approach highlights the importance of timely management of musculoskeletal pain to improve locomotor capacity and other domains of intrinsic capacity (58), as a part of a personalized assessment and care plan.

Evidence-based clinical guidelines for management of LBP are based on research, performed almost exclusively on younger and middle-aged adults. There are no guidelines specifically providing recommendations for management of LBP in older age (>60 years) (59, 60). Given the high prevalence of CPLBP in older people, consequent function and participation restrictions and the need for personalized care in some contexts, especially for medicines, there is a need for evidence-based, multidisciplinary guidelines for the management of CPLBP in adults which explicitly consider older people.

Recent guidance points to the importance of considering pharmacological and non-pharmacological interventions for older people, consistent with their care experiences, values and preferences (48).

## 1.2 Purpose, scope and target audience

The purpose of the guideline is to provide evidence-based recommendations on non-surgical interventions for CPLBP in adults, including older people, that can be delivered in primary and community care settings to improve CPLBP-related health and well-being outcomes. For this reason, the guideline does not consider interventions typically delivered in secondary or tertiary care settings (e.g. surgical or other invasive procedures) or workplace interventions.

The target audience is health workers of all disciplines working in the primary or community care settings. In this context, the guideline is intended to be discipline neutral. The guidelines will be of use to clinical staff including medical doctors, nurses, allied health workers including chiropractors, occupational therapists, physiotherapists, pharmacists, psychologists and community health workers, as well as public health programme and system managers.

The guideline aims to improve the health and well-being of people with CPLBP by recommending interventions to be delivered in a person-centred and integrated manner. It also aims to support Member States and relevant stakeholders to make evidence-informed decisions on the appropriate use of health care resources for adults with CPLBP including older people aged 60 years and over (where evidence is available). Five

intervention classes are prioritized in the guideline: A) structured and standardized education and/or advice; B) physical interventions; C) psychological interventions; D) medicines; and E) multicomponent interventions. While the guideline does not cover assessment and diagnosis, established diagnostic and risk criteria determined through clinical assessment may be used to escalate care and refer beyond primary care, as appropriate (61). Furthermore, the guideline does not consider interventions for primary prevention or interventions for the management of acute LBP or chronic secondary LBP.

### **The guideline addresses the following overarching question:**

**“What are the health and well-being benefits and harms of non-surgical interventions in the management of chronic primary low back pain, with or without spine-related leg pain, in community-dwelling adults in primary or community care settings, including older people (60 years and older), compared with placebo, no intervention or usual care?”**

## 1.3 Integration with other WHO initiatives

The guideline is intended to inform clinical management and, consequently, the implementation of evidence-based interventions relevant to countries. It provides support for implementation of the WHO Integrated Care for Older People

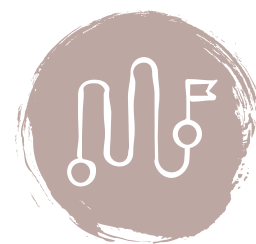


(ICOPE) approach, one of the action areas for the UN Decade of Healthy Ageing (2021–2030), as well as for realization of UHC. The delivery of these services requires adequate and competent multidisciplinary health workers with optimal skills at primary care, outreach and community levels, and who are equitably distributed, adequately supported and enjoy decent work conditions. The guideline supports capacity-building among health workers. It will be an important adjunct to the WHO package of interventions for rehabilitation for low back pain (62), a resource to integrate rehabilitation interventions in all service delivery platforms.



# 2

## Methods



The guideline was developed in accordance with the process described in the [WHO handbook for guideline development \(7\)](#).

### 2.1. Contributors to guideline development

The groups involved in the development of the guideline are described below.

#### 2.1.1. WHO Steering Group

In the first stage of development in 2020, the Technical Unit established an internal WHO Steering Group. The role of the Steering Group was to provide administrative, procedural and technical oversight throughout development. Steering Group members were selected from various WHO Technical Units (Access to Medicines and Health Products; Health Products Policy and Standards; Demographic Change and Healthy Ageing; Integrated Health Services; Mental Health and Substance Use; Gender, Equity and Human Rights; Health Promotion; Sensory Functions, Disability and Rehabilitation; Quality Health Services; and Traditional, Complementary and Integrative Medicine) at WHO headquarters, based on the relevance of the work. Departmental directors were asked to nominate a representative for the Steering Group while WHO staff working in regional offices with an ageing portfolio were also invited.

Initially, the Steering Group considered the scope and key questions for the guideline

and how it could optimally support the expressed needs of Member States. The Steering Group supported the development of a guideline proposal for the WHO Guideline Review Committee (April 2021). Subsequently, the Steering Group oversaw the selection and approval of members of the Guideline Development Group (GDG) and External Review Group (ERG) and participated in the first meeting of the GDG (June 2021). After the initial GDG meeting, the Steering Group oversaw the selection of suppliers for evidence syntheses and observed the second meeting of the GDG (September 2022) where evidence syntheses were interpreted, and recommendations proposed. Finally, the Steering Group reviewed and approved the draft guideline.

#### 2.1.2. Guideline Development Group (GDG)

The 25-member GDG consisted of multidisciplinary clinical experts and experts in the following fields: gender,

healthy equity and human rights; guideline methods; epidemiology; ageing; traditional, complementary and integrative (TCI) medicine; as well as a person with chronic LBP. *Web Annex A* summarizes the processes used to select and appoint GDG members and provides additional details of GDG membership profiles, including regional representation, clinical disciplines (where relevant) and expertise.

The GDG participated in four virtual series of meetings. The first meeting, held over three days (June 2021), aimed to reach consensus on scope, population, priority questions (interventions for evidence reviews, including comparators) and critical outcomes. The selection of critical outcomes was considered in the context of what people with CPLBP value as the most important outcomes from interventions. In the second (September 2022) and third (December 2022) meeting series, the GDG examined and interpreted evidence and participated in a consensus-based approach to propose recommendations for the guideline. These initial three meetings were facilitated by an independent methodologist and co-chaired by two GDG members. The WHO Technical Unit supported the meetings and presented across the sessions. The GDG convened for a fourth meeting series in March 2023 to review the draft recommendations that had been proposed in the previous two meeting series. The purpose of the fourth meeting was to ensure consistency in judgements and application of decision criteria across the recommendations and to propose revisions for consensus decisions, where appropriate. The GDG reviewed and approved the final guideline document and its recommendations.

### 2.1.3. External Review Group (ERG)

The ERG comprised 14 members, representing a diverse mix of clinical disciplines, technical skills and a person with chronic LBP. In particular, ERG members were appointed where they could complement the skills and knowledge of GDG members and fill any gaps in discipline representation on the GDG. *Web Annex A* summarizes the processes used to select and appoint ERG members and provides additional details of ERG membership profiles, including regional representation, clinical disciplines (where relevant) and expertise.

### 2.1.4 Guideline methodologist

An independent guideline methodologist was appointed to support the Technical Unit, Steering Group and GDG in the recommendation development process. This role included facilitation at the first three GDG meeting series, specifically guiding the GDG to define each PICO in the first meeting and the formulation of proposed recommendations in the second and third GDG meeting series using GRADE and Evidence-to-Decision (EtD) framework processes (63, 64).

### 2.1.5 Systematic review teams

Seven review teams were commissioned to undertake systematic reviews of benefits and harms of the prioritized interventions, either performing a new review or by updating an existing Cochrane review or non-Cochrane review (appraised by the Technical Unit as high or moderate quality using the AMSTAR-2 tool (65)) published between 2011-2021. Another team was commissioned to perform a qualitative evidence synthesis concerning the acceptability of, and values and preferences for, interventions and care for chronic LBP among older people and/or their caregivers or family.

### 2.1.6 Observers

Global or regional organizations (clinical, professional and civil society) with an interest in the topic and governments that supported the guideline project were invited to nominate a representative to attend the second GDG meeting series as an observer. Fourteen observers attended the second GDG meeting series. Observers did not participate in any discussions (verbal or using the videoconference chat).

#### **Integrating lived experience expertise**

WHO recommends that perspectives of end-users of guidelines are genuinely integrated into the development its guidelines (7). For the guideline, a person with chronic LBP experience was included in both the GDG and the ERG. The GDG member was involved in the development of the guideline from inception, including formulating critical outcomes, prioritizing interventions for evidence review and actively participating in formulation of recommendations. The chairs of the GDG meetings ensured that the views of this person were sought at decision points. Among GDG members, 35% also identified as having experience of chronic LBP. An evidence synthesis of primary qualitative studies was commissioned to capture perspectives of older people with chronic LBP (see Section 2.4)

## 2.2. Declarations of interests by external contributors

WHO imposes clear processes and criteria to manage contributors to WHO products

including guidelines (7). All external contributors were required to complete a standard declaration of interest (DOI) and confidentiality undertaking (CU). Observers completed a CU only. The Technical Unit reviewed all DOI forms and curriculum vitae to determine whether any conflicts of interest existed. All findings from the DOI forms were managed in accordance with WHO DOI guidelines on a case-by-case basis. Some DOIs were managed with specific actions, including: 1) conditional participation of the individual in the guideline development process; 2) partial exclusion; or 3) total exclusion. A summary of the GDG and ERG DOIs and how conflicts of interest were managed is provided in Web Annex A. None of the other declared interests by GDG or ERG members were considered serious enough to pose any risk to the guideline development process or to reduce its credibility.

## 2.3. Identifying priority questions and outcomes

Following the draft priority questions by the WHO Steering Group, the GDG further discussed priority questions in the PICO format at its first meeting in June 2021. Facilitated discussions, real-time voting and out-of-session voting using online surveys were used to arrive at consensus decisions for the most important interventions for consideration in evidence reviews and critical outcomes for all adults and for older people. Prioritization of outcomes was undertaken using the methods recommended by WHO (7). In this process, GDG members ranked potential outcomes in terms of importance on a scale of 1 to 9 as recommended by GRADE (where 1–3 indicates the outcome was not important, 4–6 the outcome was important, and 7–9 the outcome was critical). Those outcomes with a median score of 7 or more were retained as critical. Final decisions arising from these iterative processes are outlined in Table 2.

**Table 2:** Overview of the guideline structure.

## Key Question

**What are the health and well-being benefits and harms of non-surgical interventions in the management of chronic primary low back pain, with or without spine-related leg pain, in community-dwelling adults in primary or community care settings, including older people (60 years and older), compared with placebo, no intervention or usual care?**

### Population

**Adults (aged 20 years and over\*) with chronic primary low back pain\*\* (> 12 weeks duration; experienced in the region between the 12th rib and gluteal fold) (66), with or without co-existing spine-related leg pain\*\*\*, experienced either continuously or intermittently. No limits were placed on gender, sex, severity of the CPLBP experience or comorbidities.**


\* Trials with mixed populations (children and adults) were considered if the data for adults (20 years and over) were presented separately, if the mean age was 20 years or older, or if at least 75% of the sample was 20 years or older. These criteria were intended to allow inclusion of trials where some younger participants (age 16 years and over) were included.

\*\* aligned with ICD-11 terminology and International Association for the Study of Pain (IASP) classification criteria (1), previously termed “non-specific low back pain”.

\*\*\*Spine-related leg pain may be characterized as somatic referred pain or as radicular pain with or without radiculopathy (termed “radicular leg pain”) (67).

**Post-surgical trial participants (defined as < 12 months post-surgery and those who had undergone lumbar fusion and/or disc replacement at any time; other post-surgical participants were included if time since surgery was at least 12 months), pregnant participants and individuals in whom a specific LBP cause had been clearly determined (e.g. vertebral fracture, malignancy, inflammatory disease) were excluded.**

**Subpopulation evidence synthesis between trials were considered for the following subgroups, where data were available:**

- Age: all adults and adults aged 60 years and over. 
- Gender and/or sex
- Presence or absence of spine-related leg pain (somatic referred pain, radicular leg pain with or without radiculopathy, or mixed presentations)
- Race/ethnicity: trials carried out in different populations within the same region or country. Systematic review suppliers considered subgroup analysis between trials of historically marginalized persons with trials of those who were not, which was usually possible only when trials had been conducted within single regions or countries. We acknowledge the potentially offensive nature of many terms used to define race and ethnicity, which are social constructs.
- Regional/national economic development (high income country vs low- to middle-income country), based on where trials were conducted).

## Interventions by class

### A: Structured and standardized education and/or advice

### B: Physical interventions

#### Active physical interventions:

- Structured exercise therapies or programmes: any structured exercise prescribed or planned by a health care practitioner and subcategories including aerobic exercise, muscle strengthening exercise, stretching exercise, flexibility or mobilizing exercise, yoga, core strengthening, Pilates, motor control exercise, functional restoration exercise and specific exercise modalities: Tai Chi, Qigong, aquatic/hydrotherapy and mixed category exercise.

#### Passive physical interventions:

- Manual therapies (spinal manipulative therapy, massage, traction)
- Needling therapies: traditional Chinese medicine acupuncture and other dry needling modalities (myofascial acupuncture, neuroreflexotherapy, Western medical acupuncture)
- Electrotherapeutic modalities and electrophysical agents: transcutaneous electrical nerve stimulation (TENS), therapeutic ultrasound
- Assistive products: lumbar braces, belts and/or supports; mobility assistive products.

### C: Psychological interventions

- Cognitive and behavioural interventions: operant, respondent, cognitive, and cognitive behavioural therapies
- Mindfulness-based stress reduction therapy.

### D: Medicines

- Systemic pharmacotherapies (opioid analgesics; nonsteroidal anti-inflammatory drugs (NSAIDs); serotonin and noradrenaline reuptake inhibitor (SNRI) antidepressants; tricyclic antidepressants; anticonvulsants; skeletal muscle relaxants; glucocorticoids; paracetamol (acetaminophen); benzodiazepines
- Injectable local anaesthetic agents
- Cannabis-related pharmaceutical preparations for therapeutic use
- Herbal medicines.

### E: Multicomponent interventions

- Weight management
- Multicomponent biopsychosocial care.

### Comparators<sup>c</sup>

- Placebo/sham
- No intervention
- Usual care.

<sup>c</sup> comparators for pharmacological interventions were placebo/sham and no pharmacological intervention.

**Table 2:** Overview of the guideline structure - *cont.*

<b>Matrix of critical outcomes selected by the GDG for each intervention class, A-E, for all adults</b>			
<b>Outcome construct for adults<sup>d</sup></b>	<b>A: Structured and standardized education and/or advice</b>	<b>B: Structured exercise programmes</b>	<b>B: Passive physical interventions</b>
Pain	●	●	●
Function <sup>e</sup>	●	●	●
Health-related quality of life	●		●
Harms / adverse events <sup>f</sup>	●	●	●
Psychological functioning	●		●
Social participation	●		●
Change in use of medications	●		
Self-efficacy			
Health literacy	●		
Body weight <sup>g</sup>			

<b>Matrix of critical outcomes selected by the GDG for each intervention class, A-E, for all adults</b>			
<b>Outcome construct for adults<sup>d</sup></b>	<b>C: Psychological interventions</b>	<b>D: Medicines</b>	<b>E: Multicomponent interventions</b>
Pain	●	●	●
Function <sup>e</sup>	●	●	●
Health-related quality of life	●	●	●
Harms / adverse events <sup>f</sup>	●	●	●
Psychological functioning	●	●	●
Social participation	●	●	●
Change in use of medications		●	
Self-efficacy	●		●
Health literacy			
Body weight <sup>g</sup>			●

<sup>d</sup> outcomes for all tools measuring a construct were included.

<sup>e</sup> back-specific and/or general.

<sup>f</sup> as reported in the included trials, recognizing that RCTs are not the optimal research design to evaluate harms.

<sup>g</sup> for weight management interventions only.



### Matrix of critical outcomes selected by the GDG for each intervention class, A-E, for older people

Outcome construct for older people (aged 60 years and over) <sup>d</sup>	A: Structured and standardized education	B: Structured exercise programmes	B: Passive physical interventions
Pain	●	●	●
Function <sup>e</sup>	●	●	●
Health-related quality of life	●		●
Harms / adverse events <sup>f</sup>	●	●	●
Psychological functioning	●		●
Social participation	●		
Change in use of medications	●		●
Falls	●		●
Body weight <sup>g</sup>			



### Matrix of critical outcomes selected by the GDG for each intervention class, A-E, for older people

Outcome construct for older people (aged 60 years and over) <sup>d</sup>	C: Psychological interventions	D: Medicines	E: Multicomponent interventions
Pain	●	●	●
Function <sup>e</sup>	●	●	●
Health-related quality of life	●	●	●
Harms / adverse events <sup>f</sup>	●	●	●
Psychological functioning	●	●	●
Social participation			
Change in use of medications		●	●
Falls		●	●
Body weight <sup>g</sup>			●

<sup>d</sup> outcomes for all tools measuring a construct were included.

<sup>e</sup> back-specific and/or general.

<sup>f</sup> as reported in the included trials, recognizing that RCTs are not the optimal research design to evaluate harms.

<sup>g</sup> for weight management interventions only.



## 2.4. Evidence search, retrieval and syntheses

### Quantitative evidence syntheses

WHO commissioned quantitative systematic evidence syntheses of randomized controlled trials (RCTs) to evaluate the benefits and harms (as reported in included trials) of each of the prioritized interventions compared with no care (including trials where the effect of an intervention could be isolated), placebo or usual care for each of the critical outcomes (refer to Table 2 for the PICO criteria for selecting evidence). Research designs other than RCTs were not considered. Non-English publications were considered. Systematic evidence reviews were undertaken in accordance with the methods described in the Cochrane Handbook for Systematic Reviews of Interventions and the Agency for Healthcare Research and Quality (AHRQ) Methods Manual (68, 69). Cochrane and AHRQ standards were followed for systematic searches, risk of bias assessment and estimates of treatment effect. Data from RCTs were aggregated for meta-analyses where pooling was considered appropriate, or in a narrative summary where pooling of data was considered inappropriate by the systematic review team.

Each systematic review team developed a full protocol to describe their planned methods for literature searching including databases searched and time periods used, search strategies, trial selection, data extraction, appraisal/risk of bias assessment, and data synthesis and reporting. Protocols were reviewed and edited by the WHO Technical Unit, independent methodologist and shared with the GDG for feedback, prior to being finalized and published in an open access repository (*Web Annex B*).

For each intervention, systematic review teams developed structured evidence syntheses for each outcome at pre-specified time-points, by comparator, including subpopulation analyses, in a Grading of Recommendations, Assessment, Development and Evaluations (GRADE) evidence profile table format. The GRADE system is used to assess the certainty of a body of evidence for a given outcome of a specific intervention in a population or subpopulation (63). GRADE assessments are based on five criteria (*Annex 1, Table A1*) (70-72). Assessments based on these criteria informed the determination of the certainty of evidence for each outcome and certainty was graded as high, moderate, low or very low (*Annex 1, Table A2*). The GDG determined the overall certainty of evidence across all critical outcomes for each recommendation and the GDG determination may have differed from that of the systematic review supplier. If the certainty of evidence was the same for all critical outcomes, or if the estimates for each outcome were in a consistent direction (i.e. all outcomes were in the direction of benefit or no difference, or vice versa) then the highest certainty rating was applied overall. Where there was inconsistency in estimates and certainty ratings, the lowest certainty rating was applied. Where there were some critical outcomes that the GDG deemed sufficient to support a recommendation, the highest certainty rating overall was selected, provided the recommendation remained unchanged even if there was lower certainty for another critical outcome.

The results of the quantitative evidence syntheses for each intervention are presented as subsections within the section 4.3 Evidence and recommendations for each intervention (**p. 34**), including the benefits and harms of the intervention and certainty of evidence.



### Qualitative evidence synthesis

The qualitative synthesis focussed on older people only, rather than all adults, since fewer trials were expected to evaluate the benefits and harms of the prioritized interventions in older adults separately. In this context, the synthesis was commissioned to provide the GDG with additional insights into the values and preferences, resource implications, equity, acceptability and feasibility of the interventions and their outcomes from the perspective of older people and/or their carers in order to support an Evidence-to-Decision process. The synthesis was undertaken in accordance with the Cochrane Effective Practice and Organisation of Care (EPOC) protocol and review template (73).

Qualitative data were analysed using a best-fit framework synthesis, informed by existing evidence and the PROGRESS-Plus framework that address issues related to equity (74-76). The certainty of evidence for each finding was assessed using the GRADE-CERQual (Confidence in the Evidence from Reviews of Qualitative research) method, which includes evaluation of methodological limitations, coherence of the studies to the review finding, adequacy of data and relevance (77). After assessing each component, an overall determination of the confidence of evidence supporting the review finding was ranked as high, moderate, low or very low (*Annex 1, Table A3*) (77).

Results arising from the qualitative evidence synthesis that were generic to all interventions are presented in a separate section (*Section 4.2*) prior to the recommendations.

Intervention-specific evidence for values and preferences, resource implications, equity, acceptability and feasibility are integrated into the Summary of Evidence subsection

for each intervention included in the section 4.3 Evidence and recommendations for each intervention (**pages. 34-38**).

## 2.5. Formulating recommendations: Evidence-to-Decision (EtD) approach

Recommendations for the guideline were formulated based on the GRADE Evidence-to-Decision (EtD) approach for public health interventions (64).

### Familiarizing the GDG with the evidence

Prior to the GDG proposing draft recommendations in its second meeting series (September 2022), the GDG received an EtD summary document for each intervention, including GRADE evidence profile tables for each comparator, with detailed subpopulation analyses. In addition to evidence profile tables, each summary document provided the qualitative evidence (including confidence in the evidence) for the EtD domains of values and preferences, resource implications, equity, acceptability and feasibility of the interventions and their outcomes from the perspective of older people and/or their carers. Definitions of the EtD domains considered are summarized in *Table 3 (7)*.

**Table 3:** EtD domains that informed the direction and strength of a recommendation.

<b>EtD domains</b>	<b>How the domain influences the direction and strength of a recommendation</b>
<b>Values and preferences</b>	This describes the relative importance assigned to health outcomes by those affected by them, how such importance varies within and across populations, and whether this importance or variability is surrounded by uncertainty. The less uncertainty or variability there is about the values and preferences of people experiencing the critical or important outcomes, the greater the likelihood of a strong recommendation.
<b>Resource implications</b>	This pertains to how resource-intensive an intervention is, whether it is cost-effective and whether it offers any incremental benefit. The more advantageous or clearly disadvantageous the resource implications are, the greater the likelihood of a strong recommendation either for or against the intervention.
<b>Equity and human rights</b>	The greater the likelihood that the intervention will reduce inequities, improve equity or contribute to the realization of one or several human rights as defined under the international legal framework, the greater the likelihood of a strong recommendation.
<b>Acceptability</b>	The greater the acceptability of an option to all or most stakeholders, the greater the likelihood of a strong recommendation.
<b>Feasibility</b>	The greater the feasibility of an option from the standpoint of all or most stakeholders, the greater the likelihood of a strong recommendation. Feasibility overlaps with values and preferences, resource considerations, existing infrastructures, equity, cultural norms, legal frameworks and many other considerations.

### Proposing recommendations

The GRADE recommendation formulation approach was guided by the independent methodologist using a semi-structured facilitation process. The GDG was supported to interpret the evidence of benefits and

harms for each intervention by reviewing GRADE evidence profile tables with reference to the GRADE certainty-of-evidence assessments and considering what a clinically worthwhile effect would be.

Determination of what is a clinically worthwhile effect for an intervention is context-specific and should consider what is meaningful to people with CPLBP (78, 79). The GDG was responsible for determining worthwhile benefit and risk of harm for an intervention, considering the effect size estimates from systematic reviews and other factors related to the delivery and accessibility of an intervention and what might constitute a meaningful benefit for a person with CPLBP. To assist the GDG, suggested benchmarks for effects that might be clinically worthwhile were provided by systematic review teams as a guide, rather than a definitive threshold, for the GDG to consider. This approach overcomes forcing a decision based on a single (arbitrary) effect size. For example, the following guiding benchmarks on clinical relevance were provided to the GDG:

- **Small:** mean difference (MD) 0.5 to 1.0 point on a scale of 0 to 10, or equivalent; standardized mean difference (SMD) 0.2 to 0.5; or risk ratio (RR) 1.2 to 1.4. Effects were considered “**trivial**” where the estimates were statistically significant, but of a magnitude smaller than the thresholds for a “small” effect.
- **Moderate:** MD > 1 to 2 points on a scale of 0 to 10, or equivalent; SMD > 0.5 to 0.8; or RR 1.5 to < 2.0.
- **Large:** MD > 2 points on a scale of 0 to 10, or equivalent; SMD > 0.8, or RR ≥ 2.0.

The GDG was guided in making a judgement on the benefits, harms, and balance of benefits and harms for each intervention by considering the quantitative evidence and the certainty of the evidence, as presented in GRADE evidence profile tables and as summarized by systematic review suppliers in the meeting. The GDG was

then guided in making judgements on the other EtD domains (*Table 3*). Judgements regarding values related to the outcomes and preferences related to the interventions were based on GDG members’ experience, knowledge and observations of their own contexts, as were judgements related to acceptability and feasibility. Discussion and judgments regarding equity and human rights during the GDG meeting focused on vulnerable populations such as the older person and those GDG members with lived experiences and/or particular expertise in gender, equity and human rights were asked expressly to comment on the potential consequences of implementing or not implementing an intervention with respect to this domain.

For the EtD domain “resource implications”, the GDG considered up to three information sources, including:

- i. Evidence from the qualitative evidence synthesis, where data were available.;
- ii. Evidence of resource burden from the included trials, such as the number and duration of treatment sessions.;
- iii. GDG members’ own knowledge and experience relating to treatment costs within their setting/region, while acknowledging that subsidies for treatment would vary between health systems.

Judgements relevant to values and preferences, acceptability, feasibility, and equity and human rights pertaining to older people specifically were informed by the qualitative evidence synthesis. Where qualitative evidence was lacking for a particular domain or intervention, judgements were determined based on the

experience and observation of the GDG, as for all adults.

Guided by the methodologist, initial draft recommendations were proposed by means of a process which was designed to achieve consensus among GDG members regarding whether to make a recommendation (or not make a recommendation), and the direction and strength of that recommendation, when proposed. Consensus is defined as the situation in which a pre-specified threshold of GDG members (as determined by the GDG) can agree to, or can “live with”, the recommendation as proposed (direction and strength), and includes the option to make “no recommendation”, where appropriate. Consensus is still considered to have been achieved where there are minor disagreements concerning the supporting remarks or key considerations, or their supporting rationale statement.

### **Principles and thresholds for decisions on recommendations**

Principles and thresholds for agreeing on recommendations and other decisions were established at the beginning of the second GDG meeting series (September 2022). The GDG decided that a quorum of at least two thirds of GDG members needed to participate in any proposal of a recommendation, and that at least 60% of GDG members in attendance needed to agree on the proposal to formulate (or not) a recommendation, along with


its direction and strength. All proposals for recommendations (or not to make a recommendation) were finally presented to the entire GDG in its fourth meeting in April 2023 (see *Section 2.6*), allowing for further discussion and out-of-session voting to ensure all members could vote on and/or approve a final recommendation decision for each intervention. Where a decision about the strength of a recommendation in a particular direction was needed (i.e. conditional versus strong), at least 70% of GDG members were required to endorse it as strong, which is consistent with published criteria when using the GRADE approach in guidelines development (80).

The GDG considered the direction and strength of a recommendation using the criteria outlined in *Table 4*. The GDG also considered related recommendations for older people, where relevant, and formulated accompanying remarks that should be considered in conjunction with the recommendation. In general, strong recommendations were limited to those recommendations where there was moderate or high certainty evidence in support of a balance in favour of benefits over harms (or vice versa), and/or when interventions were judged to be highly acceptable, feasible, would increase equity and where people with CPLBP placed a high value on the outcomes of the intervention. Conditional recommendations were made when overall certainty was low or



very low, and/or when the judgements in other domains indicated variability or uncertainty. In most situations, guidance from WHO about an intervention is needed, although WHO processes allow for no recommendation to be made in some circumstances. A good practice statement was formulated to reflect a body of indirect evidence that is difficult to summarize and indicates that the desirable consequences of the intervention far outweigh its undesirable consequences, and that as such the intervention is recommended. *Table 4* provides operational definitions of these categories (7).

**Table 4:** Operational definitions for developing recommendations.

Recommendation	Definition
<b>Recommendations in favour of an intervention</b>	
<p><b>Strong in favour</b></p>	<p>The GDG is confident that the desirable effects (benefits) of implementing the recommendation clearly outweigh the undesirable effects (harms).</p> <p>Implications:</p> <ul style="list-style-type: none"> <li>• People with CPLBP: almost all people with CPLBP would want the intervention and only a small proportion would not</li> <li>• Health care workers: most patients with CPLBP should receive the intervention</li> <li>• Policy-makers: the recommendation can be adopted as a policy in most situations.</li> </ul> <p>Strong recommendations are directives that are meant to be followed by all or almost all guideline users and under all or almost all foreseeable circumstances.</p>
<p> <b>Conditional in favour</b></p>	<p>The GDG concludes that the desirable effects of adherence to the recommendation probably outweigh the undesirable effects (i.e. there is some evidence of likely benefit to some people) but it is not confident.</p> <p>Additional considerations:</p> <ul style="list-style-type: none"> <li>• Relevant information about the various factors that influence the strength of a recommendation (effectiveness, cost, feasibility) is not available or uncertain</li> <li>• There are no harms, minimal harms, or acceptable harms</li> <li>• The intervention/outcomes are valued by people, the intervention will not increase inequity, resource requirements are reasonable, and the intervention is feasible and acceptable in most settings.</li> <li>• The intervention may not be suitable for everyone: this means there will be a need for clinical judgement about the appropriateness of the intervention for the person, shared decision-making with the person and substantial discussion with policy-makers about context relevance and implementation feasibility (e.g. removing access barriers, reorganization of health services).</li> </ul>



**Table 4:** Operational definitions for developing recommendations (continued).

### Recommendations against an intervention

#### Strong against

The GDG is confident that the undesirable effects (harms) of implementing intervention clearly outweigh the desirable effects (benefits).

Implications:

- People with CPLBP: most people with CPLBP would not want the intervention and only a small proportion would want it
- Health care workers: most patients with CPBLP should not receive the intervention
- Policy-makers: the intervention should not be adopted as a policy in most situations.

Strong recommendations are directives that are meant to be followed by all or almost all guideline users and under all or almost all foreseeable circumstances.

#### Conditional against

The GDG concludes that the undesirable effects of adherence to the recommendation probably outweigh the desirable effects (i.e. there is some evidence of likely harm to some people) but it is not confident.

Additional considerations:

- There is no evidence of benefit or benefit is likely only in some situations or among some populations/subgroups
- There is evidence of harms and/or other reasons why health policy or decision-makers **should not** implement the intervention. These other reasons include:
  - the intervention is likely to increase inequities
  - the resource requirements to provide the intervention are not reasonable
  - delivery of the intervention is not feasible in most settings
  - the intervention is not acceptable to people with CPLBP and health care workers.
- Most fully informed individuals would not want to receive the intervention, but some might consider it. This means there is a need for clinical judgement about the appropriateness of the intervention and shared decision-making with the person concerned. The intervention is unlikely to be adopted by policy-makers.

**Table 4:** Operational definitions for developing recommendations (continued).

<b>No recommendation</b>	
<p><b>No recommendation</b></p>	<p>There was no evidence (benefits or harms) for an intervention (zero trials) or:</p> <ul style="list-style-type: none"> <li>the GDG judged that the evidence base was too limited in volume and quality to allow the balance between benefits and harms to be confidently assessed, making an EtD process unfeasible; or</li> <li>the GDG judged that the balance between benefits and harms was so equivocal a judgement could not be made with confidence.</li> </ul>
<b>Good practice statement</b>	
<p><b>Good practice statement</b></p>	<p>Good practice statements typically represent situations in which a large body of indirect evidence, including indirect comparisons, unequivocally demonstrates the net benefit of the recommended action.</p>

## 2.6. Document preparation and peer review

Following the third GDG meeting series in December 2022, the WHO Technical Unit prepared a draft of the full guideline document to reflect the deliberations and proposals of the GDG. It was sent electronically to the Steering Group members and GDG members for review and comment in January 2023. A fourth meeting series was held in March 2023 to discuss feedback on the draft and review consistency across proposed recommendations. In this fourth meeting, GDG members considered revisions to some draft recommendations and these were accepted or rejected based on out-of-session voting by all members, using the same acceptance criteria described previously: at least 60% of the GDG needed to support a final recommendation and at least

70% needed to support a proposal where a decision was required on the strength of a recommendation (e.g. conditional versus strong). A revised document was recirculated to the GDG and Steering Group (April 2023). Subsequently, a further revised draft was circulated to the ERG members for peer review. The Technical Unit carefully evaluated the input of GDG members and ERG peer reviewers for inclusion in the guideline document and made final revisions. The document was submitted to the WHO Guideline Review Committee for approval in June 2023. Further modifications to the guideline were limited to corrections of factual errors and improvements in language to address any lack of clarity and to conform to WHO style.



# 3

## **Guiding principles:**

Management of chronic primary low back pain in adults.

Guiding principles for the delivery of care to adults with CPLBP are intended to underpin the guideline's recommendations. Evidence from the qualitative evidence synthesis and expertise and experience of the GDG informed the Guiding principles. The recommendations in the guideline should be interpreted alongside these Guiding principles.

## Summary Guiding Principles

### Guiding Principle 1:

#### Holistic and person-centred care



Care for people with CPLBP adopts a holistic and person-centred approach. The experience of CPLBP happens within personal and social contexts that include culture, knowledge and beliefs, expectations, history, environment, gender, age and socioeconomic status, necessitating a biopsychosocial approach to care. These personal and social determinants are considered when selecting and tailoring interventions for management of CPLBP.

### Guiding principle 2:

#### Equity



Care for all people with CPLBP is provided equitably, regardless of age, gender, socioeconomic status, ethnicity, area of residence, health literacy and economic development of their place of residence.

### Guiding principle 3:

#### Care that is non-stigmatizing and non-discriminatory



Care delivery and communication, including language/terminologies, around CPLBP should be non-stigmatizing, avoid jargon and not focus on impairment or disability.

### Guiding principle 4:

#### Integrated and coordinated care



Care for people with CPLBP should be integrated and coordinated across all levels of care and across health workers with attention to comorbid conditions and social care needs, especially for older people.

## Guiding principle 1:

### **Holistic and person-centred care**



Care for people with CPLBP adopts a holistic and person-centred approach. The experience of CPLBP happens within personal and social contexts that include culture, knowledge and beliefs, expectations, history, environment, gender, age and socioeconomic status, necessitating a biopsychosocial approach to care. These personal and social determinants are considered when selecting and tailoring interventions for management of CPLBP.

Low back pain is experienced by people within their unique personal, cultural and social contexts. A person's LBP experience should be legitimized and validated, and a meaningful explanation or diagnosis provided as part of routine encounters with health worker(s) using personalized advice. It is only rarely possible to identify a specific disease or tissue-related cause of chronic LBP; however, even when a specific cause cannot be confidently identified, the pain experience and its impacts are very real. Multiple factors interact to contribute to the experience of CPLBP and associated disability and participation restrictions. These factors include unique biophysical and genetic factors, differences in central pain processing, psychological factors, and societal and cultural factors. There are also complex interrelationships between LBP and other comorbidities, which may lead to a poorer prognosis and a poorer response to any treatment. For these reasons, a holistic

and person-centred approach to care that considers all these factors is necessary. Holistic means that all dimensions of a person's health and pain experience are considered, based on a biopsychosocial perspective. Person-centred care means eliciting an individual's values, preferences and priorities: once expressed, they should guide all aspects of that person's health care, supporting their personalized health and life goals (81, 82). This approach ought to be adopted in all clinical encounters. Person-centred care should allow time for people to express their story in their own way, express their understanding of their pain experience, discuss their goals and preferences for treatment, and participate in treatment and management decisions, while allowing sufficient time for care planning, delivery and follow-up to address the whole person in their wider social and cultural context.



## Guiding principle 2:

### **Equity**

Care for all people with CPLBP is provided equitably, regardless of age, gender, socioeconomic status, ethnicity, area of residence, health literacy and economic development of their place of residence.

Many factors that contribute to a person's pain experience, ability to seek treatment, or follow recommendations to manage CPLBP are often rooted in social and structural determinants beyond the control of the individual. Social and structural determinants include biases, stigma and discrimination, and inequities relating to gender identity, sexual orientation, age, ethnicity, education, disability, socioeconomic status, and place and country of residence. Such determinants have also led to the exclusion of certain populations from health research.

A health-equity approach calls for explicit acknowledgement of inequities in the experience of pain and access to pain care

and self-management, among others. It requires evaluating research, diagnostic techniques, care and support options to ensure that they do not exacerbate health inequities. A health-equity approach strives to respond to the needs of the socially marginalized and vulnerable and the potential for differences in treatment priorities and preferences for people from different age, gender and socioeconomic status groups. In the context of older people, for example, the [WHO Global report on ageism](#) outlines strategies to address ageism, that include policy and law, educational activities and intergenerational interventions (83).



## Guiding principle 3:

### **Care that is non-stigmatizing and non-discriminatory**

Care delivery and communication, including language/terminologies, around CPLBP should be non-stigmatizing, avoid jargon and not focus on impairment or disability.

Care and communication approaches that focus on impairments or tissue damage or emphasize disabilities can negatively affect treatment choices and adherence to care recommendations, opportunities to engage in self-care, prognosis and outcomes. Words, phrases and attitudes adopted by health workers and others that unintentionally stigmatize or negatively characterize people with CPLBP can negatively affect their care and health and social outcomes.

An appropriate care and communication approach is one that prioritizes listening to a person's story and demonstrating empathy, validates the person's pain experience, empowers and builds self-efficacy, reassures in a non-generic (i.e. personalized) manner,

and supports participation and functional goals aligned to valued life activities (84).

WHO provides a [Quick guide to avoid ageism in communication](#) (85).



## Guiding principle 4:

### **Integrated and coordinated care**

Care for people with CPLBP should be integrated and coordinated across all levels of care and across health workers with attention to comorbid conditions and social care needs, especially for older people.

CPLBP can affect many aspects of a person’s life including their work, leisure activities, hobbies, family and social roles, and relationships. People experiencing CPLBP may require access to a range of interventions (a multimodal or “integrative” approach to care) delivered by different health workers with specific skills, knowledge and experience to address their unique LBP experience. Components and sequencing of care should be jointly agreed with the person experiencing CPLBP (and where appropriate, their family or carers). CPLBP often occurs with, and is influenced by, other coexisting physical and mental health states. People experiencing CPLBP should, therefore, be enabled to participate actively

in the development of their care plan and make informed choices about their own treatment options, irrespective of their age and functional limitations. Care should be accessible across settings in health and social systems and coordinated across all levels of health care using feasible communication and information-sharing mechanisms among multidisciplinary health workers that build on existing infrastructure, resources and systems. This approach is particularly relevant for older people who experience CPLBP; they often need to seek care for multiple different health and social conditions from multiple health workers. Integrated and coordinated care is important to prevent polypharmacy and its adverse outcomes.

# 4

## Evidence and recommendations

The guideline considers 37 interventions across five intervention classes. There are 24 recommendations, one good practice statement and 12 interventions for which no recommendation has been made (summarized in *Table 1* in the Executive Summary and presented in detail in this chapter).



## 4.1. Clinical practice considerations relevant across recommendations

The GDG chose to foreground recommendations with a range of general Clinical practice considerations. Clinical practice considerations are intended to guide person-centred practice for people with CPLBP and their family/carers and to support the application of the recommendations and [Guiding principles](#) into service delivery planning and practice. These clinical practice considerations are also intended to provide guidance where evidence was insufficient to make a recommendation (see *Table 5* for operational definitions).

### **1. Clinical assessment is essential, and timely referral may be appropriate.**

All adults who seek care for chronic LBP should be offered a thorough clinical assessment by a health worker with requisite knowledge and skills. A thorough clinical assessment from a biopsychosocial perspective is essential to identify which interventions might be appropriate and when, and where further detailed or urgent clinical review may be indicated. Delivery of interventions recommended in the guideline assumes that a thorough clinical assessment has been undertaken. Where a potential underlying pathology is suspected, further assessment and timely referral to specialized care may be indicated, where appropriate and available.

### **2. Personalized information and advice should be offered.**

All adults who seek care for CPLBP should be offered information and personalized advice for their CPLBP experience. Such advice should support people to make sense of their pain experience from a biopsychosocial

perspective and support their re-engagement in meaningful life activities. Advice should validate their pain experience, emphasize reassuring and empowering messages about the prognosis for CPLBP (such as the low risk of serious underlying disease, the many things that a person can do to address their pain experience and the occasional exacerbations or “flares”). Emphasis should also be put on the importance of remaining physically active and continuing social and valued activities (including work/modified work) for overall health and well-being, approaching rehabilitation in a graded and paced manner, and adopting effective self-care strategies tailored to the individual and their goals. Generic (non-personalized) reassurance is less likely to be helpful (84).

### **3. Adults with CPLBP may benefit from a package of evidence-based interventions.**

Evidence for the benefits and harms of interventions included in the guideline were considered from RCTs where they were evaluated in isolation (other than for multicomponent biopsychosocial care interventions). In practice, some people with CPLBP may require a number of effective interventions to experience benefit (i.e. “multimodal” or “integrative care”) rather than a single intervention delivered in isolation. In some contexts, delivery of interventions by a multidisciplinary team of health workers, who coordinate care and communicate among themselves, may also be appropriate. Typically, interventions should address the range of factors that contribute to that person’s CPLBP experience from a biopsychosocial perspective.



#### 4. Selecting and sequencing of interventions.

Adults seeking care for CPLBP should be offered evidence-based care that typically starts with the least invasive and least potentially harmful interventions, recognizing that this may vary across individuals. Information regarding both the potential benefits and harms of any intervention should be provided prior to commencing treatment to ensure that people can make informed decisions about the balance of benefits and harms and report adverse events promptly to health workers. A person-centred assessment,

consideration of a person's contextual factors and their values and preferences, and shared decision-making should aid health workers to determine which evidence-based interventions and their sequencing will best meet the needs of the person experiencing CPLBP. Adherence to, and the effects of, interventions should be monitored, and the care plan modified over time, where appropriate.

Clinical guidance information for prescribers of medicines, expressed as *safe medication practices*, is provided in section 4.3, section D (medicines), **p.111**.



## 4.2. Qualitative evidence synthesis findings relevant across interventions

This section provides an overview of the qualitative evidence synthesis findings that were general in nature and not related to a specific intervention or class of intervention. These findings were used by the GDG, in addition to their own knowledge and experience, to make judgements across the range of EtD domains (*Table 3*). Where evidence was specific to certain interventions or class of interventions, these findings are presented in the subsequent section, 4.3. Findings #1–#5 are general and are relevant to all interventions. Subsequent findings are intervention-specific. Findings #6–#10 are relevant to medicines; #11–#17 are relevant to physical interventions; #18–#20 are relevant to psychological interventions and finding #21 is relevant to educational interventions.

The qualitative evidence synthesis comprised 22 studies (24 reports) involving 580 older people. In 14 studies, all participants were aged 60 years or older. In five studies, the mean or median age of the participants

was 60 years or older and three studies (n=77) were included to specifically sample populations from low- and middle-income countries and vulnerable populations. No studies were identified that explored the perceptions or experiences of caregivers (formal or informal, family members). Studies were conducted in seven high-income countries (HICs) [United States (n=8 studies), United Kingdom (n=3 studies), Germany (n=2 studies), Sweden (n=2 studies), Australia (n=2 studies), Canada (n=1 study), Chile (n=1 study)]; one upper middle-income country (UMIC) [Brazil (n=1 study)] and one lower middle-income country (LMIC) [Nigeria (n=2)]. No studies were identified from low-income countries (LICs).

Five findings (findings #1–#5) from 16 studies representing nine countries (United States, Germany, Australia, England, Scotland, Canada, Nigeria, Sweden and Chile) informed general findings, i.e. findings that were not specific to an intervention or intervention

class. Most of the data were derived from cohorts with a mean age of 60 years or more. A summary of each finding, by EtD domain, is provided below, while detailed reporting

of findings is provided in an evidence profile table in *Web Annex C*, with the list of included qualitative studies.

### Values and preferences

In general, older people expressed clear preferences and values concerning which treatment(s) to accept, what they expected from a treatment and their expectations for individualized, person-centered care. In general, treatments were expected to be

effective, credible, tailored to their individual needs, and to improve their function. The studies contributing to these findings were derived from a variety of countries and income levels and included vulnerable populations.

#	Review findings: values and preferences of older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
1	Older people preferred treatments that were effective, credible, they did not have concerns about and suited them as individuals (in terms of cost, access, side-effects and experience). Most older people valued treatments that maximized daily function. Knowledge from past experiences could influence this decision.	LOW	Minor concerns regarding methodological limitations, moderate concerns regarding coherence, minor concerns regarding adequacy, and minor concerns regarding relevance.
2	Older people valued treatments that reduced or relieved pain temporarily and/or improved their function in the longer term. In some cases, older people valued treatments they found personally enjoyable, had a positive impact (e.g. on well-being), or were meaningful and involved social engagement.	MODERATE	Minor concerns regarding methodological limitations, minor concerns regarding coherence, no/very minor concerns regarding adequacy, and minor concerns regarding relevance.
3	Older people generally emphasized that they valued individualized care and guidance across the different interventions, whether health practitioner- or peer-delivered. They valued care when it was person-centred. Supervision/professional guidance allowed them to feel safe. There was a preference for a collaborative communication style.	LOW	Minor concerns regarding methodological limitations, moderate concerns regarding coherence, no/very minor concerns regarding adequacy, and minor concerns regarding relevance.

### Resource implications

Older people discussed what they found burdensome in accessing care. This included the cost of treatment and travel time and distance to access care. In some cases, this burden deterred older people from

accessing care. The studies contributing to these findings were derived from a variety of countries and income levels and included vulnerable populations.

#	Review findings: resource implications relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
4	Some older people viewed the burden relating to the intervention (financial, time and travel) as a barrier to accessing care. High cost rendered treatment inaccessible or deterred older people from trying to adjust or continue with a recommended treatment. For others who had the financial means or were accessing publicly funded health care, cost barriers were not discussed.	MODERATE	No/very minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, minor concerns regarding adequacy, and minor concerns regarding relevance.
5	Many older people preferred health workers who were located in close proximity to where they lived. For some, this was due to CPLBP limiting their ability to travel more than short distances. If services were located a considerable distance away, these services were perceived as insufficient or inaccessible, or the distance itself was seen as a barrier to care. However, some participants were willing to travel if a trusted or favoured health worker relocated, or they were exploring new treatment options. Others preferred to find a new practitioner close to where they lived.	MODERATE	No/very minor concerns regarding methodological limitations, minor concerns regarding coherence, minor concerns regarding adequacy, and minor concerns regarding relevance

### Equity and human rights

There were no general findings relating to equity specifically. However, older people from countries where treatment costs were subsidised or where older people had insurance, cost as a barrier to care was discussed far less frequently than among older people who had to pay to access services.

### Acceptability

None of the studies reported on the acceptability of the interventions to participants in general.

### Feasibility

None of the studies reported on the feasibility of the interventions in general.

## 4.3. Evidence and recommendations for each intervention

Fig. 1 provides a summary of the recommendations formulated by the GDG, presented by class of intervention and the associated recommendations.

Each recommendation is relevant to community-dwelling adults experiencing CPLBP, with or without spine-related leg pain. While the population definition allowed for the inclusion of comorbid spine-related leg pain, the GDG was not able to confidently interpret the effects of interventions in this subpopulation since classification systems varied across trials and some trials did not report prevalence of leg pain. Inconsistency in classification of spine-related leg pain and its reporting in trials is a recognized limitation in the literature, prompting the development of recent recommendations for terminology and the identification of neuropathic pain

in people with spine-related leg pain (67).

Where the included trials reported outcomes separately for older people or included older people (adults aged 60 years and over) in the mean age range of included trials, or evidence (direct or indirect) of harms are also relevant to older people, the recommendations also refer to older people. Where these criteria were not met, the recommendations refer to adults only.



**Figure 1:** Map of interventions, by class, with colour-coding representing recommendations formulated by the GDG. **Green** ○ conditional recommendation in favour of use of the intervention; **red** ○ conditional recommendation against the use of the intervention; **amber** ○ good practice statement; **grey** ○ no recommendation was made for the intervention; and **white** ○ no, or inadequate, evidence was identified for the intervention and hence no EtD process could be undertaken or recommendation formulated.

\* Key considerations around the use of these agents were developed by the GDG to guide practice.

## Interpreting the recommendations

The recommendation for each intervention is supported by a number of subsections:



### Definition of the intervention

This section provides a description of the intervention, as detailed in the included trials.



### Recommendation and Remarks

A recommendation statement is provided for each intervention for which evidence of benefit and/or harm was identified. Recommendations may be supported by Remarks, where relevant. Remarks should be read in conjunction with the recommendation to provide additional context and translation to practice guidance.

Where no recommendation was made by the GDG or where no evidence was identified for a given intervention, Key considerations are provided as context for practice. Operational definitions of these supporting commentaries are provided in *Table 5*.

**Table 5:** Definitions for supporting contextual commentaries used throughout the guideline.

Supporting category	Definition
<b>Remark(s)</b>	Contextual information to support a recommendation for or against an intervention.
<b>Key consideration(s)</b>	Contextual information to support “no recommendation” for an intervention.
<b>Clinical practice consideration(s)</b>	Guiding information for Clinical practice approaches, agnostic to intervention. Supports the clinical application of <u>Guiding principles</u> .
<b>Safe medication practices</b>	Clinical guidance for prescribers of medicines, including stewardship for opioid analgesics.





## Summary of the evidence

Where evidence was identified for an intervention, a summary of findings/evidence synthesis underpinning the recommendation is provided. This subsection summarizes:

- › The characteristics of the evidence, including the number of trials, sample size by sex, and countries in which the trials were undertaken, categorized by income band using World Bank classifications.
- › The quantitative synthesis of benefits and harms of the intervention by comparator, including separate information relevant to older people (where available). Further detail on quantitative estimates of effects and certainty of evidence is presented in the accompanying EtD summary documents (*Web Annexes D.A1 through D.E2*) for each intervention, including the GRADE evidence profile tables for each intervention, by comparator, for each outcome, time-point and prespecified subpopulations. The quantitative synthesis adopts terminologies recommended by Cochrane EPOC when reporting the effects of an intervention (86). The quantitative synthesis provides a narrative overview of the benefits and harms for the intervention by time-point where those data were reported in the included trials. Where information about an outcome or time-point is not provided, this infers that those data were not reported in the included trials. Web Annex E includes a list of included trials for each intervention.

Across reviews, outcomes were categorized by time-points generally defined as immediate-term (2 to < 4 weeks post-randomization), short-term (1 to < 3 months post-randomization), intermediate-term (3 to < 6 months post-randomization) and long-term (6 to 12 months post-randomization).

- › The qualitative evidence synthesis of EtD domains specific to each intervention or intervention class, along with the GRADE-CERQual confidence rating. This information is also summarized in web Annexes D.A1 through D.E2. Findings from the qualitative evidence synthesis that were general in nature (i.e. not applicable to an intervention or intervention class) are summarized in the previous section of this report, 4.2 “Qualitative evidence synthesis findings relevant across interventions”, **p. 31**.





## Rationale for judgements

This subsection summarizes the judgements made by the GDG relating to the direction, size and clinical significance of the benefits and harms, the overall certainty of the quantitative evidence as determined by the GDG, the balance between the benefits and harms to judge whether the intervention was favoured or not, and critical contextual considerations informed by the qualitative evidence synthesis and/or experience among GDG members. Contextual considerations, referred to as Evidence-to-Decision (EtD) considerations, provide further insights as to whether an intervention would be feasible in a given setting, whether it would be cost-

effective and whether its introduction would reduce or increase inequities, among other issues. As outlined in section 2.5 “Formulating recommendations: Evidence to Decision (EtD) approach”, **p.15**, the GDG considered the following EtD factors, as recommended by WHO (*Table 3*) (7): how users value the outcomes of the intervention, resource requirements, impacts on equity and human rights, acceptability and feasibility. The GDG was presented with evidence (where available) relating to each EtD factor in a standard EtD template for each intervention. A summary of judgements for each intervention is also presented in Web Annexes D.A1 through D.E2.



Intervention class **A:**

# Structured and standardized education



## **A.1** **Structured and standardized education and/or advice**



### **Definition of the intervention**

“Education and/or advice” aims to improve the understanding of the pain experience for a person with CPLBP and/or guide their self-management and well-being. Evidence reviewed for the guideline included “structured and standardized education and/or advice”, defined as the provision of structured/standardized information delivered by health workers(s) to a person with CPLBP. This is distinct and separate from education and/or advice provided by a health worker to a person with CPLBP as part of a clinical encounter (refer to [Clinical practice consideration 2](#)). Structured and/or standardized advice may not be tailored or personally relevant. Among the trials identified to inform the guideline, the intervention was delivered by health practitioners.



### Recommendation

#### **Structured and standardized education and/or advice interventions may be offered as part of care to adults, including older people, with CPLBP**

*(conditional recommendation in favour of use, very low certainty evidence).*

### Remarks

- Educational interventions evaluated in the included clinical trials were structured and standardized. These types of interventions are distinct and separate from delivery of personalized information and advice offered during health worker-person interactions. [Guiding principle 3](#) and [Clinical practice consideration 2](#) provide further guidance about delivery of personalized information outside structured and standardized education.
- Educational interventions may be delivered through a variety of media (verbal, written, digital) and formats (individual or group). Local contextual factors should be considered when deciding on the mode of delivery. Older people, in particular, may value delivery through group-based or peer-support modes.
- Typically, educational interventions evaluated in included trials contained at least two education topics, such as exercise, helping a person to make sense of their CPLBP experience, adoption of effective self-care strategies to support their recovery and overall well-being, pain coping and ergonomic advice.
- Education that emphasizes the benefits of remaining physically active (e.g. walking) and engaging in social, work and other meaningful life activities is particularly important for people with CPLBP.
- When structured and standardized education is offered to people with CPLBP, it should be considered as part of a broader suite of effective treatments (i.e. not offered as a single intervention in isolation), based on a biopsychosocial assessment.



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

The evidence for the benefits or harms of structured and standardized education and/or advice was based on an update to an earlier systematic review (87). The current synthesis included 15 trials (16 reports) with a total of 1403 participants, ranging from 12 to 250 participants per trial from different health care and occupational settings. The trials were conducted in five high-income countries (HICs) (Finland: 1 trial; Italy: 1 trial; Republic of Korea: 1 trial; Portugal: 1 trial; Spain: 2 trials); three upper middle-income countries (UMICs) (Brazil: 3 trials; China: 1 trial; Türkiye:

2 trials) and two lower middle-income countries (LMICs) (Islamic Republic of Iran: 2 trials over 3 reports; Nigeria: 1 trial). The mean age of participants ranged from 25 to 73 years. Two trials assessed older people (aged 60 years more) in Brazil and Republic of Korea. The percentage of females within the trials ranged from 0% to 100%.



Structured and standardized education and/or advice interventions predominantly involved mixed content (i.e. two or more content types such as ergonomic advice, self-management advice, etc.) delivered by verbal or combined verbal and written methods.

**Table 6:** Number of trials including specific education and/or advice topics as part of a structured education and/or advice intervention.

Education and/or advice topic	Number of trials including the topic in the intervention <sup>h</sup>
Exercises for LBP, including stretching	9
Ergonomics advice	8
Self-management strategies, including pain coping	8
Pain neuroscience	7
Spinal anatomy/physiology	6
Stress management strategies	6
Cognitive and behavioural strategies	4
Nature of LBP, including a positive prognosis	4
Returning to everyday activity, including sports	3
Importance of keeping active	2
Healthy lifestyle behaviours	1
Engaging in, or returning to work, with LBP	1
Breathing strategies	1
Avoiding bed rest	1
Role of manual therapy	1

<sup>h</sup> total count exceeds the number of trials, as more than one education topic may be included in an education intervention.



The frequency of education topics across the included trials is provided in *Table 6*.

Approximately half of the trials delivered the education and/or advice intervention in group format versus individually. Most of the education and/or advice interventions

were structured and standardized. The number of sessions delivered ranged from one to 16, with the duration of each session ranging from 10 minutes to 120 minutes. The outcomes were predominantly assessed in the short term (closest to 3 months).

### Outcomes

- In the comparison of structured and standardized education and/or advice with **sham** (one trial), it was uncertain whether structured and standardized education and/or advice reduces pain in the short term and fear avoidance related to physical activity in the short term (small effects), since the certainty of the evidence was very low. It was uncertain whether structured and standardized education and/or advice made little to no difference to function and fear avoidance related to work, or if it worsened fear avoidance related to physical activity in the short term, since the certainty of the evidence was very low. No trials reported on harms for this comparison.
- In the comparison of structured and standardized education and/or advice with **no intervention or where the effect of education and/or advice could be isolated** (12 trials), benefits were observed for pain,

function and psychological outcomes. Since the certainty of the evidence was very low, it was uncertain whether structured and standardized education and/or advice:

- › reduced pain in the short and long terms (small effects);
- › improved function (medium effect), improved health-related quality of life-physical component (large effect), and reduced fear avoidance (large effect) in the short term;
- › reduced depression and improved self-efficacy in the immediate term (small effect); or
- › reduced depression and improved self-efficacy in the intermediate term (trivial effect).



Considering the two trials that assessed older people, it was uncertain whether structured and standardized education and/or advice reduced fear avoidance in the short term (large effect) in older people, since the certainty of the evidence was very low. It was uncertain whether structured and standardized education and/or advice made little to no difference to all other outcomes in older people, including pain and function, since the certainty of the evidence was very low.

It was uncertain whether structured and standardized education and/or advice made little to no difference in adverse events/harms, since the certainty of the evidence was very low. No trial reported on harms in older people.



- In the comparison of structured and standardized education and/or advice with **usual care** (2 trials), benefits were observed for pain, function and quality of life (mental component). Since the certainty of the

evidence was very low, it was uncertain whether structured and standardized education and/or advice:

- › reduced pain in the intermediate term (small effect);
- › improved function in the short or intermediate terms (small to medium effect);
- › improved health-related quality of life (mental component) in the short or intermediate terms (trivial effect); or
- › made little to no difference to health-related quality of life (physical component) in the short or intermediate terms.

No trial reported on harms for this comparison.

Web Annex D.A1 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

## Qualitative review

#	Review findings: acceptability relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
21	Older people broadly had positive views of peer support although they found it was difficult to access and did not know of support groups in their area. Empathy and “being believed” through common experience were the most important attributes in a peer supporter. Older people considered it would be helpful to share information and receive or exchange support and advice.	LOW	Moderate concerns regarding methodological limitations, minor concerns regarding coherence, minor concerns regarding adequacy, and moderate concerns regarding relevance.

No qualitative evidence was identified that was specific to the following EtD domains: values and preferences, resource implications, equity and human rights, or feasibility.





## Rationale for judgements

The GDG identified the effects for pain relief, including in the sham controlled trial, to be clinically worthwhile size, despite being small. While the evidence for harms was judged to be uncertain, the GDG members suggested from their own experience that the risk of serious harms was likely to be negligible to low for structured and standardized education and/or advice interventions. The GDG judged the overall certainty of the evidence to be very low, consistent with the systematic review team's assessment. The GDG judged that the balance of benefits to harms was probably in favour of structured and standardized education and/or advice interventions based on observed short-term benefits to pain, function, fear avoidance and quality of life outcomes.

With respect to values and preferences, the GDG judged that the evidence for older people was likely to be relevant to all adults and agreed there was possibly no important uncertainty or variability, since most individuals would be willing to receive education in some format. The GDG referred to the qualitative evidence synthesis, where older people valued peer support groups and noted that these groups could be a portal for education interventions. The GDG acknowledged that some people might not wish to receive education that is structured and standardized. Based on the GDG's experiences, structured and standardized education and/or advice was judged to be associated with potentially moderate costs in some settings, especially (depending on the mode of delivery) where infrastructure might

be limited, or workforce training required in order to deliver the intervention. The GDG considered structured and standardized education to be feasible, and acceptable to most (but not all) adults and health workers. The GDG opined that an increase in knowledge regarding strategies to manage pain and engage in helpful self-care more effectively through education would probably increase equity, particularly in low- and middle-income countries, other low-resource settings or settings where health education might be poorer.

The GDG reached a consensus decision to make a conditional recommendation in favour of structured and standardized education and/or advice, noting it to be distinct and separate from routine person-health worker interactions and explicitly noted that it should not replace usual clinical care where health workers provide personalized information and advice to people with CPLBP. The GDG noted a consistent signal from the sham controlled trial for pain relief, and an inferred very low risk of harms, likely widespread acceptability and feasibility across settings, and a likely positive impact on equity particularly for people in low-resource settings. The GDG judged that a conditional recommendation was appropriate based on 1) the very low certainty of evidence, 2) that not all people with CPLBP would value structured and standardized education, 3) that structured and standardized education might not be appropriate for all older people in terms

of content and accessibility, and 4) that in some settings the delivery costs could be high, depending on mode of delivery and infrastructure requirements. One GDG member did not agree with a conditional recommendation, and instead suggested that the recommendation ought to be strong based on acceptance of education as a core component of care for CPLBP and the opportunity to improve health equity in low-resource settings where education levels might be poor. The GDG also considered that education is typically provided as part of a broader package of care for people with CPLBP and not as a stand-alone, single intervention delivered in isolation. The GDG noted that a proportion of older people who live with CPLBP might also experience varying levels of intrinsic capacity such as cognitive decline, hearing loss or visual impairment, which in some cases could limit a person's understanding of, or engagement in, education interventions. A person's intrinsic capacity ought to be considered and accommodated when prescribing and/or delivering structured and standardized education (refer to [WHO integrated care for older people approach](#)).

The GDG noted the heterogeneity in the education topics included in the trials (*Table 6*), making it difficult to judge which topics are most effective, for whom and when. The GDG referred to [Clinical practice consideration 2](#) about important messages concerning CPLBP and referred to indirect evidence about empirically derived education messages that were deemed to be important for people with LBP, including the following topics: staying active, identifying rare, serious causes of low back pain, reassurance (e.g. “hurt does not necessarily mean harm”), unnecessary interventions, and principles of management and disease knowledge (88). Finally, the GDG acknowledged the risk for harm (such as dependence and adoption of unhelpful beliefs and behaviours) in circumstances where health workers deliver structured and standardized education and/or advice that is discordant with evidence or perpetuates unhelpful beliefs.

*Annex 3 (Table C1)* provides a summary of the judgements made by the GDG for each EtD domain.

## Intervention class **B**:

# Physical interventions



### Active physical interventions

## **B.1** **Structured exercise therapies** **or programmes**



### **Definition of the intervention**

Exercise is a subcategory of physical activity that is planned, structured, repetitive and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is its objective. Structured exercise therapies or programmes are prescribed or planned by health practitioners, often delivered with instruction and supervision and may be standardized or individualized. These therapies are broadly defined as “a series of specific movements with the aim of training or developing physical capacity (e.g. muscle and joint strength and function, range of motion or aerobic capacity) by repetition or as physical training to promote good physical health” with the goal of reducing pain and functional limitations (6). They include adopting postures, movements or activities, or a combination (e.g. strengthening, stretching, aerobic exercise) for periods of varying duration, frequency and intensity. For the purpose of the evidence review for the guideline, eligible interventions included all types of exercise with no exclusions based on setting, mode of delivery (e.g. in person vs telehealth, group vs individual, home vs clinic or community) or degree of personalization (standardized vs individualized).

Individuals may have been given verbal or written exercise instructions (e.g. in a handbook). Consistent with the approach used in a recent Cochrane review (89), eligible exercise interventions, considered as exercise subgroups, included but were not limited to aerobic exercise, muscle strength training, stretching, flexibility or mobilizing exercises, yoga, core strengthening, motor control exercise, functional restoration exercise (not including multimodal programmes of exercise with other interventions such as psychological supports), Pilates, Tai Chi, Qigong, aquatic/hydrotherapy and mixed exercise therapies (i.e. two or more types of exercise in which one did not clearly predominate). Among the trials identified to inform the guideline, this intervention was delivered by health practitioners. The evidence review did not consider general advice for physical activity or exercise in people with CPLBP.



## Recommendation

### **A structured exercise therapy or programme may be offered as part of care to adults, including older people, with CPLBP**

*(conditional recommendation in favour of use, low certainty evidence).*

## Remarks

- Structured exercise therapy refers to a structured programme prescribed and/or delivered by a health worker(s), distinct from self-directed exercise and/or physical activity such as a self-directed walking programme. For physical activity, WHO provides [Guidelines on physical activity and sedentary behaviour](#), with strong recommendations for all children, adults and older people, including those with disability, to engage in regular physical activity (90).
- Based on trials of exercise modalities reviewed and comparators selected, there is currently insufficient evidence to conclude that one exercise modality is more or less beneficial and/or acceptable than another. In selecting exercise modalities, health workers should consider an individual's preferences and circumstances (e.g. accessibility, availability, affordability and sociocultural context) when formulating exercise prescriptions and engage in shared decision-making to identify what modality of exercise will be meaningful and acceptable to the person with CPLBP. The modality preference(s) of the person with CPLBP should also align with the knowledge and skills of the health worker prescribing the programme, and where there is discordance, a referral to another health worker(s) should be considered.
- Programmes that are tailored to the clinical profile of the individual (personalized), supervised (individual supervision, group supervision, or performed at home with practitioner follow-up), and encourage adherence to achieve a high dose (at least 20 h of total programme time), are generally more beneficial (91).
- Physical and mental capacities (i.e. intrinsic capacity) of adults with CPLBP, particularly older people, should be carefully assessed to account for potential co- and multimorbidity, declines in intrinsic capacity, reduced exercise tolerance and the potential for adverse events, particularly where programmes are unsupervised. [WHO provides the ICOPE handbook: guidance for person-centred assessment and pathways in primary care](#), which includes assessment and management of decline in intrinsic capacity (58).
- A group format for physical exercise classes may increase attendance as it facilitates social engagement and collaborative learning, especially for older people.
- When structured exercise is offered to people with CPLBP, it should be considered as part of a broader suite of effective treatments (i.e. not offered as a single intervention in isolation), based on a biopsychosocial assessment.



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

The evidence synthesis for the benefits or harms of exercise was based on an update and extension to a previous Cochrane review (89). The GDG initially reviewed an evidence synthesis in which trials at high risk of bias were excluded and a range of critical outcomes was examined. This pragmatic approach was used to provide the GDG with the highest certainty evidence available. The GDG recommended that the synthesis be extended to include all trials meeting the inclusion criteria, irrespective of risk of bias, so that any possible selection bias in the included trials might be mitigated. Outcomes for the revised synthesis were limited to pain, function and harms only.

The final synthesis comprised 68 trials with a total of 4195 participants (ranging from 14 to 313 participants per trial). The synthesis considered all trials meeting the inclusion criteria from 28 April 2018 to 17 May 2022. In addition, trials at low or unclear risk of bias published from the inception dates of scholarly databases to 28 April 2018 were included. The trials were conducted in 10 HICs [Australia (3 trials), Canada (2 trials), France (1 trial), Germany (3 trials), Italy (1 trial), Japan (1 trial), Netherlands (Kingdom of the) (1 trial), Republic of Korea (4 trials), United Kingdom (1 trial) and United States (2 trials)]; five UMICs [Brazil (7 trials), China (8 trials), Malaysia (1 trial), Thailand (1 trial), Türkiye (1 trial)]; and five LMICs [Egypt (2 trials), India (5 trials), Islamic Republic of Iran (18 trials), Nigeria (2 trials) and Pakistan (4 trials)]. The mean age of participants ranged from 20.4 to 74.3 years.

Nine trials with 524 participants assessed older people aged 60 years or more (Japan, United States, Italy, Brazil, China, Islamic Republic of Iran, Republic of Korea, Australia).



The percentage of females within the trials ranged from 0% to 100%.

The primary meta-analysis considered any type of structured exercise programme, while subgroup analyses considered the benefits of exercise subtypes/modalities, including: aerobic exercise (11 trials); core strengthening exercise (21 trials); general (muscle) strength training (5 trials); mixed exercise (2 or more exercise types) (14 trials); Pilates exercise (2 trials); stretching, flexibility or mobilizing exercises (8 trials); yoga exercise (2 trials); motor control exercise (7 trials); Tai Chi exercise (2 trials); and Qigong exercise (2 trials). No included trials assessed functional restoration exercise (not including multimodal programmes of exercise with other interventions such as psychological support). Trials where exercise was performed in water were synthesized either with aerobic exercise (4 trials) or mixed exercise (1 trial). Where subgroup analyses were conducted, most did not show a significant difference or did not explain a substantial amount of heterogeneity, and findings should therefore be interpreted with caution.

The GDG also considered additional **indirect evidence** from the earlier Cochrane review in its deliberations on exercise therapy (38 trials representing 2942 participants; identified from inception to 28 April 2018) (89).



### Outcomes (direct evidence from the evidence synthesis)

- In the comparison of any structured exercise programme with **sham** (4 trials), benefits were observed for pain and function. Since the certainty of the evidence was very low, it was uncertain whether any structured exercise programme:
  - › decreased pain in the immediate term (small effect);
  - › decreased pain in the long term (small effect);
  - › improved function in the immediate term (small effect); or
  - › made little to no difference to function in the long term.

In the one trial that monitored harms, very low certainty evidence suggested that a structured exercise programme made little to no difference to harms (temporary exacerbation of pain) in adults. Harms were not monitored in the trial for older people.













Outcomes of subgroup analyses using direct evidence in 2018–2022, compared to sham by exercise modality, are summarized in *Table 7*.



In the one trial in older people, benefits were observed for pain and function. Since the certainty of the evidence was very low, it was uncertain whether any structured exercise programme decreased pain (large effect) and improved function (moderate effect) in the immediate term.



**Table 7:** Summary of outcomes for pain and function by exercise modality **compared to sham** (2018-2022 evidence).

Exercise modality subgroup	Pain outcomes by time-point			Function outcomes by time-point		
	Immediate	Short	Long	Immediate	Short	Long
 <b>Aerobic</b>	-	-	-	-	-	-
 <b>Core strengthening</b>	●	-	-	●	-	-
 <b>Muscle strength training</b>	○	-	-	○	-	-
 <b>Mixed</b>	-	-	-	-	-	-
 <b>Motor control</b>	○	-	●	●	-	○
 <b>Pilates</b>	-	-	-	-	-	-
 <b>Qigong</b>	-	-	-	-	-	-
 <b>Stretching, flexibility/mobilizing</b>	○	-	-	○	-	-
 <b>Tai Chi</b>	-	-	-	-	-	-
 <b>Yoga</b>	-	-	-	-	-	-

- = no trials
- = little to no difference (very low certainty)
- ○ = little to no difference (low certainty)
- ○ ○ = little to no difference (moderate certainty)
- = benefit that meets threshold for clinically important difference (very low certainty)
- ● = benefit that meets threshold for clinically important difference (low certainty)
- ● ● = benefit that meets threshold for clinically important difference (moderate certainty).



- In the comparison of any structured exercise programme with **no intervention or where the effect of exercise could be isolated** (41 trials), benefits were observed for pain and function. In the immediate term, a structured exercise programme may reduce pain (small effect; low certainty evidence; 41 trials). Since the certainty of the evidence was very low for other time-points and outcomes, it was uncertain whether any structured exercise programme:
  - › decreased pain in the short term (trivial effect);
  - › made little to no difference to pain in the long term;
  - › improved function in the immediate term (large effect size; 39 trials) and short term (large effect size); or
  - › made little to no difference to function in the long term.

In the six trials that monitored harms, moderate certainty evidence suggested that a structured exercise programme probably did not contribute to harms (temporary exacerbation of pain). In the one trial that monitored harms in older people, one person (2%) reported increased back pain, and one person (2%) decreased functional status.













Outcomes of subgroup analyses using direct evidence in 2018–2022, compared to no intervention or where the effect of exercise could be isolated, by exercise modality, are summarized in *Table 8*.



In the six trials on older people, benefits were observed for pain and function. Since the certainty of the evidence was very low, it was uncertain whether any structured exercise programme decreased pain (small effect; 6 trials) and improved function (large effect; 4 trials) in the immediate term.



**Table 8:** Summary of outcomes for pain and function by exercise modality **compared to no intervention**, or where the effect of exercise could be isolated (2018-2022 evidence).

Exercise modality subgroup	Pain outcomes by time-point			Function outcomes by time-point		
	Immediate	Short	Long	Immediate	Short	Long
 <b>Aerobic</b>	○	●	-	●●	○	-
 <b>Core strengthening</b>	●	○	-	●	●	-
 <b>Muscle strength training</b>	○	○	○	○	-	○
 <b>Mixed</b>	●	-	●	●	○	○
 <b>Motor control</b>	○	-	○	○	-	-
 <b>Pilates</b>	●	-	●	●	-	-
 <b>Qigong</b>	●	-	●	●	-	-
 <b>Stretching, flexibility/mobilizing</b>	●	-	○	○	○	-
 <b>Tai Chi</b>	●	-	●	●	-	-
 <b>Yoga</b>	-	-	-	-	-	-

- = no trials
- = little to no difference (very low certainty)
- ○ = little to no difference (low certainty)
- ○ ○ = little to no difference (moderate certainty)
- = benefit that meets threshold for clinically important difference (very low certainty)
- ● = benefit that meets threshold for clinically important difference (low certainty)
- ● ● = benefit that meets threshold for clinically important difference (moderate certainty).

- In the comparison of any structured exercise programme with **usual care** (6 trials), trivial benefits were observed for pain and function. Since the certainty of the evidence was very low for other time-points and outcomes, it was uncertain whether any structured exercise programme:
  - › decreased pain in the immediate term (trivial effect);
  - › made little to no difference to pain in the short term or long term;
  - › improved function in the immediate term (trivial effect);
  - › made little to no difference to function in the short term; or
  - › improved function in the long term.

In the two trials that monitored harms, low certainty evidence suggested that a structured exercise programme may make little to no difference to harms (temporary exacerbation of pain). In the single trial that monitored harms in older people, no harms were reported.



Outcomes of subgroup analyses using direct evidence in 2018–2022 compared to usual care, by exercise modality, are summarized in *Table 9*.













In the two trials on older people, trivial benefit was observed for function. Since the certainty of the evidence was very low, it was uncertain whether any structured exercise programme:

- › made little to no difference to pain in the immediate term (2 trials) or short term (1 trial);
- › improved function the immediate term (trivial effect, 2 trials); or
- › made little to no difference to function in the short term (1 trial).



**Table 9:** Summary of outcomes for pain and function by exercise modality **compared to usual care** (2018-2022 evidence).

Exercise modality subgroup	Pain outcomes by time-point			Function outcomes by time-point		
	Immediate	Short	Long	Immediate	Short	Long
 <b>Aerobic</b>	-	-	-	●	-	-
 <b>Core strengthening</b>	●	-	-	○	-	-
 <b>Muscle strength training</b>	●	-	-	○	-	-
 <b>Mixed</b>	○	○	-	○	○	-
 <b>Motor control</b>	-	-	-	-	○	-
 <b>Pilates</b>	-	-	-	-	-	-
 <b>Qigong</b>	-	-	-	-	-	-
 <b>Stretching, flexibility/mobilizing</b>	-	-	-	-	-	-
 <b>Tai Chi</b>	-	-	-	-	-	-
 <b>Yoga</b>	○	-	○	○	-	○

- = no trials
- = little to no difference (very low certainty)
- ○ = little to no difference (low certainty)
- ○ ○ = little to no difference (moderate certainty)
- = benefit that meets threshold for clinically important difference (very low certainty)
- ● = benefit that meets threshold for clinically important difference (low certainty)
- ● ● = benefit that meets threshold for clinically important difference (moderate certainty).

### Outcomes (indirect evidence from an earlier Cochrane review (89))

- Indirect evidence from the comparison of any structured exercise programme with a **combined comparator of sham, usual care or no intervention** (38 trials), identified at the earliest follow-up (closest to 3 months), indicated that any structured exercise programme may:
  - › reduce pain (small effect, low certainty evidence [downgraded from moderate certainty as rated in the Cochrane review (89) due to indirectness], 35 trials); and
  - › improve function (trivial effect, low certainty evidence [downgraded

from moderate certainty as rated in the Cochrane review (89) due to indirectness], 38 trials).

Among the 12 trials which reported adverse effects in a systematic way, harms were very few and according to the review, minor. A GRADE assessment was not performed on harms.

Web Annex D.B1 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

## Qualitative review

#	Review findings: values and preferences relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
12	Older people emphasized the importance of continuity of physical exercises to maintain mobility and reduce pain. A lack of continuity of physical exercise and instruction could have adverse effects.	LOW	No/very minor concerns regarding methodological limitations, moderate concerns regarding coherence, minor concerns regarding adequacy, and minor concerns regarding relevance.
13	Older people also valued educational materials to accompany exercise programmes, such as drawings and descriptions of the exercises.	LOW	Minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, serious concerns regarding adequacy, and serious concerns regarding relevance.



#	Review findings: equity and human rights relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
14	Older people saw that there is a need to reduce the stigma associated with doing exercise as treatment for LBP since it is not regarded as a legitimate treatment in rural Nigeria. They suggested that changes at the community level such as increasing awareness about the benefits of exercise could change negative community beliefs and legitimize exercise as a treatment for back pain, thereby reducing the stigma currently associated with it.	LOW	No/very minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, serious concerns regarding adequacy, and moderate concerns regarding relevance.

#	Review findings: acceptability relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
15	Many older people liked a group format for physical exercise classes as this facilitated social support, collaborative learning and social activities, all of which encouraged increased attendance.	MODERATE	Minor concerns regarding methodological limitations, minor concerns regarding coherence, minor concerns regarding adequacy, and minor concerns regarding relevance.

#	Review findings: feasibility relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
16	Some older people adopted physical exercise or assistive products as a part of their self-management approach to supplement conventional treatments, or when conventional treatments failed or proved to be insufficient. Some viewed this as experimenting to find a solution.	MODERATE	Minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, no/very minor concerns regarding adequacy, and minor concerns regarding relevance.
17	Older people requested shorter sessions of physical exercises on specific days to fit in with their daily schedule.	VERY LOW	No/very minor concerns regarding methodological limitations, moderate concerns regarding coherence, serious concerns regarding adequacy, and serious concerns regarding relevance.

No qualitative evidence was identified that was specific to the EtD domain of resource implications.



## Rationale for judgements

For all adults and older people, the GDG judged the overall benefits to be clinically worthwhile, if only to a small to moderate magnitude. Harms were judged to be trivial for all adults since the nature of the harms reported across trials appeared to be limited to temporary exacerbations of pain, while for older people harms were judged uncertain since very few trials monitored harms in this age group. The GDG judged the overall certainty of evidence to be low to very low for all adults, and very low for

older people, consistent with the systematic review team's assessment. Considering all evidence available (direct and indirect) and a consistent direction in effects, the GDG judged the overall certainty of evidence to be low. The GDG judged the balance of benefits to harms for structured exercise programmes or therapies to favour or probably favour exercise. Some GDG members judged the balance to be uncertain given the very low certainty evidence for some outcomes, particularly for older people.



The GDG noted the findings from the qualitative evidence synthesis around values and preferences among older people in relation to exercise, noting that older people valued the outcomes of exercise for maintaining health. They judged that the evidence for older people was likely to be relevant to all adults and agreed there was likely to be some uncertainty or variability with respect to people's values and preferences for exercise and its outcomes. Some GDG members suggested that given reasonably consistent benefit and very little harms, there would be no important uncertainty or variability regarding people's values on the outcomes of exercise. In the absence of direct qualitative evidence, the GDG judged from their own experience that resource requirements for structured exercise programmes would vary by country and setting, but in some settings might be associated with moderate costs (for structured exercise programmes, compared with self-managed physical activity). The GDG noted that costs could also vary according to the modality of exercise provided (e.g. some exercise modalities might be associated with substantial infrastructure or participation costs). The GDG considered the possible impact of exercise programmes on health equity and human rights and judged that the impacts would vary by settings. For example, considering the qualitative evidence from Nigeria, exercise might have a negative impact on health equity and be stigmatizing, and in other settings equity could be reduced where people have less opportunity to participate in exercise due to cost, sociocultural norms or lack of infrastructure for some exercise modalities or programmes. In other settings where exercise is accessible

and more accepted in the community, there might be no impact or equity might even be increased if pain and function improve and enable, for example, workforce reintegration. When reflecting on the qualitative evidence synthesis, the GDG judged that exercise programmes were mostly acceptable to older people with CPLBP and health workers, and that in particular, group formats for older people were desirable. The GDG considered that the acceptability of exercise modalities and modes of delivery was likely to vary between people with CPLBP and health workers, and that acceptability and preferences ought to be considered when recommending exercise to ensure that they suited both health workers and people with CPLBP. The GDG also noted from the qualitative evidence synthesis that while many people accepted exercise and valued its possible outcomes, structured exercise programmes (or certain modalities of exercise programmes) as an intervention might not be accepted by some people due to their values and preferences (e.g. time, financial circumstances) and/or sociocultural attitudes (e.g. social approval). The GDG judged that delivery of structured exercise programmes would be feasible in most settings and noted from the moderate confidence evidence in the qualitative review that older people generally reported engagement in exercise to be feasible. The GDG opined that where people needed to travel to access structured exercise programmes, participation might be less feasible, as also identified in the qualitative evidence synthesis.

The GDG reached a consensus conditional recommendation in favour of structured exercise programmes/therapies on the

basis of consistent and clinically worthwhile small to moderate benefits for outcomes in pain and function, signs of trivial to no harms from the included trials, and indirect evidence suggesting no increased risk of serious adverse events for exercise across many health conditions (92). Rather than recommending specific exercise modalities, the GDG referred to findings from an earlier systematic review which examined characteristics of exercise programmes (programme design, delivery mode, dose) that were most beneficial to pain and function outcomes for people with CPLBP (91). Programmes that were tailored to the clinical profile of the individual (personalized) and supervised (individual supervision, group supervision or performed at home with practitioner follow-up), and which encouraged adherence to achieve a high volume (at least 20 h of total programme time) were generally more beneficial. For many people and health workers, exercise was judged to be acceptable and feasible. The GDG noted that in some settings, exercise programmes could be associated with negative impacts on health equity (particularly stigma), that structured exercise as an intervention for CPLBP might not be acceptable to some people, and that delivery of some exercise modalities might incur moderate costs in some health care settings. The GDG also noted that among all the interventions considered for management of CPLBP, exercise therapies are one of the most widely researched and that they were associated with consistent signs of benefit across the direct and indirect evidence considered, albeit with varying degrees of certainty. For these reasons, two GDG

members did not agree with a conditional recommendation in favour of exercise and instead opined that a strong recommendation in favour would be more appropriate.

The GDG also acknowledged that the exercise interventions considered for the evidence review focused on health practitioner-prescribed and/or delivered structured programmes or therapies. In this context, self-selected and -directed exercise and physical activities were not considered (e.g. walking, swimming, cycling). The GDG acknowledged that structured programmes or therapies for CPLBP should not necessarily replace self-selected and self-directed routine exercise or physical activity for overall health and well-being. The GDG referred to the related [WHO guidelines on physical activity and sedentary behaviour](#), noting strong recommendations for all children, adults and older people, including adults and older people with chronic health conditions and/or with disability, to engage in regular physical activity in order to derive benefits for a range of physiological, cognitive, mental health and reduced mortality outcomes. The conditional recommendation made in the guideline does not detract from the public health importance and benefit of physical activity. The GDG also noted evidence of the benefit of structured physical activity in preventing mobility disability in older people (93).

*Annex 3 (Table C2)* provides a summary of the judgements made by the GDG for each EtD domain.

## Passive physical interventions

### B.2 Needling therapies (traditional Chinese medicine acupuncture and other dry needling modalities)



#### Definition of the intervention

Needling therapies considered in the guideline included traditional Chinese medicine (TCM) acupuncture and other dry needling modalities (myofascial trigger point needling, neuroreflexotherapy and Western medical acupuncture). These modalities are defined as any intervention where needles are inserted into classical meridian points (TCM acupuncture) or soft-tissue trigger points (other dry needling modalities). Manual stimulation, heating by moxa, heat lamps, cupping or electrical current stimulation could be further administered.



#### Recommendation

**Needling therapies such as acupuncture may be offered as part of care to adults, including older people, with CPLBP**

*(conditional recommendation in favour of use, low certainty evidence).*

#### Remarks

- Caution and vigilance should be exercised when people are taking anticoagulant medicines, especially older people, due to increased risk for SMT of bleeding at the needle insertion sites.
- Health workers delivering needling therapies should have a sound knowledge of anatomy and competencies for this intervention to ensure safe and appropriate insertion of needles.
- Health workers should also have knowledge and competencies in infection prevention and control, for delivering needling therapies. WHO provides standard precautions for the prevention and control of infections (94).
- Needling therapies appear to provide short-term improvements in pain and function. When needling therapies are offered to people with CPLBP, they should be considered as part of a broader suite of effective treatments (i.e. not offered as a single intervention in isolation), based on a biopsychosocial assessment.



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

The quantitative review considered needling therapies including traditional Chinese medicine (TCM) acupuncture and other dry needling modalities. The evidence synthesis for the benefits or harms of these modalities was based on an update to a previous Cochrane review (95). The current synthesis comprised 37 trials with a total of 7573 participants (ranging from 32 to 3093 participants per trial in different health care settings). The trials were conducted in five HICs [Germany (5 trials), Ireland (1 trial), Republic of Korea (2 trials), Spain (1 trial) and United States (6 trials)]; two UMICs [Brazil (4 trials), China (15 trials)]; and in one LMIC: Islamic Republic of Iran (3 trials).



The mean age of participants ranged from 30 to 72 years. A single trial with 55 participants assessed only older people (aged 60 years or more) in the United States. The percentage of females within the trials ranged from 0% to 85%. Where reported by trial authors, CPLBP duration ranged from four months to 15 years. The majority of the trials assessed acupuncture interventions based on TCM (31 trials, 84%); six of the 37 trials (16%) assessed dry needling modalities. Across the trials, the number of treatment sessions ranged from one to 40, with the duration of each session ranging from 10 minutes to 45 minutes. There were no consistent signals identified to suggest a difference in benefits or harms between TCM acupuncture and other dry needling modalities.

#### Outcomes

- In the comparison of needling therapies with **sham** (15 trials), a trivial benefit was observed for pain and health-related quality of life in the immediate term.
  - › Needling therapies may reduce pain and improve health-related quality of life (physical component) in the immediate term (trivial effects; low certainty). It was uncertain whether there was little to no difference for pain reduction and quality of life gains at other time-points since the certainty of the evidence was very low.
  - › It was uncertain whether needling therapies made little to no difference to function, health-related quality of life (mental component) or depression at any time-point since the certainty of the evidence was mostly very low.
  - › Based on a single trial among older people it was uncertain whether needling therapies made little to no difference to pain (immediate, short and intermediate terms), function (immediate, short and intermediate terms) or health-related quality of life (immediate term) since the certainty of the evidence was very low.



It was uncertain whether needling therapies made little to no difference to adverse events/harms, since the certainty of the evidence was very low, including among older people. Harms varied somewhat by stimulation type. Needling therapies with electrical stimulation increased minor adverse events including

minor pain, bruising, skin rash, slight bleeding at the needle site and minor reaction to the prone position (nausea, dizziness and mild back ache). Little to no difference between groups was found among adults treated with needling therapies with manual stimulation, no stimulation or where stimulation was not reported.

- In the comparison of needling therapies with **no intervention or where the effect of acupuncture could be isolated** (25 trials), benefits were observed for pain and function.
  - › Needling therapies may reduce pain in the immediate and short terms (small effects; low certainty). When considering modalities, both TCM acupuncture (small effect) and other dry needling modalities may reduce pain (medium effect) in the immediate and short terms.
  - › Needling therapies may improve function in the immediate term (large effect; low certainty) and short term (medium effect; low certainty). TCM acupuncture may improve function in the short term, while other dry needling modalities may make little to no difference to function in the short term.
  - › It was uncertain whether needling therapies made little to no difference to health-related quality of life in the immediate term and short term (mental component) since the certainty of the evidence was very low. It was uncertain whether needling therapies improved health-related quality of life (physical component) in the short term (trivial effect; very low certainty).
  - › Based on a single trial among older people it was uncertain whether needling therapy reduced pain in the



immediate term (trivial effect), reduced pain in the short term (small effect) and improved function in the immediate and short terms (large effects) since the certainty of the evidence was very low.

- › It was uncertain whether needling therapies made little to no difference to adverse events/harms since the certainty of the evidence was very low. Harms that were reported were minor and included dizziness, transiently (up to one week) worsening back pain, pain at the needle insertion point, bruising, back and leg numbness and discomfort, and shoulder and foot pain. No evidence was available for harms in older people.
- In the comparison of needling therapy with **usual care** (1 trial), benefits were observed for pain and function. Since the certainty of the evidence was very low, it was uncertain whether needling therapy:
    - › reduced pain in the short (small effect) and intermediate term (trivial effect) and made little to no difference to pain in the long term; or
    - › improved function in the short (small effect) and intermediate and long terms (trivial effects).



This single trial did not report harms.

Web Annex D.B2 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

## Qualitative review

#	Review findings: values and preferences relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
11	Needling therapies were valued as effective by the few participants who talked about it. However, it was viewed as providing temporary relief and being expensive.	LOW	No/very minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, serious concerns regarding adequacy, and serious concerns regarding relevance.

No qualitative evidence was identified specific to acupuncture for the following EtD domains: resource implications, equity and human rights, acceptability or feasibility.



### Rationale for judgements

The GDG acknowledged the trivial benefit observed in the sham controlled trials for pain and health-related quality of life in the immediate term, but noted low certainty evidence of a small benefit to pain and moderate to large benefit to function in the immediate and short term in the trials with a no intervention comparator. Considering all adults, the GDG judged overall net benefits across outcomes to be small. The GDG judged the overall certainty of the evidence to be low for all adults, and very low for older people, consistent with the systematic review team’s assessment. Among older people, net benefits were judged as trivial, noting that only one trial contributed to evidence on outcomes for older people for each

comparator. The GDG judged harms for all adults to be trivial and uncertain due to a lack of reporting. When considering the balance of benefits to harms, some GDG members favoured needling therapies while others did not favour them or judged the balance to be uncertain.

The GDG noted the qualitative evidence regarding older people valuing needling therapies as a treatment option. They judged that the evidence for older people was likely to be relevant to all adults and agreed there was likely to be some uncertainty or variability with respect to people’s values and preferences relating to needling therapies. The GDG also noted the qualitative evidence



pointing to potentially high costs associated with the intervention, particularly where frequent treatment sessions are required. For example, the GDG noted that the number of treatment sessions ranged from one to 40 across the included trials. Based on their experience, the GDG acknowledged the resource implications would likely vary by setting. For example, in China the cost of TCM acupuncture to people is generally low or very low, with approximately 80% of people entitled to insurance subsidies and most people in urban and rural areas able to access this intervention. Taking into account various indirect evidence for cost and the GDG members' own experience, the GDG judged that resource implications would entail moderate to large costs. While noting that resource implications might vary by setting, in those settings where costs are high and the intervention is valued, equity might be impacted for some people. The GDG judged that needling therapies were probably an acceptable intervention for people with CPLBP and for health workers, although acknowledged that this might vary according to setting and cultural contexts. Similarly, the GDG judged that the feasibility of needling therapies would also vary according to setting, although noted that the intervention is largely accessible globally.

The GDG reached a consensus conditional recommendation in favour of needling

therapies. This recommendation was based on a small, yet clinically worthwhile benefit in the immediate and short-term for pain, and larger benefit for function, across 25 trials with a no intervention comparator, outweighing likely non-serious harms. Furthermore, qualitative evidence and GDG members' experience suggested that people valued and accepted the intervention and its outcomes and that it could feasibly be delivered in most settings. The GDG interpreted subgroup differences by needling modality with caution, noting the small number of trials and small sample sizes contributing to those meta-analyses, and therefore did not make modality-specific recommendations or remarks. The GDG acknowledged cost and equity concerns and opined that while needling therapies might be considered as a component of care that offers short-term benefit for people with CPLBP, these interventions ought to form part of a broader package of intervention options rather than serve as stand-alone interventions.

*Annex 3 (Table C3)* provides a summary of the judgements made by the GDG for each EtD domain.



## B.3 Spinal manipulative therapy

### Definition of the intervention

Spinal manipulative therapy (SMT) is considered to be any “hands-on” treatment that involves movement of the spinal joints, including both high-velocity, low-amplitude manipulation and low-velocity, low-amplitude mobilization. Mobilization uses low-grade velocity (relative to manipulation), small- or large-amplitude passive movement techniques within the person’s spinal joint range of motion and control, while manipulation uses a high-velocity impulse or thrust applied to a synovial joint over a short amplitude at, or close to, the end of the passive or physiological range of motion, which is often accompanied by an audible “crack”.



### Recommendation

**Spinal manipulative therapy (SMT) may be offered as part of care to adults, including older people, with CPLBP**

*(conditional recommendation in favour of use, very low certainty evidence).*

### Remarks

- SMT should only be delivered by health workers who have been appropriately trained and credentialled with the necessary competencies to safely deliver SMT.
- Identification of any contraindications or conditions associated with higher risk for SMT, such as bone loss (e.g. osteoporosis) or prevalent fragility fracture in older people, is required prior to the delivery of SMT.
- The certainty of evidence for benefits in older people is less clear, therefore clinical judgements about the likely balance of benefit and harms should be used when considering SMT in older people.
- SMT appears to provide short-term improvements in pain and function. When SMT is offered to people with CPLBP, it should be considered as part of a broader suite of effective treatments (i.e. not offered as a single intervention in isolation), based on a biopsychosocial assessment.



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

The evidence regarding the benefits and harms of SMT was based on an update to an earlier high-quality systematic review (96).

The current evidence synthesis comprised 29 trials with a total of 4735 participants. Of these, two trials with a combined 377



participants included older people (aged 60 years or older) in the United States.

There were 21 trials conducted in 10 HICs [10 trials in the United States; 3 trials in the United Kingdom; 1 trial in each of Poland, Spain, Greece, Australia, Italy, Switzerland, Denmark and Netherlands (Kingdom of the)]; two trials in two UMICs (1 trial in each of Brazil and China); and six trials were conducted in four LMICs (2 trials in the Islamic Republic of Iran; 2 trials in India; 1 trial in each of Egypt and Tunisia). Participants were enrolled across an age group ranging from 21 to 77 years. One trial included only females, while all others included both male and female participants. Eight trials reported on the ethnicity of the included participants, all with > 80% of participants being white, while the other trials did not report ethnicity. It was unclear how many treatments the participants received on average, because this was not typically reported. The maximum number of treatments allowed by the protocol was, on average, eight (SD = 5.1, based on 28 trials). The treatment period also varied, being protocolized, on average, as 4.9 weeks (SD = 3.4, based on 27 trials).

### Outcomes

- In the comparison of SMT with **sham** (15 trials), benefits were observed for function, health-related quality of life and catastrophic thinking. However, since the certainty of the evidence was very low, it was uncertain whether SMT:
  - › improved back-specific function at most time-points (small to moderate effects);
  - › improved general function in the immediate term (moderate effect) and made little to no difference at other time-points;

- › improved health-related quality of life in the immediate term (small effect) and made little to no difference at other time-points;
- › reduced catastrophic thinking in the immediate term (moderate effect); or
- › made little to no difference to pain or social participation at any time-point.

In a single trial among older people, no benefits for pain or function were observed (very low certainty evidence).



Five trials reported on adverse events. A few serious adverse events were reported, although none was related to the SMT intervention. Three trials which examined adverse effects reported that they were commonly transient, ranged from mild to moderate severity and were related to musculoskeletal soreness and tiredness.

No data on harms among older people were reported.



- In the comparison of SMT with **no intervention** (four trials), benefits were observed for pain, function, health-related quality of life and psychological outcomes. However, since the certainty of the evidence was very low, it was uncertain whether SMT:
  - › reduced pain and improved back-specific function in the immediate term (moderate effects) and made little to no difference at other time-points;
  - › improved general function in the immediate and short term (small to moderate effects) and made little to no difference at other time-points;
  - › improved health-related quality in the immediate term (small effect);
  - › reduced work-related fear avoidance (small effect) and made little to no

difference to physical activity-related fear avoidance in the immediate term; or

- › reduced catastrophic thinking (moderate effect) in the immediate term.

One trial assessed adverse events: none was reported.

- In the comparison of SMT with **usual care** (1 trial), no differences were observed for or pain function outcomes (very low certainty evidence). No harms were reported in this single trial.
- In the comparison of **SMT added to another intervention versus another intervention alone** (12 trials), benefits were observed for pain and function.
  - › SMT may reduce pain in the immediate term (low certainty, small effect) and probably made little to no difference in the short- and long-term (moderate certainty) when added to another intervention.
  - › It was uncertain whether SMT improved back-specific function in the immediate and intermediate terms (moderate effects) when added to another intervention (very low certainty evidence). SMT may make little to no difference to back-specific function in the short term and may improve back-specific function in the long term (moderate effect) when added to another intervention (low certainty evidence).
  - › It was uncertain whether SMT made little to no difference to health-related quality of life at most time-points when added to another intervention (very low certainty evidence).

- › It was uncertain whether SMT made little to no difference to psychological functioning across all time-points when added to another intervention (very low certainty evidence).

In a single trial among older people, a small benefit was observed for pain in the short term. It was uncertain whether SMT reduced pain in older people in the short term (small effect; very low certainty evidence). It was uncertain whether SMT made little to no difference to function, health-related quality of life or medication use in older people at any time-point (very low certainty evidence).



Six trials reported on adverse events. A few serious adverse events were reported, although none was related to the SMT intervention. In three trials which examined adverse effects, those reported were transient and ranged from mild to moderate in severity. No data on harms among older people were reported.



Web Annex D.B3 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

## Qualitative review

No qualitative evidence was identified specific to SMT for the following EtD domains: values and preferences, resource implications, equity and human rights, acceptability or feasibility.



## Rationale for judgements

Considering all adults, the GDG judged overall net benefits across outcomes to range from trivial to moderate while, for older people the benefit was judged to be largely uncertain given the few trials and uncertainty of evidence in this group. Overall, harms were judged to be trivial to small for all adults and uncertain for older people due to lack of evidence. The GDG commented that while rare, serious adverse events might occur with SMT, particularly in older people (e.g. fragility fracture in people with bone loss), and highlighted that appropriate training and clinical vigilance concerning potential harms are important. The GDG also acknowledged that rare serious adverse events were unlikely to be detected in trials.

Some GDG members considered that the balance of benefits to harms favoured SMT due to small to moderate benefits while others felt the balance did not favour SMT, mainly due to the very low certainty evidence for some of the observed benefits. The GDG judged the overall certainty of evidence to be very low for all adults, and very low for older people, consistent with the systematic review team's assessment.

The GDG judged that there was likely to be important uncertainty or variability among people with CPLBP with respect to their values and preferences, with GDG members noting that some people might prefer manual therapies such as SMT, due to its “hands-on”

nature, while others might not prefer such an approach. Based on their experience and the evidence presented from the included trials which offered an average of eight treatment sessions, the GDG judged that SMT was likely to be associated with moderate costs, while acknowledging that such costs and the equity impacts from out-of-pocket costs would vary by setting. The GDG noted that the cost-effectiveness of SMT might not be favourable when patients do not experience symptom improvements early in the treatment course. The GDG judged that in most settings, delivery of SMT would be feasible, although its acceptability was likely to vary across health workers and people with CPLBP.

The GDG reached a consensus conditional recommendation in favour of SMT on the basis of small to moderate benefits for critical outcomes, predominantly pain and function, and the likelihood of rare adverse events. The GDG concluded by consensus that the likely short-term benefits outweighed potential harms, and that delivery was feasible in most settings. The conditional nature of the recommendation was informed by variability in acceptability, possible moderate costs, and concerns that equity might be negatively impacted in a user-pays model of financing.

*Annex 3 (Table C4)* provides a summary of the judgements made by the GDG for each EtD domain.

## B.4 Massage



### Definition of the intervention

Massage is the manual manipulation of soft body tissues to enhance health and well-being. Practised globally, there are more than 80 different forms of massage. While massage may be used for a variety of specific indications (e.g. relaxation, comfort at the end of life, relieving pain, enhancing athletic performance), it is undertaken with the general goal of helping people achieve or increase health and well-being. In the evidence review for the guideline, massage was broadly defined and included any soft-tissue manipulation using hands or another mechanical device and traditional, complementary and integrative (TCI) medicine massage. Massage could be applied to any body part, to the lumbar region only, or to the whole body.



### Recommendation

**Massage may be offered as part of care to adults, including older people, with CPLBP** (conditional recommendation in favour of use, very low certainty evidence).

#### Remarks

- The certainty of evidence for benefits in older people is less clear, owing to limited evidence. Clinical judgement about the likely balance of benefit and harms should, therefore, be used when considering massage for management of CPLBP in older people.
- Massage may provide short-term improvements in pain and function to adults with CPLBP. However, patients should be informed of the potential for an increase in pain in the immediate term.
- When massage is offered to people with CPLBP, it should be considered as part of a broader suite of effective treatments (i.e. not offered as a single intervention in isolation), based on a biopsychosocial assessment.



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

The evidence for benefits and harms of massage for CPLBP was based on an update to an earlier Cochrane review (97). The current synthesis comprised 15 trials with a total of 1472 participants. Nine trials were conducted in five HICs (Spain: 3 trials; United

States: 2 trials; United Kingdom; 2 trials; Republic of Korea: 1 trial; Japan: 1 trial); 4 trials were conducted in three UMICs (China: 2 trials; Türkiye: 1 trial; Brazil: 1 trial); and two trials were conducted in two LMICs (Islamic Republic of Iran: 1 trial; India: 1



trial). Participants were included across the age range 18–75 years. Two trials (Türkiye and United States) specifically evaluated benefits for participants aged over 65 years, representing 107 participants. One trial included only females, while all others included mixed male and female populations. One study reported on the ethnicity of the included participants, with > 80% participants being white, while the status was unclear in the remaining trials.

Five trials concerned myofascial release therapy, four trials described massage therapy in general, two trials examined reflexology, while the following techniques were examined in single trials: shiatsu, acupressure, Persian massage, tender-point deep massage. The average duration of treatments was 4.8 weeks (range 2–10 weeks), and the average number of treatments received was 7.8 (range 4–18).

### Outcomes

- In the comparison of massage with **sham** (6 trials), benefits were observed for pain, function and health-related quality of life.
  - › It was uncertain whether massage made little to no difference to pain in the immediate term, reduced pain in the short term (moderate effect) or slightly reduced pain in the intermediate term (small effect), since the certainty of the evidence was very low. No data were available for long-term follow-up.
  - › It was uncertain whether massage improved back-specific function in the immediate, short and intermediate terms (moderate effects), since the certainty of the evidence was very low. No data were available for long-term follow-up.

- › Massage may improve fear avoidance beliefs in the immediate and short terms (moderate effects; low certainty evidence). No data were available for intermediate-term and long-term follow-up.

In the single trial involving older people, benefits were uncertain since the certainty of the evidence was very low and the 95% confidence interval indicated that massage might make little to no difference to pain and function in the immediate and short terms.



None of the included trials reported on harms.

- In the comparison of massage with **no intervention**, no trial was identified.
- In the comparison of massage with **usual care** (3 trials), benefits were observed for pain, function and fear avoidance beliefs. However, since the certainty of the evidence was very low, it was uncertain whether massage:
  - › made little to no difference to pain in the immediate term, reduced pain in the short term (moderate effect) or made little to no difference to pain in the intermediate term (no data were available for long-term follow-up);
  - › made little to no difference to back-specific function in the immediate term, improved back-specific function in the short and intermediate terms (moderate effects), or slightly improved back-specific function in the long term (small effect);
  - › improved health-related quality of life in the immediate term (large effect), short term (moderate effect) and intermediate term (small effect).



No data were available for long-term follow-up; or

- › made little to no difference to depression in the short or immediate terms. No data were available for other time-points.

- In the comparison of **massage added to another intervention versus another intervention alone** (6 trials), benefits were observed for pain and function<sup>2</sup>. However, since the certainty of the evidence was very low, it was uncertain whether massage:

- › made little to no difference to pain in the immediate term or reduced pain (small effect) in the short term, when added to another intervention. No data were available for other time-points;
- › improved back-specific function in the immediate (moderate effect) or short term (large effect, although the 95% confidence interval indicated that massage might make little to no difference). No data were available for other time-points; or
- › made little to no difference to health-related quality of life in the short or immediate terms.

In the single trial involving older people, benefits were observed for pain. However, since the certainty of the evidence was very low, it was uncertain whether massage reduced pain in the short term (moderate effect) and improved health-related quality of life (moderate effect, although the 95% confidence interval indicated that massage might make little to no difference) in older people.

No data were available for other time-points. None of the included trials reported on harms.

Web Annex D.B4 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

## Qualitative review

No qualitative evidence was identified which was specific to massage for the following EtD domains: values and preferences, resource implications, equity and human rights, acceptability or feasibility.



<sup>2</sup> One trial was *retracted by the publisher in June 2023*, after the meta-analyses were conducted and interpreted by the GDG. A sensitivity meta-analysis was performed to explore the effects on pain and function outcomes in the immediate term with and without the trial included. When the trial was excluded, it was uncertain whether massage caused an increase in pain intensity (measured on a 100 point scale) when added to another intervention (MD 1.98, 95%CI 0.61 to 3.34; participants = 152; trials = 3;  $I^2 = 80\%$ ), since the certainty of the evidence was very low. In terms of function, it was uncertain whether massage improved back-specific function by a moderate amount when added to another intervention (SMD -0.44, 95%CI -1.26 to 0.38; participants = 152; trials = 3;  $I^2 = 18\%$ ), although the 95% confidence interval indicated that massage might make little to no difference to back-specific function. Reference: Shu J, Li D, Tao W, Chen S. Observation on the curative effect of massage manipulation combined with core strength training in patients with chronic nonspecific low back pain. *Evid Based Complement Alternat Med* 2021;2021:7534577.



## Rationale for judgements

The GDG noted that in the six sham controlled trials, small to moderate benefits for pain in the short and intermediate periods were observed, with moderate benefits for function in the immediate, short and intermediate periods, and moderate benefits for fear avoidance beliefs in the immediate and short term. The GDG identified a lack of outcomes data beyond the intermediate term, raising uncertainty about longer-term benefit and harm of massage. Overall, harms were judged to be uncertain since the included trials did not consistently report on harms and the certainty of the evidence for harms was consistently very low. Nonetheless, the GDG noted results of sensitivity analysis where the trial by Shu et al. was excluded (98), indicating a potential disbenefit for pain in the immediate term when massage is added to another intervention. The GDG judged the overall certainty of evidence to be very low for all adults, and very low for older people, consistent with the systematic review team's assessment. The GDG judged the balance of benefits to harms for massage to be uncertain, with some GDG members considering the balance to favour massage due to small to moderate benefits while others felt that the balance did not favour massage due to low to very low certainty evidence.

The GDG judged there to be important uncertainty or variability in values and preferences for all adults and for older people. This uncertainty was based on the GDG's view that, in general, the certainty of evidence for benefits and harms for massage

was low to very low and that attitudes towards massage and its accessibility varied between countries. The GDG opined that some people might prefer manual therapies such as massage, due to its "hands-on" nature, while other people might not prefer this approach. Based on experience and evidence from included trials for an average of eight treatment sessions, the GDG judged that massage was likely to be associated with moderate costs, while acknowledging costs and equity impacts would vary by setting, particularly where massage therapies are provided outside health care facilities. The GDG judged that in most settings, delivery of massage would be feasible, although the acceptability of massage was likely to vary across health workers and people with CPLBP.

The GDG reached a consensus conditional recommendation in favour of massage on the basis of small to moderate benefits for important outcomes, predominantly pain and function, identified in the sham controlled trials. While the evidence for harms was poorly reported and in consideration of the disbenefit observed for pain in the immediate term when massage was added to another intervention, the GDG opined that the risk of harms for massage was likely to be low and transient when delivered by trained health workers. In this context, the GDG considered the likely benefits of massage outweighed the risk of harms. The GDG also judged that many people are likely to value this intervention and that, in general, it is widely available and feasible to deliver across the world. However,

based on the sensitivity analysis, the GDG noted there might be a risk of increased pain in the immediate term and that this risk should be explained to people who choose to receive this intervention.

*Annex 3 (Table C5)* provides a summary of the judgements made by the GDG for each EtD domain.

## B.5 Traction



### Definition of the intervention

Traction is the application of a distraction force to the long axis of the spine, achieved using body weight (either of a therapist or patient), external weights and/or pulleys. The evidence review for the guideline included all types of traction such as mechanical or motorized traction (where the traction is exerted by a motorized pulley), manual traction (in which the traction is exerted by the therapist, using their body weight to alter the force and direction of the pull), auto-traction (where the person controls the traction forces by grasping and pulling bars at the head of the traction table), and also less common forms such as underwater traction (where the person is fixed perpendicularly in a deep pool, a bar grasped under the arms and traction applied) and gravitational traction (e.g. bed rest traction, in which the person is fixed to a tilted table or bed, or inverted traction, where the participant is held in an inverted position by the ankles and another part of the lower extremities and gravity provides the force). Traction can be intermittent or continuous and applied for a few seconds to several hours.



### Recommendation

**Traction should not be used as part of routine care for adults, including older people, with CPLBP**

*(conditional recommendation against use, very low certainty).*



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

The evidence for benefits and harms of traction for CPLBP was based on an update to an earlier Cochrane systematic review (99). The current synthesis comprised 10 trials with a total of 921 participants. There were no trials reporting outcomes for older people separately. Three trials were conducted in 3 HICs (Saudi Arabia: 1 trial; Hungary: 1 trial; Netherlands (Kingdom of the): 1 trial) and seven trials were conducted in three LMICs (Türkiye: 3 trials; Egypt: 3 trials; Pakistan: 1 trial). Participants were included from across ages ranging from 24 to 61 years. All trials included mixed male and female populations. Five trials included participants with spine-related leg pain, of which one trial included participants with unspecified leg pain, and four trials included participants with leg pain classified as radicular in nature. One trial excluded participants with leg pain, and in four trials it was unclear whether participants with leg pain were included. One trial reported on the ethnicity of the included participants, with > 95% participants being white, while the status was unclear in the remaining trials. Nine trials used motorized traction and one trial examined the use of weights during underwater traction. No trials used manual traction. In two trials the load was dependent on the participant's pain tolerance, and in eight trials a high load was used. Five trials used continuous traction and five used intermittent traction. The average duration of treatments was 5.6 weeks (range 2–12 weeks), and the average number of treatments received was 17.6 (range 10–30).



#### Outcomes

- In the comparison of traction with **sham** (1 trial), no differences were observed for pain in the short term and the certainty of the evidence was very low. No data were available for pain at other time-points or any other critical outcomes. The trial did not report on harms.
- In the comparison of traction with **no intervention**, no trial was identified.
- In the comparison of traction with **usual care**, no trial was identified.
- In the comparison of traction **added to another intervention versus another intervention alone** (9 trials), benefits were observed for pain and function. However, since the certainty of the evidence was very low, it was uncertain whether traction:
  - › reduced pain in the immediate (small effect) and intermediate terms (moderate effect), and made little to no difference to pain in the short term. No data were available for the long-term;
  - › improved back-specific function in the immediate (small effect) and intermediate terms (small effect), and made little to no difference to back-specific function in the short term. No data were available for the long-term; or
  - › made little to no difference to health-related quality of life in the immediate term. No data were available for other time-points.

No data were available for other time-points. The included trials did not report on harms.

Web Annex D.B5 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

## Qualitative review

No qualitative evidence was identified specific to traction for the following EtD domains: values and preferences, resource

implications, equity and human rights, acceptability or feasibility.



## Rationale for judgements

For all adults, the GDG judged overall net benefits across outcomes to be trivial and uncertain, and for older people to be largely uncertain given the lack of evidence. The GDG also identified a lack of outcomes data beyond the intermediate term, raising uncertainty about longer-term benefit and harms of traction. Overall, harms were judged to be uncertain since the included trials did not report on harms. However, the GDG opined that potentially serious harms might be associated with traction, particularly for older people with more fragile soft tissue and skeletal structures, and although the trials included in the evidence review did not report harms, these ought be considered in their decision-making, e.g. aggravation of neurological signs/symptoms. Specifically, the GDG pointed to the 2013 Cochrane review of traction in acute, subacute or chronic LBP and the signs of harms reported in that review (99). Specifically, that review reported that in trials comparing traction with sham, one trial reported that 8% of participants

in the traction group compared with 0% in the sham group proceeded to surgery, one trial reported that 28% in the traction group compared with 20% in the sham group experienced an aggravation of neurological symptoms, and one trial reported that 12% in the traction group compared with 2% in the sham group reported an aggravation of symptoms. Considering these supplementary data, the GDG rationalized that the risk of harm from traction outweighed benefits for the intervention. The GDG judged the overall certainty of evidence to be very low, consistent with the systematic review team's assessment. The GDG judged that the balance of benefits to harms for traction probably did not favour traction, while some members judged this balance to be uncertain, especially in older people where no trials were identified.

The GDG judged there to be important uncertainty or variability in values and preferences for all adults, including older



people. This uncertainty was based on the GDG's view that, in general, attitudes towards traction and its effects and accessibility vary across the world. Based on experience among the GDG and evidence from the included trials which evaluated an average of 18 treatment sessions, the GDG judged traction to be associated with moderate costs to people with CPLBP and not without cost to health care facilities from an infrastructure perspective. The GDG acknowledged that costs and the impacts of out-of-pocket costs on equity would vary by setting, particularly where traction therapies are provided outside health care facilities, such as in unregulated community settings. The GDG judged that in most settings, delivery of traction would be feasible notwithstanding infrastructure requirements for traction apparatuses, although the acceptability of traction was likely to vary across health workers and people with CPLBP, particularly where people observed little benefit.

The GDG reached a consensus decision to make a conditional recommendation against

the use of traction. This decision was driven by harms outweighing benefits. Specifically, the GDG noted indirect evidence of potential harms and the lack of benefits observed in the sham controlled trial coupled with limited evidence for benefit when traction was added to another intervention. The GDG identified that delivery of traction might be associated with moderate costs to health systems and people without clear cost-benefit. Compared with other manual therapy interventions, the GDG also identified likely costs to health systems to acquire and/or maintain infrastructure to deliver traction. The GDG deemed the recommendation to be of a conditional strength based on the very low certainty of evidence and the limited evidence of harm from the included trials. Two GDG members disagreed with this decision and judged that no recommendation would instead be appropriate.

*Annex 3 (Table C6)* provides a summary of the judgements made by the GDG for each EtD domain.



## B.6 Therapeutic ultrasound



### Definition of the intervention

Therapeutic ultrasound is an electrophysical treatment modality postulated to deliver energy to deep tissue sites through ultrasonic waves, to increase tissue temperature and/or create non-thermal physiological changes. Physiological changes are purported to improve symptoms (pain, inflammation) and promote or accelerate tissue healing. Unlike diagnostic ultrasound for medical imaging (which transmits ultrasonic waves and transforms the returning echo into an image), therapeutic ultrasound is a one-way energy delivery system which uses a crystal sound head to transmit acoustic waves at 1 or 3 MHz and at amplitude densities of between 0.1 W/cm<sup>2</sup> and 3 W/cm<sup>2</sup>, in a continuous or pulsed mode.



### Recommendation

**Therapeutic ultrasound should not be used as part of routine care for adults, including older people, with CPLB**

*(conditional recommendation against use, low certainty evidence).*



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

The evidence for the benefits and harms of therapeutic ultrasound (“ultrasound”) for the treatment of CPLBP was based on an update to an earlier Cochrane review (100). The current synthesis comprised 12 trials with a total of 989 participants. All trials included participants across a range of age groups (range 25–77 years). Three trials were conducted in three HICs (Croatia: 1 trial, Saudi Arabia: 1 trial, United States: 1 trial); seven trials in four in UMICs (Türkiye: 4 trials, Brazil: 1 trial, India: 1 trial, Pakistan: 1 trial); and two trials in one LMIC (Islamic Republic of Iran: 2 trials). Three trials included only females while the other nine trials included mixed male and female

populations. No study included only males. There were no trials reporting outcomes for older people separately. Ten trials used an intervention parameter of 1 MHz continuous ultrasound at intensities of between 1 and 2.5 W/cm<sup>2</sup>. One trial used both pulsed and continuous ultrasound and one trial used pulsed ultrasound in the intervention group. The duration of intervention varied across trials: three trials used a standard formula to calculate the application time, while in other trials ultrasound application ranged from five to 20 minutes. The number of treatment sessions also varied across trials, from six to 30 sessions (every other day for 10 weeks).



## Outcomes

- In the comparison of ultrasound with **sham** (6 trials), no differences were observed. Ultrasound may make little to no difference to pain as a dichotomous outcome, function, health-related quality of life or depression in the short-term (low certainty evidence). It was uncertain whether ultrasound made little to no difference to pain as a continuous outcome or social participation in the short term, since the certainty of the evidence was very low. In the one trial that evaluated harms, it was uncertain whether ultrasound made little to no difference to rates of adverse events or serious adverse events, since the certainty of the evidence was very low.
- In the comparison of ultrasound with **usual care**, no trial was identified.
- In the comparison of ultrasound with **no intervention or where the effect of the intervention could be isolated** (six trials), benefits were observed for pain and function. However, since the certainty of the evidence was very low, it was uncertain whether ultrasound:
  - › reduced pain (small effect) and improved back-specific function (small effect) in the short term; or
  - › made little to no difference to health-related quality of life or depression in the short term.
  - › In the one trial that evaluated harms, it was uncertain whether ultrasound made little to no difference to rates of adverse events or serious adverse events, since the certainty of the evidence was very low.

Web Annex D.B6 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

## Qualitative review

No qualitative evidence was identified specific to ultrasound for the following EtD domains: values and preferences, resource implications, equity and human rights, acceptability or feasibility.



## Rationale for judgements

For all adults, the GDG judged overall net benefits to be none to trivial, small or uncertain, while for older people net benefits were judged to be uncertain owing to the absence of evidence. Although there was some variability in outcomes, the GDG noted the meta-analyses of six sham controlled trials demonstrated no clinical benefit with low certainty. Overall, harms were judged

to be uncertain due to the uncertainty of evidence reported in two trials. The GDG judged the overall certainty of evidence to be low. The GDG judged that the balance of benefits to harms for ultrasound largely did not favour or probably did not favour ultrasound. Some GDG members felt the balance was uncertain based on low to very low certainty evidence across outcomes and

limited evidence beyond short-term time-points, and that considerable heterogeneity in dose parameters was reported across trials.

The GDG judged that values and preferences for older people and adults would vary by setting. In settings where ultrasound is not commonly used and/or where people with CPLBP understand and/or anticipate that benefits might be limited, possibly important uncertainty or variability among people could exist. In other settings where ultrasound is commonly used and expected by people with CPLBP (e.g. some low- and middle-income countries based on the experience of GDG members), there is probably no important uncertainty or variability relating to their values and preferences. The GDG judged that the costs associated with ultrasound would vary. For health services, moderate costs could be expected when considering machine acquisition and maintenance and staff training. However, in settings where health facilities already have ultrasound machines and trained staff, costs could be negligible for delivery of this intervention. For people with CPLBP, costs might be moderate based on the number of treatment sessions required and whether any subsidies for treatment costs are available. The GDG noted the number of treatment sessions in the included trials ranged from 6 to 30 and concluded that moderate costs might be associated with the intervention in some settings, particularly where out-of-pocket costs are substantial. The GDG judged that health equity impacts would vary according to the setting and cost implications for delivery of the intervention. The GDG judged that in most settings,

provision of ultrasound would probably be feasible since ultrasound units are widely available, yet feasibility could be more limited in settings where ultrasound units are not already available. The GDG acknowledged that acceptability might vary across people with CPLBP and health workers for the abovementioned reasons.

The GDG reached a consensus decision to make a conditional recommendation against the use of ultrasound for the management of CPLBP in adults, including older people. The decision was based on evidence of little clinical benefit observed among the included trials (in particular, no benefits reported in the sham controlled trials) and a potentially high time and cost burden to people with CPLBP, which might have negative impacts on health equity, as well as a potentially high-cost burden to health facilities to acquire and/or maintain ultrasound units. The conditional strength of the recommendation reflects the low certainty evidence. One GDG member disagreed with this decision, suggesting that making no recommendation would be more appropriate based on the certainty of evidence available.

*Annex 3 (Table C7)* provides a summary of the judgements made by the GDG for each EtD domain.

## B.7 Transcutaneous electrical nerve stimulation



### Definition of the intervention

Transcutaneous electrical nerve stimulation (TENS) is a non-invasive peripheral electrical stimulation modality applied to the skin using surface electrodes. TENS uses low-voltage electrical currents between the electrodes to modify the perception of pain, acting through segmental inhibition or activation of descending nociceptive-inhibitory systems. TENS devices may be used in health facilities or portably for use at home. A range of stimulation parameters can be selected, based on clinical indication, including pulse intensity, frequency, duration and type (burst or continuous). Among the included trials used to inform the guideline, TENS interventions involved electrode placement over the paravertebral lumbosacral area and sometimes the affected leg in the case of spine-related leg pain, using conventional continuous or burst pulse parameters.



### Recommendation

**Transcutaneous electrical nerve stimulation (TENS) should not be used as part of routine care for adults, including older people, with CPLBP**

*(conditional recommendation against use, very low certainty evidence).*



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

The evidence for the benefits and harms of TENS in the treatment of CPLBP was based on an update to a previously published Cochrane review (101). The current synthesis comprised 17 trials (16 reports) including a total of 1027 participants (ranging from 11 to 134 participants per trial) from predominantly health care settings. Six trials were conducted in four HICs [Canada (1 trial), Greece (1 trial), Japan (1 trial), United States (3 trials)]; seven trials were conducted in three UMICs [Brazil (3 trials), China (1 trial), Türkiye (3 trials)]; and four trials were conducted in three LMICs

[Egypt (1 trial), Islamic Republic of Iran (1 trial), Nigeria (2 trials)]. The mean age of the participants ranged from 22 to 64 years; one trial (2 reports) assessed older people (aged 60 years or more). The percentage of females within the trials ranged from 13% to 100%.



#### Outcomes

- In the comparison of TENS with **sham** (9 trials), no clinically important differences were observed. It was uncertain whether TENS reduced pain in the immediate term (trivial effect), since the certainty of

evidence was very low. It was uncertain whether TENS made little to no difference to pain at other time-points and to other outcomes (function, health-related quality of life and depression) since the certainty of the evidence was very low.



In a single trial among older people, it was uncertain whether TENS made little to no difference to pain in the immediate term, since the certainty of the evidence was very low.

One trial evaluated harms, with low certainty evidence suggesting TENS may make little to no difference to harms.

- In the comparison of TENS with **usual care**, no trial was identified.
- In the comparison of TENS with **no intervention or where the effect of the intervention could be isolated** (8 trials), benefit was observed for catastrophizing

beliefs<sup>3</sup> (102) only in a single trial. However, since the certainty of evidence was very low, it was uncertain whether TENS reduced catastrophizing beliefs in the short term (small effect) and whether TENS made little to no difference to other outcomes (pain, function, health-related quality of life and depression). One trial evaluated harms with very low certainty evidence suggesting TENS made little to no difference to harms.

Web Annex D.B7 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

## Qualitative review

No qualitative evidence was identified specific to TENS for the following EtD domains: values and preferences, resource implications, equity and human rights, acceptability or feasibility.



## Rationale for judgements

For all adults and older people, the GDG judged net benefits across outcomes and across comparators to be uncertain or small. However, the GDG noted, in particular, that no clinically important benefits were observed for the meta-analysis of nine sham controlled trials. The GDG also considered indirect evidence of benefits from a 1990 trial that was not included in the evidence review since the population definition in this trial did not

meet that of the guideline. Nonetheless, this trial identified little to no difference in pain and function in the intervention group (very low certainty evidence) (103). The GDG also identified a lack of outcomes data beyond the short term, raising uncertainty about longer-term benefit and harms of TENS. Overall, harms were judged to be small to uncertain. The GDG judged the overall certainty of evidence to be very low, consistent with the

<sup>3</sup> "Catastrophizing" refers to the extent to which people magnify the threat value of a pain stimulus, feel helpless in their pain experience or exhibit a diminished capacity to prevent or manage thoughts related to the threat of pain in anticipation of, during or following its occurrence.



systematic review team's assessment. The GDG judged the balance of benefits to harms for TENS to be uncertain since the certainty of the evidence for benefits was very low and only a minority of trials reported on harms.

The GDG judged that there was likely to be important or possibly important uncertainty or variability among people with CPLBP in their values and preferences relating to TENS outcomes. In settings where TENS is not commonly used and/or where people with CPLBP understand and/or anticipate that benefits might be limited, possibly important uncertainty or variability among people could exist. In other settings where TENS is commonly used and expected by people with CPLBP (e.g. some low- and middle-income countries based on the experience of GDG members), there is probably no important uncertainty or variability relating to their values and preferences. Based on experience among GDG members and considering evidence from included trials for the number of in-person treatment sessions (which ranged from 1–20), the GDG judged TENS to be associated with moderate to high costs for people with CPLBP, particularly for residents of low- and middle-income countries and those in low-resource settings where treatment subsidies may be limited. The GDG judged that such costs might have negative consequences for health equity in some settings. Moderate costs could also be relevant to health care facilities from an infrastructure perspective where non-portable TENS units are used. The GDG judged that in most settings, delivery of TENS would probably be feasible where TENS units already existed, although the acceptability of

TENS was likely to vary across health workers and people with CPLBP.

The GDG reached a consensus decision to make a conditional recommendation against TENS. This decision was based on the very low certainty evidence for benefits and harms, a signal of no clinical benefit from sham controlled trials, as well as the moderate to high costs related to equipment, training for health workers, frequency of sessions and the possible negative impacts on equity. Four GDG members disagreed with this decision and judged that no recommendation would instead be appropriate.

*Annex 3 (Table C8)* provides a summary of the judgements made by the GDG for each EtD domain.



## B.8

# Assistive products: lumbar braces, belts and/or supports and mobility assistive products



### Definition of the intervention

WHO defines assistive products as any external product (including devices, equipment, instruments or software), specially produced or generally available, the primary purpose of which is to maintain or improve an individual's functioning and independence, and thereby promote well-being. Assistive products are also used to prevent impairments and secondary health conditions (104). In the context of care for people with LBP, lumbar braces, belts and/or supports and mobility assistive products are typically used in Clinical practice. For the purpose of the guideline, assistive products were limited to these external devices/equipment and software products were not considered.

Non-rigid and rigid lumbar braces, belts and/or supports include plastic (rigid) or flexible (elastic or non-elastic) material with or without rigid inserts wrapping the lumbar/thoracolumbar trunk to block or limit mobility and/or reduce strains and physical demands on the lower back. These products are commonly used for CPLBP either as a treatment or to reduce recurrences of pain. They are accessible in most countries, with limitations due to costs (they are usually an out-of-pocket expense) and climate (they are difficult to wear in high temperatures).

Mobility assistive products include wheelchairs, mobility scooters, tricycles, crutches, walking sticks/canes and walking frames/walkers. These products primarily address mobility impairments, but they can also affect the mechanical load on the low back due to supported limb movements. They are accessible in most countries, even if with limitations in technology (due to costs) and usability (due to infrastructure barriers).



### Recommendation: Lumbar braces, belts and/or supports

**Lumbar braces, belts and/or supports should not be used as part of routine care for adults, including older people, with CPLBP**

*(conditional recommendation against use, very low certainty evidence).*

### Remark

- Long-term use of these assistive products may be associated with harms, including dependence, fear avoidance of movement and deconditioning.

### Good practice statement and key considerations: Mobility assistive products

#### Quality, affordable mobility assistive products should be offered to adults, including older people, with CPLBP, based on a person-centred assessment

(good practice statement in favour of use).

##### Key considerations

- Provision of mobility assistive products for adults, including older people with CPLBP, requires a comprehensive service provision including: a person-centred assessment, selection of the best product for the person's needs, fitting the product and teaching the person how to use it. Follow-up services should also be available for reassessment of need, as well as maintenance and repair of product(s).
- The context of use should be considered when selecting assistive product(s) in order to determine whether it is fit for purpose within the person's environment. Where infrastructure barriers are identified, these may need to be addressed with other environmental adaptations (e.g. ramps).
- A mobility assistive product should always be provided by trained personnel. WHO provides training in safe and effective provision of assistive products through its [training in assistive products \(TAP\)](#).
- WHO has assistive product specifications available for a range of mobility assistive products, including wheelchairs, pressure cushions and walking aids; and WHO/ UNICEF have co-published a [technical and capacity-building guide](#) for countries in the procurement of assistive products (105).



## Summary of the evidence

### Quantitative review

#### Lumbar braces, belts and/or supports

##### Characteristics of the evidence

The evidence for the benefits and harms of lumbar braces, belts and/or supports for the treatment of CPLBP comprised seven trials (8 reports) with a total of 647 participants. Across the included trials, participants were adults (age range: 25–78 years) of both sexes.

No trials allowed data to be extracted for older people separately (aged 60 years and over). A relevant race/ethnicity construct was reported in only one trial: 58% black, 10%

Hispanic and 32% white. Four trials were conducted in LMICs (Islamic Republic of Iran: 2 trials, Bangladesh: 1 trial, Türkiye: 1 trial) while three were conducted in HICs (United States: 1 trial, Japan: 1 trial, Germany: 1 trial). All included trials compared lumbar braces, belts and/or supports to usual care where the effect of the intervention could be isolated. Meta-analyses included trials comparing lumbar supports in addition to non-steroidal



anti-inflammatory drugs (NSAIDs) compared with NSAIDs alone (classified as usual care), while single RCTs studied lumbar braces, belts and/or supports as an add-on (i.e. where the effect of the intervention could be isolated) compared to back school, usual care, muscle training and activities of daily living.

### Outcomes

- In the comparison of lumbar braces, belts and/or supports with **usual care (NSAIDs)** versus NSAIDs alone (2 trials), low certainty evidence suggested lumbar braces, belts and/or supports may reduce pain (large effect) after four weeks (short term). This finding was not supported when considering the four trials (very low certainty evidence) which could not be included in the meta-analysis due to missing data (time-points from 4 weeks to 6 months), and it was thus uncertain whether lumbar braces, belts and/or supports made little to no difference to pain outcomes at any time-point since the certainty of evidence was very low.

It was uncertain whether lumbar braces, belts and/or supports made little to no difference to disability, since the certainty of evidence was very low (2 trials). Similarly, when considering the three trials not included in the meta-analysis, it was

uncertain whether lumbar braces, belts and/or supports made little to no difference to disability outcomes at any time-point since the certainty of evidence was very low. No trials reported on harms.

Web Annex D.B8 provides the detailed GRADE evidence profile tables for lumbar braces, belts and/or supports, by comparator.

### Mobility assistive products

#### Characteristics of the evidence

No trials of mobility assistive products were identified.



## Qualitative review (all assistive products)

#	Review findings: feasibility relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
16	Some older people adopted physical exercise or assistive products as a part of their self-management approach to supplement conventional treatments, or when conventional treatments failed or proved to be insufficient. Some viewed this as experimenting to find a solution.	MODERATE	Minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, no/very minor concerns regarding adequacy, and minor concerns regarding relevance.

No qualitative evidence was identified specific to any assistive products for the following EtD domains: values and preferences, resource implications, equity and human rights, or acceptability.



### Rationale for judgements (lumbar braces, belts and/or supports)

For all adults, most GDG members judged overall net benefits for lumbar braces, belts and/or supports to be trivial or uncertain (one GDG member opined that benefits were moderate based on their clinical experience and indirect evidence from a different clinical population), while for older people net benefits were judged to be uncertain owing to the absence of evidence. Although some of the trials included in the narrative synthesis reported outcomes at 6 months, most of the available evidence was limited to short-term (4 weeks) outcomes, creating uncertainty

about longer-term benefit. Overall, harms for lumbar braces, belts and/or supports were judged to be uncertain due to the absence of evidence. Some GDG members opined that harms were trivial based on their clinical experience, while others highlighted potential harms with longer-term use of the products where unhelpful dependence and fear avoidance of trunk movement might develop, with possible deconditioning of trunk musculature. The GDG judged the overall certainty of evidence to be very low, consistent with the systematic review team's

assessment. The GDG judged the balance of benefits to harms for braces, belts and/or supports to be largely uncertain, since the certainty of evidence for most outcomes was very low and none of the included trials reported on harms. Nonetheless, some GDG members expressed the opinion that the balance did not favour lumbar braces, belts and/or supports and one GDG member expressed the opinion that the balance probably favoured the intervention based on indirect evidence from clinical experience from surgical population groups.

The GDG judged there was likely to be important or possibly important uncertainty or variability regarding values and preferences relating to lumbar braces, belts and/or supports' among people with CPLBP. GDG members commented, from their experience, that some people appreciate the feeling of a brace/supports, and the security and identity it offers, particularly in the context of a return to work or activity or during an acute pain exacerbation. For others, a brace/support may be perceived as stigmatizing and uncomfortable to wear, particularly in hot environments. The GDG judged that the costs associated with lumbar braces, belts and/or supports could vary. In some settings (particularly low resource settings), out-of-pocket costs might be high, whereas costs were likely to be negligible where lumbar braces, belts and/or supports are subsidized or cheap relative to income. Similarly, the GDG noted that health equity, in some settings, could be reduced due to affordability and the potential stigma associated with lumbar braces, belts and/or supports. The GDG judged that in most settings, provision of lumbar braces, belts and/or supports would probably

be feasible owing to their wide availability. The GDG judged that acceptability could vary across people with CPLBP and health workers. The GDG referred to the qualitative evidence synthesis, which identified that some older people use assistive products as part of their self-management approach (moderate confidence), suggesting that the intervention was acceptable to older adults, and also probably acceptable to all adults.

For lumbar braces, belts and/or supports, the GDG reached a consensus decision to make a conditional recommendation against the intervention. This decision was based on the GDG's assessment of trivial benefit when considering the meta-analyses, additional trials that were narratively synthesised, and members' opinions about the potential for harms when braces are used in the longer term. The decision to make a conditional recommendation against the intervention was also informed by the likely wide-ranging context-specific variability regarding the values and preferences of people with CPLBP and the potential negative impact on equity in low resource contexts. Five GDG members disagreed with this decision and judged that no recommendation would instead be appropriate based on the very limited certainty of the evidence available. While acknowledging that people with spinal deformities represent a different population group in relation to the focus of the current guideline, the conditional recommendation against the use of braces, belts and/or supports should not limit their use in such population groups.

*Annex 3 (Table C9)* provides a summary of the judgements made by the GDG for each EtD domain.





## Rationale for judgements (mobility assistive products)

For **mobility assistive products**, the GDG noted that although there was no evidence available for mobility assistive products, the need for mobility assistive products is often self-evident and failure to recognise this in the guideline would be disadvantageous to people for whom a product is likely to support function and participation. For this reason, the GDG elected to provide a good practice statement with input from the Access to Assistive Technology Team at WHO.



Intervention class **C:**

## Psychological interventions



Psychological interventions considered for the guideline comprised five interventions: operant, respondent, cognitive, cognitive behavioural and mindfulness-based stress reduction therapies. This section provides a summary of the evidence relating to all psychological interventions combined, while subsections C.1–C.5 provide the intervention-specific evidence summaries, rationales and judgements.



### Definition of the interventions

Three interventions (operant, respondent and cognitive therapies) aligned with an earlier Cochrane review of behavioural treatments for LBP (4). Each of these interventions focuses on modifying one of the three response systems which characterize emotional experiences: behaviour, physiological reactivity, and cognition, respectively. However, there is an acceptance that psychological interventions are complex and multifaceted and that treatment for chronic pain may not be appropriately bound by this classification (5). These three interventions are therefore often applied in a combined treatment approach, commonly referred to as cognitive behavioural therapy (CBT). Acceptance and commitment therapy, an extension of CBT, was not considered for the guideline. Mindfulness-based stress reduction therapy was also considered as an intervention for the guideline. This intervention aims to reduce pain through improved tolerance/acceptance of body sensations.

While other psychological interventions may be relevant to the management of CPLBP, such as those outlined in the WHO mhGAP Intervention Guide – Version 2.0 for mental, neurological and substance use (MNS) disorders in non-specialist health settings (106), the guideline considers these five interventions as stand-alone interventions for CPLBP. Intervention-specific definitions are provided in the subsequent sections C.1–C.5.



## Summary of the evidence across all psychological interventions

### Quantitative review

#### Characteristics of the evidence

The evidence for the benefits and harms of psychological interventions in the treatment of CPLBP was based on an update and extension of an earlier Cochrane review, which considered the three distinct interventions (operant, respondent and cognitive therapies) and the combined treatment approach: cognitive behavioural therapy (CBT) (4). For the current synthesis, mindfulness-based stress reduction therapy was added to this suite of interventions. The current synthesis comprised 44 trials involving a total of 5996 participants. Forty trials were carried out in 12 HICs (United States: 10 trials; Germany: 8 trials; Netherlands (Kingdom of the): 4 trials; Australia: 5 trials; United Kingdom: 3 trials; Sweden: 3 trials; Italy: 2 trials; Austria: 1 trial; Romania: 1 trial; Norway: 1 trial; Denmark: 1

trial, Israel: 1 trial), one in an UMIC (Brazil: 1 trial) and the remaining three in three LMICs (1 each in the Islamic Republic of Iran, Ghana and Pakistan). All trials included participants across an age group ranging from 20 to 65 years. No trials reported on older age groups separately. Two trials included only females while the other 42 trials included mixed male and female populations. No trial included only males. No trials reported on marginalized populations separately and eight trials described the race/ethnicity of their population.

A summary of included trials by comparator for each psychological intervention is provided in *Table 10*.



**Table 10:** Number of psychological therapy trials by intervention and comparator.

Psychological therapy	Placebo (total sample size)	No intervention (total sample size)	Usual care (total sample size)
Operant therapy	No trials	4 trials (n=391)	No trials
Respondent therapy <sup>i</sup>	3 trials (n=144)	6 trials (n=344)	1 trial (n=234)
Cognitive therapy	No trials	4 trials (n=364)	No trials
Cognitive behavioural therapy (CBT)	No trials	25 trials (n=3636)	5 trials (n=1223)
Mindfulness-based stress reduction (MBSR) therapy	No trials	2 trials (n=155)	1 trial (n=342)

<sup>i</sup> 10 trials were included across 9 unique research reports (one report included two comparator groups).

Quantitative outcomes of the syntheses are reported for each specific intervention, by comparator, in the subsequent sections C.1–C.5. Where no information is provided for a specific intervention (e.g. comparator or outcome), this indicates that no evidence was available for that intervention.

## Qualitative review

No qualitative evidence was identified specific to psychological interventions generally for the following EtD domains: resource implications, equity and human rights, acceptability or feasibility. Some evidence related to values and preferences for MBSR therapy specifically was identified and this is presented in section C.5.

## Overall judgements and EtD considerations for psychological interventions generally

The GDG considered the EtD domains of values and preferences, resource requirements, equity and human rights, acceptability and feasibility for all psychological interventions together, since the GDG expected that judgements for these domains would not differ by for each psychological intervention. This section therefore outlines GDG members' judgements for those domains as they relate to psychological interventions in general. These judgements should be considered alongside the rationale for each psychological intervention.

The GDG judged that values and preferences for older people relating to psychological interventions were likely to be applicable to all adults and that there could be important or possibly important uncertainty or variability among people with CPLBP. Such variability could probably be attributed to psychological interventions not being accessible globally and the considerable variation in sociocultural attitudes and awareness about these interventions. The GDG also acknowledged that subsidy-funding from government or insurance schemes for psychological interventions vary across health systems, making accessibility and affordability difficult for some people, particularly people in low- and middle-income countries. The GDG judged that costs associated with delivery of psychological interventions were likely to be moderate to large. However, the GDG acknowledged that costs would likely vary across health and subsidy schemes, depending on whether specialist or non-specialist health practitioners delivered the intervention(s). The GDG noted that in many cases, people with CPLBP might have to attend several treatment sessions, and that this could be associated with substantial costs. The GDG also noted that costs for workforce training might also be substantial for specialist health

practitioners (e.g. clinical psychologists), while costs are likely to be less significant for non-specialist health workers delivering simple behavioural interventions. Across the included trials, psychological interventions were delivered in secondary care settings, which could suggest a lack of implementation feasibility in community and primary care settings, potentially creating a travel burden for people to access care, particularly those living in rural or remote areas. The GDG noted, however, that the [WHO mhGAP Intervention Guide](#) and [WHO mhGAP community toolkit](#) offer guidance on the delivery of psychological interventions in non-specialized health settings and could provide additional implementation guidance for low-resource contexts (106). Given the potential costs to people with CPLBP and the fact that subsidies for psychological interventions are limited in most health services, health equity could be impacted, although this would vary by setting.

The GDG judged that the feasibility to deliver psychological interventions would vary. Lack of a skilled workforce in community settings and potentially high treatment costs without government or insurance subsidy could limit accessibility and affordability to people with CPLBP, particularly in low-resource

settings. Different sociocultural attitudes towards these interventions, accessibility limitations in community settings and potential out-of-pocket expenses are likely to contribute to variations in the acceptability of these interventions. In particular, some GDG members identified that benefit from

behavioural therapies requires more than a physiological response to the intervention; it requires an enabling socioeconomic environment, education and health literacy, which might be less available to people in low-resource settings.

## C.1 Operant therapy



### Definition of the intervention

Operant therapy aims to replace pain-related behaviours with helpful, healthy behaviours (e.g. exercise, work). Time-contingent exercises (i.e. quotas) and encouraging people with CPLBP to increase their activity levels are its main principles. This type of therapy is aligned with behavioural activation therapy.



### Recommendation

**Operant therapy may be offered as part of care to adults, including older people, with CPLBP**

*(conditional recommendation in favour of use, very low certainty evidence).*

### Remarks

- Depression, anxiety, stress and other mental conditions are common comorbidities in adults with CPLBP, but may not affect all people with CPLBP. Person-centred assessment with respect and dignity is required to diagnose and manage these conditions. WHO provides [mhGAP](#) recommendations for different psychological interventions, which may be of benefit to people with CPLBP and comorbid mental disorders in non-specialist health settings.
- When operant therapy is offered to people with CPLBP, it should be considered as part of a broader suite of effective treatments (i.e. not offered as a single intervention in isolation), based on a biopsychosocial assessment.





## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

Operant therapy was evaluated in 4 trials compared with no intervention (n=391). The trials were conducted in three HICs (Netherlands (Kingdom of the): 1 trial; Sweden: 1 trial; United States: 2 trials). Where reported, the age of participants ranged from 20–64 years and the proportion of females included ranged from 37% to 100%.

#### Outcomes

- In the comparison of operant therapy with **placebo**, no trials were identified.
- In the comparison of operant therapy with **no intervention or where the effect of the intervention could be isolated** (4 trials), possible benefit was observed for pain.
  - › Since the certainty of the evidence was very low, it was uncertain whether operant therapy reduced pain in the short term (moderate effect) or intermediate term (moderate effect). It was uncertain whether operant therapy made little to no difference to pain in the long term since the certainty of the evidence was very low.
  - › Since the certainty of the evidence was very low, it was uncertain whether operant therapy made little to no difference to back-specific function at any time-point.

- › Since the certainty of evidence was very low, it was uncertain whether operant therapy made little to no difference to depression, anxiety or coping at any time-point.

Trials did not report on harms.

- In the comparison of operant therapy with **usual care**, no trials were identified.

Web Annex D.C1 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

### Qualitative review

No qualitative evidence was identified specific to operant therapy for the following EtD domains: values and preferences, resource implications, equity and human rights, acceptability or feasibility.





## Rationale for judgements

For all adults and older people, the GDG judged overall net benefits for operant therapy to be largely uncertain, based on very low certainty evidence from four trials, and that no clinically important benefits were observed for most outcomes although moderate benefits for pain in the short and intermediate follow-up periods were noted. Similarly, harms were judged to be uncertain since they were not measured in the trials. However, the GDG opined that harms, if any, were likely to be trivial. The GDG judged the overall certainty of evidence to be very low, consistent with the ratings provided by the systematic review team. The GDG judged that the balance of benefits to harms for operant therapy was uncertain (due to the very low certainty evidence and no evidence on harms) or probably favoured operant therapy (based on moderate effects on pain in the short and intermediate terms). The GDG noted that trials did not employ a sampling stratification based on the mental health of participants and judged that people who experience mental health comorbidities alongside CPLBP might respond differently to operant therapy compared to individuals without mental health comorbidities.

A description of GDG members' judgements relevant to all psychological interventions for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C10)*. *Table C10* also provides a

summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for operant therapy.

The GDG reached a consensus decision to make a conditional recommendation in favour of operant therapy. This decision was based on moderate benefits for pain in the short and intermediate periods, without clear evidence of harms. The GDG judged that despite concerns relating to cost, equity, acceptability and feasibility in low-resource settings as outlined above, the signal of moderate benefit to pain for operant therapy outweighed these implementation concerns. The GDG also referred to the [WHO mhGAP Intervention Guide](#) and [WHO mhGAP community toolkit](#) where guidance on the delivery of psychological interventions in non-specialized health settings and additional implementation guidance for low-resource contexts is provided (106). Six GDG members disagreed with this decision and judged instead that no recommendation would be appropriate for operant therapy, based on very low certainty evidence and the inability to confidently judge the balance of benefits to harms.

## C.2 Respondent therapy



### Definition of the intervention

Respondent therapy aims to modify the physiological response system to pain through the reduction of muscular tension through biofeedback, progressive relaxation and applied relaxation. This type of therapy is aligned with relaxation therapy.



### Recommendation

**No recommendation: The balance between the benefits and harms for respondent therapy in managing CPLBP in adults, including older people, is so equivocal that a recommendation cannot be made**

*(no recommendation, very low certainty evidence).*

### Key consideration

- Depression, anxiety, stress and other mental conditions are common comorbidities in adults with CPLBP but may not affect all people with CPLBP. Person-centred assessment with respect and dignity is required to diagnose and manage these conditions. WHO provides

mhGAP recommendations for different psychological interventions, which may be of benefit to people with CPLBP and comorbid mental disorders in non-specialist health settings.



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

Respondent therapy was evaluated in ten trials (9 reports) compared with placebo (3 trials, n=144), with no intervention (6 trials; n=344) and with usual care (1 trial; n=234). Nine trials were conducted in five HICs (Australia: 1 trial; Germany: 1 trial; Netherlands (Kingdom of the): 1 trial; United

Kingdom: 1 trial; United States: 5 trials) and one was conducted in an UMIC (Brazil: 1 trial). Where reported, the age of participants ranged from 20–66 years and the proportion of females included ranged from 37% to 92%.

### Outcomes

- In the comparison of respondent therapy with **placebo**, three trials were identified, although only two trials could be meta-analysed, and no clinically important differences were observed. Respondent therapy may make little to no difference to pain or function in the short term (low certainty). No trials reported on harms.
- In the comparison of respondent therapy with **no intervention or where the effect of the intervention could be isolated** (six trials), benefits were observed for pain, function, anxiety, coping, health-related quality of life and social participation.
  - › Since the certainty of the evidence was very low, it was uncertain whether respondent therapy (biofeedback and relaxation methods) reduced pain in the short term (moderate effects).
  - › Since the certainty of the evidence was very low, it was uncertain whether respondent therapy (biofeedback and relaxation methods) improved back-specific function in the short term (moderate effects).
  - › Since the certainty of evidence was very low, it was uncertain whether respondent therapy (biofeedback methods) reduced anxiety in the short

term (small effect) and made little to no difference to depression, coping or social participation at any time-point (biofeedback and relaxation methods).

Trials did not report on harms.

- In the comparison of respondent therapy with **usual care** (1 trial), no benefits were observed. Since the certainty of evidence was very low, it was uncertain whether respondent therapy (relaxation method) made little to no difference to pain, back-specific function or health-related quality of life in the short or intermediate terms.

The trial did not report on harms.

Web Annex D.C2 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

### Qualitative review

No qualitative evidence was identified specific to respondent therapy for the following EtD domains: values and preferences, resource implications, equity and human rights, acceptability or feasibility.



## Rationale for judgements

For all adults and older people, the GDG judged overall net benefits across outcomes to be largely uncertain, although some GDG members judged the benefits to be trivial to small. The GDG identified that while some small to moderate benefits were observed for respondent therapy compared with no intervention for pain, function and anxiety, these benefits were limited to the short-term period only and were not observed in placebo-controlled trials or in the single trial compared with usual care. The GDG was therefore uncertain about the true effects of the intervention and its longer-term benefits. Similarly, harms were judged to be uncertain since they were not measured in the trials. However, the GDG opined that harms, if any, were likely to be trivial. The GDG judged the overall certainty of evidence to be very low for respondent therapy, consistent with the systematic review team's judgements. The GDG judged that the balance of benefits to harms for respondent therapy was largely uncertain due to the very low certainty evidence of benefit for most outcomes across comparators, and an absence of evidence of harms. The GDG noted that trials did not employ a sampling stratification based on the mental health of participants and judged that people who experience mental health comorbidities alongside CPLBP might respond differently to respondent therapy compared to individuals without mental health comorbidities.

A description of GDG members' judgements relevant to all psychological interventions for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C11)*. *Table C11* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for respondent therapy.

The GDG reached a consensus decision to make no recommendation for respondent therapy. This decision was primarily based on the GDG not being able to confidently judge the balance of benefits to harms. While some signals of benefit were observed, these were not consistent and the GDG expressed feasibility concerns about the delivery of the intervention in primary and community care settings, making it less comfortable about recommending in favour of the intervention. While some members of the GDG proposed that a conditional recommendation in favour of respondent therapy might be appropriate, this was not the consensus opinion.

## C.3 Cognitive therapy



### Definition of the intervention

Cognitive therapy aims to identify and modify cognition regarding pain and disability. It is proposed that beliefs about the meaning of pain and expectations regarding control over pain can be directly modified using cognitive restructuring techniques such as imagery and attention diversion.



### Recommendation

**No recommendation: The balance between the benefits and harms for cognitive therapy in managing CPLBP in adults, including older people, is so equivocal that a recommendation cannot be made**

*(no recommendation, very low certainty evidence).*

### Key consideration

- Depression, anxiety, stress and other mental conditions are common comorbidities in adults with CPLBP but may not affect all people with CPLBP. Person-centred assessment with respect and dignity is required to diagnose and manage these conditions. WHO provides

mhGAP recommendations for different psychological interventions, which may be of benefit to people with CPLBP and comorbid mental disorders in non-specialist health settings.





## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

Cognitive therapy was evaluated in four trials compared with no intervention (n=364). The trials were conducted in four HICs (Australia: 1 trial; Netherlands (Kingdom of the): 1 trial; Sweden: 1 trial; United States: 1 trial). Where reported, the age of participants ranged from 18–65 years and the proportion of females included ranged from 48% to 62%.

#### Outcomes

- In the comparison of cognitive therapy with **placebo**, no trials were identified.
- In the comparison of cognitive therapy with **no intervention or where the effect of the intervention could be isolated** (4 trials), a possible benefit was observed for coping.
  - › Since the certainty of the evidence was very low, it was uncertain whether cognitive therapy made little to no difference to pain, back-specific function, depression or anxiety at any time-point. Although not statistically significant and based on a single small trial, the 95% CI included a possible benefit for coping at all time-points with cognitive therapy.

One trial measured harms for cognitive therapy: none was reported.

- In the comparison of cognitive therapy with **usual care** (7 trials), no trials were identified.

Web Annex D.C3 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

### Qualitative review

No qualitative evidence was identified specific to cognitive therapy for the following EtD domains: values and preferences, resource implications, equity and human rights, acceptability or feasibility.





## Rationale for judgements

For all adults and older people, the GDG judged overall net benefits across outcomes to be largely uncertain, although some GDG members judged the benefits to be trivial for coping. The GDG identified that while a trivial benefit to coping might be observed for cognitive therapy compared with no intervention, the effect was not statistically significant and was identified in a single small trial and not replicated. Harms were judged to be uncertain and trivial in the single trial where harms were monitored. The GDG judged the overall certainty of evidence to be very low for cognitive therapy, consistent with the systematic review team's judgements. The GDG judged that the balance of benefits to harms for cognitive therapy was uncertain due to the very low certainty evidence of benefit for all outcomes, and very low certainty evidence of harms. The GDG noted that trials did not employ a sampling stratification based on the mental health of participants and judged that people who experience mental health comorbidities alongside CPLBP might respond differently to cognitive therapy compared to individuals without mental health comorbidities.

A description of GDG members' judgements relevant to all psychological interventions for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C12)*. *Table C12* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for cognitive therapy.

The GDG reached a consensus decision to make no recommendation for cognitive therapy. This decision was primarily based on the GDG not being able to confidently judge the balance of benefits to harms – that is, largely no benefit and no harm. While a possible signal of benefit was observed for coping, this was observed in a single trial only where the effect size was unconvincing. Although harms were likely to be trivial, based on a single trial, the GDG expressed feasibility concerns about the delivery of the intervention in primary and community care settings, making it less comfortable about recommending in favour of the intervention.

## C.4 Cognitive behavioural therapy



### Definition of the intervention

Cognitive behavioural therapy (CBT) is based on a multidimensional model of pain and focuses on reducing pain and distress by modifying physical sensation, catastrophic thinking and unhelpful behaviour(s). Treatment may include education about a multidimensional view of pain, identifying pain-eliciting and pain-aggravating situations, thoughts and behaviour, and using coping strategies and applied relaxation; that is, integrating the components of operant, respondent and cognitive therapies. Goal-setting and activity increases are encouraged as the basis of CBT to reduce feelings of helplessness and help the person gain control over their pain experience.



### Recommendation

**Cognitive behavioural therapy (CBT) may be offered as part of care to adults, including older people, with CPLBP**

*(conditional recommendation in favour of use, very low certainty evidence).*

### Remarks

- Depression, anxiety, stress and other mental conditions are common comorbidities in adults with CPLBP, but may not affect all people with CPLBP. Person-centred assessment with respect and dignity is required to diagnose and manage these conditions. WHO provides [mhGAP](#) recommendations for different psychological interventions, which may be of benefit to people with CPLBP and comorbid mental disorders in non-specialist health settings.
- When CBT is offered to people with CPLBP, it should be considered as part of a broader suite of effective treatments (i.e. not offered as a single intervention in isolation), based on a biopsychosocial assessment.



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

Cognitive behavioural therapy (CBT) was evaluated in 30 trials compared with no intervention (25 trials; n=3636) and with usual care (5 trials; n=1223). Twenty-eight trials were conducted in eleven HICs (Australia: 4 trials; Austria: 1 trial; Denmark: 1 trial; Germany: 7 trials; Italy: 2 trials; Netherlands (Kingdom of the): 2 trials; Norway: 1 trial; Romania: 1 trial; Sweden: 1 trial; United Kingdom: 2 trials; United States: 6 trials) and two were conducted in two LMICs (Ghana: 1 trial; Pakistan: 1 trial). Where reported, the age of participants ranged from 18–78 years and the proportion of females included ranged from 27% to 85%.

#### Outcomes

- In the comparison of CBT with **placebo**, no trials were identified.
- In the comparison of CBT with **no intervention or where the effect of the intervention could be isolated** (25 trials), benefits were observed for pain, function, coping and health-related quality of life.
  - › Since the certainty of the evidence was very low, it was uncertain whether CBT reduced pain in the short term (moderate effect), made little to no difference at the intermediate time-point, and reduced pain long term (large effect).
  - › Since the certainty of the evidence was very low, it was uncertain whether CBT improved back-specific function in the short term (small effect) and long term (large effect). CBT may make little to no difference to back-specific function in the intermediate term (low certainty evidence).

- › Since the certainty of evidence was very low, it was uncertain whether CBT improved coping in the short term (small effect). CBT may make little to no difference to anxiety, self-efficacy or depression at any time-point (low certainty evidence).
- › Since the certainty of the evidence was very low, it was uncertain whether CBT improved health-related quality of life in the short (moderate effect), intermediate (small effect) and long term (large effect).
- › Since the certainty of the evidence was very low, it was uncertain whether CBT made little to no difference to social participation (return to work) at any time-point.

Four trials reported on adverse events for CBT. Two trials reported that there were no serious adverse events attributable to either treatment or control. One trial reported minor adverse effects of transient pain worsening (seven participants in the experimental group, five in the control group) and mood disorders (two participants in the experimental group, two in the control group). One trial reported that three participants in the no intervention group stopped the treatment because of increased pain in the lower back or radiating leg pain.

- In the comparison of CBT with **usual care** (five trials), no differences were observed.
  - › CBT may make little to no difference to pain in the short and long term (low certainty), while in the intermediate

term it was uncertain whether CBT made little to no difference to pain, since the certainty of evidence was very low.

- › Since the certainty of evidence was very low, it was uncertain whether CBT made little to no difference to back-specific function in the short term. CBT may make little to no difference to back-specific function in the intermediate and long terms (low certainty).
- › CBT may make little to no difference to depression, anxiety, self-efficacy or health-related quality of life at any time-point (low certainty).

Four trials reported on harms for CBT. Of these, one reported no harms. Across the other three trials harms were not attributed to the intervention, rates of harms either

did not differ between the intervention and control groups or harms reported were non-serious and transient (e.g. temporary pain associated with muscle relaxation).

Web Annex D.C4 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

## Qualitative review

No qualitative evidence was identified specific to CBT for the following EtD domains: values and preferences, resource implications, equity and human rights, acceptability or feasibility.



## Rationale for judgements

For all adults and older people, the GDG judged overall net benefits to be small for CBT, based on the standardized mean differences estimated in the meta-analyses, while acknowledging that the clinically worthwhile effects by outcome ranged from small to large. The GDG judged harms to be trivial, based on the observations in the trials and the experience among the GDG. The GDG also referred to indirect evidence from an aligned Cochrane review of psychological interventions, including CBT, for the management of chronic pain in adults and

identified no to minimal harms with delivery of CBT compared to usual care and small benefits for pain, function and distress at the end of treatment and follow-up (6 months or more after treatment) (107). In comparison to the other psychological interventions, the GDG acknowledged the much larger body of evidence for CBT (30 trials), while noting the GRADE certainty downgrading decisions by the systematic review team because of the risk of bias and inconsistency in CBT trials. Consequently, GDG judged the overall certainty of evidence for CBT to be very low.

The GDG judged that the balance of benefits to harms for CBT probably favoured CBT, although some GDG members judged this balance to be uncertain due to very low certainty evidence for several outcomes. The GDG noted that trials did not employ a sampling stratification based on the mental health of participants and judged that people who experience mental health comorbidities alongside CPLBP might respond differently to CBT, compared to individuals without mental health comorbidities.

A description of GDG members' judgements relevant to all psychological interventions for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C13)*. *Table C13* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for CBT.

The GDG reached a consensus decision to make a conditional recommendation in favour for CBT. This decision was based

on small to large effects on pain, function, coping and quality of life, without evidence of harms. The GDG was confident that benefits outweighed harms. The GDG judged that despite concerns relating to cost, equity, acceptability and feasibility in low-resource settings (as outlined in the section on judgements for all psychological interventions), the consistent signals of benefit for CBT outweighed these implementation concerns. The GDG also referred to the [WHO mhGAP Intervention Guide](#) and [WHO mhGAP community toolkit](#) where guidance on the delivery of psychological interventions in non-specialized health settings and additional implementation guidance for low-resource contexts is provided (106).

Two GDG members disagreed with this decision and judged that no recommendation would instead be appropriate for CBT, based on very low certainty evidence and the inability to confidently judge the balance of benefits to harms.

## C.5 Mindfulness-based stress reduction therapy



### Definition of the intervention

Mindfulness-based stress reduction (MBSR) therapy aims to reduce stress by developing mindfulness: a non-judgemental, moment-by-moment acceptance of awareness. The intervention is free of any cultural, religious and ideological factors, but it is associated with the Buddhist origins of mindfulness.



### Recommendation

**No recommendation: The balance between benefits and harms for mindfulness-based stress reduction (MBSR) therapy in managing CPLBP in adults, including older people, is so equivocal that a recommendation cannot be made**

*(no recommendation, low certainty evidence).*

### Key consideration

- Depression, anxiety, stress and other mental conditions are common comorbidities in adults with CPLBP but may not affect all people with CPLBP. Person-centred assessment with respect and dignity is required to diagnose and manage these conditions. WHO provides

mhGAP recommendations for different psychological interventions, which may be of benefit to people with CPLBP and comorbid mental disorders in non-specialist health settings.



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

Mindfulness-based stress reduction (MBSR) therapy was evaluated in two trials compared with no intervention (n=155) and one trial compared with usual care (n=342). Two trials were conducted in two HICs (Israel: 1 trial; United States: 1 trial) and one trial in a LMIC (Islamic Republic of Iran: 1 trial). Where reported, the age of participants ranged from

20–70 years and the proportion of females included ranged from 66% to 100%.

#### Outcomes

- In the comparison of MBSR therapy with **placebo**, no trials were identified.
- In the comparison of MBSR therapy with **no intervention or where the effect of**



**the intervention could be isolated**, two trials were identified but neither reported outcomes in a manner that could be meta-analysed. Benefit was observed for pain interference only.

- › In one trial of MBSR therapy almost 50% of the sample dropped out and the number analysed per group was not reported. The other trial of MBSR therapy reported that in the MBSR group 35.7% of the participants reported an improvement in pain severity of at least 30%, while in the control group only 9.1% reported an improvement of at least 30%; the group difference was however not significant. When considering pain interference, 35.7% of the participants in the MBSR group reported an improvement of at least 30%, compared to only 4.5% in the control group, representing a significant difference.

- › It was uncertain whether MBSR therapy improved back-specific function at all time-points (trivial effects), since the certainty of the evidence was very low.
- › MBSR therapy may improve depression in the short term only, although the size of the effect was trivial, while at other time-points MBSR therapy may make little to no difference to depression, health-related quality of life or anxiety (low certainty).

In the one trial measuring harms associated with MBSR therapy, harms were non-serious and transient (e.g. temporary increase in pain).

Web Annex D.C5 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

Neither trial reported on harms.

- In the comparison of MBSR therapy with **usual care** (1 trial), no clinically meaningful benefits were observed.
  - › MBSR therapy may reduce pain at all time-points, although the size of the effect was trivial (low certainty).



## Qualitative review

#	Review findings: values and preferences relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
18	Mindfulness and meditation allowed some older people to increase their body awareness in relation to, for example, breathing, posture, cognition and pain. In some cases, this allowed for early recognition of pain.	VERY LOW	Minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, serious concerns regarding adequacy, and serious concerns regarding relevance.
19	Mindfulness and meditation allowed older people to examine, assess, understand and accept their pain rather than avoid it. For some people, this lessened the significance or power of the pain experience, allowed them to gain a sense of control over their lives and increase their ability to relax and respond to stress, with improved sleep, attention, well-being and general quality of life.	LOW	Moderate concerns regarding methodological limitations, no/very minor concerns regarding coherence, minor concerns regarding adequacy, and serious concerns regarding relevance.
20	Some older people were able to use mindfulness and meditation for pain management and coping to varying degrees. Some older people experienced no relief, while others experienced some or short-term relief, and a few were able to eliminate feelings of pain.	LOW	Serious concerns regarding methodological limitations, no/very minor concerns regarding coherence, minor concerns regarding adequacy, and serious concerns regarding relevance.

No qualitative evidence was identified specific to MBSR therapy for the following EtD domains: resource implications, equity and human rights, acceptability or feasibility.



## Rationale for judgements

For all adults and older people, the GDG judged overall net benefits across outcomes to be largely uncertain, based on a dichotomous improvement in pain in a single trial compared with no intervention, which was not replicated in the trial of MBSR compared with usual care. Furthermore, the effect size of benefits for pain, depression and function in the trial compared with usual care were below a clinically worthwhile threshold. Harms were judged to be uncertain and trivial in the single trial where harms were monitored. The GDG judged the overall certainty of evidence to be low for MBSR therapy, consistent with the systematic review team's judgements. The GDG judged that the balance of benefits to harms for MBSR therapy was uncertain due to the low to very low certainty evidence of benefit for all outcomes, and absence of evidence for harms. The GDG noted that trials did not employ a sampling stratification based on the mental health of participants and judged that people who experience mental health comorbidities alongside CPLBP might respond differently to MBSR therapy compared to individuals without mental health comorbidities.

The GDG referred to the qualitative evidence synthesis which provided evidence on values and preferences relating to the outcomes of MBSR therapy in older people. The GDG judged that older people valued MBSR therapy as a pain management tool and as a strategy to improve their overall wellbeing (low to very low confidence). The GDG opined that these values and preferences would likely extend to all adults, yet there would be important uncertainty or variability in these values

and preferences since exposure to, and acceptability of, MBSR therapy would probably vary across people with CPLBP.

GDG members' judgements of the other EtD domains of resource implications, equity and human rights, acceptability and feasibility are described as judgements relevant to all psychological interventions in the introduction to this intervention class and summarized in *Annex 3 (Table C14)*. *Table C14* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for MBSR therapy.

The GDG reached a consensus decision to make no recommendation for MBSR therapy. This decision was primarily based on the GDG not being able to confidently judge the balance of benefit to harm – that is, largely no benefit and no harm. While a possible signal of benefit was observed for pain interference, this was observed in a single trial only and measured using a dichotomous outcome, while the effect size of other benefits was below a clinically worthwhile threshold, as judged by the GDG. Although harms were likely to be trivial based on a single trial and evidence suggested that some older people valued MBSR therapy, the GDG expressed feasibility concerns about delivery of the intervention in primary and community care settings, making it less comfortable about recommending in favour of the intervention. While some members of the GDG proposed that a conditional recommendation against MBSR therapy might be appropriate, this was not the consensus opinion.

## Intervention class **D**:



# Medicines

Medicines considered for evidence synthesis included nine systemic pharmacotherapies ([D.1](#)), cannabis-related pharmaceutical preparations for therapeutic use ([D.2](#)) injectable local anaesthetics delivered to extraspinal soft or connective tissues in the anatomical region of the lower back ([D.3](#)) and eight herbal medicines ([D.4](#)).

WHO's Model List of Essential Medicines (EML) presents a list of minimum medicine needs for a basic health care system, listing the most efficacious, safe and cost-effective medicines for priority conditions. Prescribers of medicines should follow safe medication practices, as outlined by WHO in its medication without harm framework. Additional safe medication practices relevant to the agents considered in the guideline are outlined below.

## Safe medication practices

- Safe medication practices include assessing a person's overall health condition including their physical and mental capacities, underlying health conditions, potential risk factors for medicines-related harms, and concurrent medicines and drug interactions as well as their values, preferences and priorities for care.
- **New medicines should be initiated at the lowest effective dose for the shortest duration of time, and beneficial and possible harmful effects should be closely monitored.**
- Age, multimorbidity and polypharmacy are the major predictors for an increased risk of experiencing a medication-related harm (108, 109). A systematic review found that medication-related harm is most frequent in older people, with 40% of events being classed as moderate harm and 26% as clinically severe or life-threatening (110). Clinical vigilance – which includes monitoring the effects of medicines and balancing benefits and harms – is therefore critical when prescribing medicines to older people.
- Older people who visit multiple health workers or have been hospitalized recently are at greater risk of polypharmacy. Polypharmacy is commonly described as the simultaneous use of multiple (usually five or more) medicines and is associated with adverse drug reactions (58). Because polypharmacy can contribute to losses across multiple domains of intrinsic capacity and cause adverse drug reactions (due to drug-drug and drug-disease interactions), a person-centred assessment in any older person should include a medication review. Polypharmacy can be reduced by discontinuing unnecessary, ineffective and potentially redundant medications. Discontinuing medicines suspected of causing harm is a priority.



Although WHO conditionally recommends **against** the routine use of opioid analgesics for the management of CPLBP (see D.1.1.), in situations where opioid analgesics are prescribed based on clinical judgement and shared decision-making it is essential to consider their safe and effective stewardship. This is because of the considerable risks of dependence, adverse drug reactions and overdose associated with opioids, and the need to manage the stigma associated with opioid use and/or withdrawal. The following practice points are provided to ensure the safety of people with CPLBP and minimize the risk of opioids inappropriately spreading into communities.

- › Opioid analgesics should never be used as a stand-alone treatment for adults with CPLBP. Opioids should always be prescribed in the context of the biopsychosocial model of pain care, where interventions to address the multiple contributors to a pain experience are provided.
- › Education about the benefits and harms of opioids as well as the safe storage of opioids in households should be provided prior to commencing therapy.
- › A clinical assessment in advance of opioid prescription should consider a person's psychosocial history, patterns of earlier opioid consumption and any history of substance use in order to consider whether there is any risk of improper use or dependence, or potential for hyperalgesia. WHO provides guidance on treating people dependent on heroin or other opioids within the WHO Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence (111).
- › The time-limited use of opioids for selected people with CPLBP should always be made at the lowest appropriate dose and shortest feasible duration, and regularly reviewed to ensure the fewest possible adverse events. Prolonged use or misuse can lead to opioid dependence<sup>4</sup> and other adverse outcomes, including overdose and hyperalgesia.
- › In older people, non-pharmacological interventions and non-opioid treatments should be prioritized. If necessary, opioids might be prescribed after carefully evaluating possible benefits (especially regarding quality of life and physical and mental capacities), possible harms (e.g. worsening of respiratory conditions, dizziness, balance disorders, constipation, falls, delirium) and potential misuse. Supportive treatments, such as the concomitant use of stimulant laxatives, can reduce the burden of some adverse effects such as opioid-induced constipation.
- › The prescription of opioids must be undertaken by an appropriately trained and experienced prescriber after careful assessment of the benefits and risks. The prescriber

<sup>4</sup> Opioid dependence is a disorder of regulation of opioid use arising from repeated or continuous use of opioids. The characteristic feature of dependence is a strong internal drive to use opioids, which manifests itself by an impaired ability to control use, increasing priority given to use over other activities and persistence of use despite harm or negative consequences. Physiological features of dependence may also be present, including increased tolerance to the effects of opioids, withdrawal symptoms following cessation or reduction in use, or repeated use of opioids or pharmacologically similar substances to prevent or alleviate withdrawal symptoms (reference: <https://www.who.int/news-room/fact-sheets/detail/opioid-overdose>).



should also take responsibility for regular follow-up care, monitoring and dose adjustment. Monitoring a person's response to opioids and adjusting the dose parameters as necessary is a key component of opioid stewardship, including prescribing and discontinuation.

- › As part of opioid stewardship, prescribers have a responsibility to discuss and develop a tapering and discontinuation plan together with the person before initiating changes, taking into account their individual circumstances (112). An open discussion between the prescriber and the person should include perceptions of the benefits, risks, and adverse effects of continued opioid therapy, and any concerns related to tapering. A systematic review of international guidelines on opioid deprescribing in chronic non-cancer pain provides further guidance on discontinuation practices (113).
- › In circumstances where opioid dependence has developed, intervention support for opioid withdrawal may be indicated (111).
- › Risk factors for overdose of prescribed opioids include opioid dependence, higher dose, male sex, older age, multiple prescribed medicines, mental health disorder and lower socioeconomic circumstances (114). Identification and management of modifiable risk factors are important factors in preventing overdose. WHO

provides guidance on management of opioid overdose, including the use of naloxone, in the [WHO Guideline on community management of opioid overdose](#) (114).

- › A stigma may be associated with opioid use and/or opioid withdrawal, and act as a barrier to optimal pain management and quality care. People using these medicines may require additional support to address stigma (115).

**New medicines should be initiated at the lowest effective dose for the shortest duration of time, and beneficial and possible harmful effects should be closely monitored.**

## D.1 Systemic pharmacotherapies

Section D.1 outlines the recommendations for nine systemic pharmacotherapies, described in D.1.1 to D.1.9.



### Definition of the intervention

Systemic pharmacotherapies are medicines that act on the whole body or body systems that involve the entire body, such as the endocrine or/and cardiovascular systems.



### Summary of the evidence

#### Quantitative review

##### Characteristics of the evidence

The evidence synthesis for benefits and harms of systemic pharmacotherapies was derived from:

- › recent and ongoing Agency for Healthcare Research and Quality (AHRQ) systematic reviews of opioids and non-opioids for chronic pain ( ;
- › a Cochrane review on systemic glucocorticoids for low back pain (118); and
- › data from two in-progress network meta-analyses of analgesic medicines for chronic low back pain that included trials with shorter duration treatment (119, 120).

The systematic review team selected evidence from these sources that met the PICO criteria for the guideline and aggregated findings into a single evidence synthesis report for the GDG.

The current synthesis of benefits and harms of systemic pharmacotherapies of short- and long-term treatment duration was derived from 63 trials with a total of 13 408 participants. Sixty-two of these trials compared a medicine to placebo and one compared a medicine to no treatment. No “usual care” comparator was included in this evidence review. The summary of included trials by medicine class and treatment duration is presented in *Table 11*.

**Table 11:** Summary of trials by medicine and comparator for short and long treatment duration

Medicine class	Comparator	Short treatment duration			Long treatment duration			
		Immediate term outcomes (1 week to 1 month)	Short term outcomes (1 to 3 months) <sup>j</sup>	Total sample size (n)	Short term outcomes (3 to <6 months) <sup>k</sup>	Intermediate term outcomes (6 to <12 months)	Long term outcomes (≥12 months)	Total sample size (n)
<b>Opioid analgesics</b>	Placebo	1	No trials	25	27	No trials	No trials	8688
<b>Non-steroidal anti-inflammatory drugs (NSAIDs)</b>	Placebo	4 <sup>l</sup>	2	449	4	No trials	No trials	1301
<b>Serotonin and noradrenaline reuptake inhibitor (SNRI) antidepressants</b>	Placebo	2	5	263	4	No trials	No trials	1499
<b>Tricyclic antidepressants</b>	Placebo	1	6	290	3	1	No trials	294
<b>Anticonvulsants</b>	Placebo	2	3	206	1	No trials	No trials	108
<b>Skeletal muscle relaxants</b>	Placebo	1	4	143	No trials	No trials	No trials	0
	No treatment	1	1	42	No trials	No trials	No trials	0
<b>Systemic glucocorticoids</b>	Placebo	1	No trials	100	No trials	No trials	No trials	0
<b>Paracetamol (acetaminophen)</b>	Placebo	No trials	No trials	0	No trials	No trials	No trials	0
<b>Benzodiazepines</b>	Placebo	No trials	No trials	0	No trials	No trials	No trials	0

Values refer to the number of trials reporting the outcome of pain intensity at each time-point. Information in parentheses summarizes the quality of the trials (long duration assessed using ARHQ methods (71); short duration assessed using Cochrane Back and Neck group risk of bias assessment methods (121).

<sup>j</sup> 1 to 4 months for the comparison muscle relaxants vs placebo

<sup>k</sup> 1 to 6 months for the comparison opioids vs placebo.

<sup>l</sup> four trials contributed to the comparison NSAIDs vs placebo (treatment duration <12 weeks) and involved five NSAID therapies.

Characteristics of the included trials, by medicine class, are summarized in *Annex 2 (Table B1)*. All systemic pharmacotherapies were administered orally, other than the four trials of skeletal muscle relaxant (botulinum toxin A) compared with placebo, which was delivered via intramuscular injection into the paravertebral muscles. There were 40 trials of long treatment duration (n=11 990), comprising six different comparisons.

There were 23 trials of short treatment duration (n=1418), comprising seven different comparisons. There were no trials evaluating paracetamol (acetaminophen) or benzodiazepines, and consequently no information about these medicines in *Annex 2 Table B1*. There were no trials that only examined older people.



## Qualitative review

Since the qualitative evidence review did not identify medicine-specific findings (other than for opioids in the acceptability domain), this qualitative evidence summary is applicable to all systematic pharmacotherapies.

#	Review findings: values and preferences relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
6	Many older people reported that medication was often the only intervention that made a difference to the severity of their pain. However, they were apprehensive of, or dissatisfied with, medication for several reasons, often viewing it as a quick fix, temporary relief or just masking the pain. Many participants were apprehensive of taking too many medications, side-effects, addiction or did not like how the medications made them feel. Some avoided taking medications all together, did not present their prescriptions for dispensing or adjusted their treatment themselves because of this.	MODERATE	Minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, no/very minor concerns regarding adequacy, and moderate concerns regarding relevance.

#	Review findings: resource implications relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
8	In one study conducted in rural Nigeria, older people considered medicines as a legitimate form of treatment (a cultural norm where disease was treated and “cured” with medication) and depended on medicines to be able to perform daily tasks. Other treatments were looked down on or stigmatized, such as exercise. Some older people took medication only to comply with this cultural norm. However, there was a constant struggle to be able to afford the medicines on which they depended to function normally.	LOW	No/very minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, serious concerns regarding adequacy, and moderate concerns regarding relevance.
#	Review findings: acceptability relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
9	Many older people expressed fear of addiction to medication, especially to opioids. This led them to not present prescriptions for dispensing, adjust the dosage or stop taking the medication often without consulting their health worker. In one case, the fear of addiction stemmed from the health care worker who refused to provide the prescription requested.	MODERATE	Minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, minor concerns regarding adequacy, and moderate concerns regarding relevance.
10	In a study in rural Nigeria, some older people reported that when the locally manufactured medicines failed to relieve symptoms, they believed that they were fake or substandard. These older people thought that imported medicines were stronger and more likely to lead to a cure.	LOW	No/very minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, serious concerns regarding adequacy, and moderate concerns regarding relevance.

No qualitative evidence was identified specific to systemic pharmacotherapies for the following EtD domains: equity and human rights and feasibility.

## Overall judgements and EtD considerations across systematic pharmacotherapies generally

The GDG considered the EtD domains of values and preferences, resource requirements, equity and human rights, acceptability and feasibility for all systemic pharmacotherapies together, since the GDG expected that judgements for these domains would not differ by agent. Therefore, this section outlines GDG judgements for those domains as they relate to systemic pharmacotherapies in general. These judgements should be considered alongside the rationales for each systemic pharmacotherapy agent.

The GDG judged that, for older people, values and preferences relating to systemic pharmacotherapies were likely to be applicable to all adults. The GDG judged that in both low- and middle-income and high-income countries, people with CPLBP tended to prefer symptom relief over the potential for adverse events, consistent with findings from the qualitative evidence synthesis. On this basis, there was likely to be no important uncertainty based on preferences for analgesia for symptom relief. However, the GDG noted the results of the qualitative review indicating that some older people did not value medicines as a sole intervention for their CPLBP. The GDG noted that outside a consistent preference for symptom relief, values and preferences for pharmacotherapies might vary due to differences in how people understand the benefits and harms of medicines, their experience in using medicines, the cost associated with medicines, and the relative time-and-effort burden of engaging in other non-pharmacological treatments. Depending on their personal beliefs and sociocultural context, some people might value medicines over rehabilitative interventions, since short term pain relief and lower cost could enable a more rapid return to work and participation than other non-pharmacological (e.g. behavioural) interventions, where the time to experience a therapeutic effect might take longer. The


GDG judged that resource requirements would vary by setting and medicine, ranging from small costs to large costs, especially for some opioid agents. The GDG considered that the cumulative costs for medicines could amount to a large burden for people with CPLBP and their families and ultimately reduce health equity. For example, the GDG referred to the qualitative evidence synthesis findings and noted a single study from rural Nigeria, where participants expressed a constant struggle to afford the cost of medicines. In contexts where the cost burden was less significant, the GDG judged there would be less impact on health equity. The GDG judged that health workers and people with CPLBP would largely accept systemic pharmacotherapies (in general) as an analgesic intervention for CPLBP, but that this might be less true of opioid analgesics based on the risk of adverse events. This judgement was supported by data from the qualitative evidence synthesis indicating that older people were unwilling to accept the risk of addiction to medicines, especially opioid analgesics. The GDG also noted that for health workers, it might also be less acceptable to prescribe opioid analgesics for adults with CPLBP given the high risk of harms, and that they might be more willing to prescribe combination therapies rather than single agents in isolation. The GDG judged that it would be feasible to provide systemic pharmacotherapies in most settings.



The following sections (D.1.1–D.1.9) outline the recommendation, summary of quantitative evidence and rationale and evidence considerations for each systematic pharmacotherapy.

Web Annex D.D1 provides the detailed GRADE evidence profile tables for each agent, by comparator.

## D.1.1 Opioid analgesics

 **Recommendation**  
**Opioid analgesics should not be used as part of routine care for adults, including older people, with CPLBP**  
(conditional recommendation against use, moderate certainty).

### Remarks

- There are potentially serious adverse events associated with the use of opioid analgesics, such as dependence and overdose.
- Refer to information on safe medication practices (**p.112**) for guidance when opioids analgesics are prescribed.

## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of opioids (treatment duration  $\geq 1$  month with **placebo** (27 trials, 8688 participants), the certainty of evidence ranged from high to very low and benefits were observed for pain, function and health-related quality of life (physical domain).
  - › Opioids probably offered a small reduction in pain intensity compared to placebo at one month to less than six months (moderate certainty evidence). Estimates were similar for opioid agonists, partial agonists and mixed agents. A meta-regression that evaluated the opioid dose as a continuous variable found no association between higher doses and greater effects of opioids on pain ( $p=0.26$ ), with a plateauing of effects at around 50 mg morphine equivalents per day.

- › Opioids were probably associated with a small increased likelihood of experiencing an improvement in pain at one month to less than six months (moderate certainty evidence).
  - › Opioids probably offered a small improvement in function compared to placebo at one month to less than six months (moderate certainty evidence). Estimates were similar when the analysis was stratified by opioid type. When measuring function as the likelihood of experiencing a > 30% reduction in disability, opioids may be associated with a trivial increased likelihood of achieving this outcome at one month to less than six months (low certainty evidence; two trials not meta-analysed).
  - › Opioids improved health-related quality of life (physical domain) by a trivial amount at one month to less than six months (high certainty evidence). Opioids probably made little to no difference to health-related quality of life (mental domain) at one month to less than six months (moderate certainty evidence).
  - › It was uncertain whether opioids made little to no difference in psychological well-being at one month to less than six months (very low certainty evidence; one trial with non-significant group difference).
  - › Three trials found similar effects of opioids in older people and younger adults. Two trials reported similar effects of opioids in groups defined by sex or race.
- Harms were monitored across the trials and various adverse events were identified with the potential for serious adverse events.
- › Opioids may be associated with a moderate increased likelihood of treatment discontinuation and large increased likelihood of nausea and pruritus (moderate certainty evidence).
  - › Opioids are associated with a large increased likelihood of constipation, vomiting and somnolence at one month to less than six months (high certainty evidence).
  - › Opioids may be associated with an increased risk of serious adverse events, though the estimate was imprecise and not statistically significant (low certainty).
  - › There was probably no difference between opioids versus placebo concerning the risk of headache (moderate certainty).
  - › Findings for harms were generally consistent in the analyses stratified by opioid type, though mixed agents were associated with higher risks of constipation, nausea, vomiting and pruritis. There was no clear dose-response relationship with harms.
- In the comparison of opioids (treatment duration < 1 month) with **placebo** (1 trial, 25 participants), benefit was observed for pain reduction. However, it was uncertain whether opioids offer a large reduction in pain intensity compared to placebo at < 1 month, since the certainty of evidence was very low. The trial reported no adverse events in either group.
- Refer to web Annex D.D1.1 for detailed GRADE evidence profile tables for opioid analgesics.



Harms were monitored across the trials and various adverse events were identified with the potential for serious adverse events.

- › Opioids may be associated with a moderate increased likelihood of



## Rationale for judgements

For all adults and older people, the GDG judged overall net benefits as small to moderate. The GDG noted that there were no trials specifically in older people, but that the age ranges in the trials included older people. The majority of the GDG judged harms to be moderate, while some members considered harms to be small, based on the evidence from included RCTs. The GDG explicitly noted that RCTs were not the appropriate study design to monitor harms and referred to indirect evidence from other sources where data relating to adverse events and serious adverse events including dependence and overdose were compelling; as a consequence, some members judged harms to be large for opioids. The GDG noted indirect evidence from the recently published OPAL placebo-controlled trial from Australia (122). That trial assessed the benefits and harms of short-term use (up to 6 weeks) of oxycodone-naloxone (up to 20 mg oxycodone per day orally) in adults with at least moderately severe acute LBP and/or neck pain, identifying no difference in pain outcomes at 6 weeks between the groups and a higher risk of misuse in the opioid group at one year (122). The GDG also noted the recent Stanford-Lancet commission on responding to the opioid crisis in North America and other nations, summarizing the scale of opioid-related morbidity and mortality in the last 25 years, in particular fatal overdose and dependence outcomes (123). The GDG referred to the [WHO factsheet on opioids overdose statistics](#) (August 2021) and [WHO Guideline on community management of opioid overdose](#) (114). The GDG judged the

overall certainty of evidence to be moderate. The majority of GDG judged that the balance of benefits to harms for opioid analgesics did not favour opioids based on the evidence of harms as well as other widely reported indirect evidence highlighting adverse events, such as dependence and overdose. A minority of GDG members suggested that the balance probably favoured opioids based on the systematic review evidence, particularly the moderate certainty evidence of some benefit to pain and function between one month and less than six months. When considering the totality of direct and indirect evidence available, the GDG rationalized that while some benefits might be observed, the risk of serious harm outweighed potential benefits for opioid analgesics.

A description of GDG members' judgements relevant to all systemic pharmacotherapies for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C15)*. *Table C15* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for opioid analgesics.

The GDG also referred to the qualitative evidence synthesis and took the view that older people were less accepting of opioid analgesics as well as having concerns about dependence (moderate confidence). From an equity perspective, the GDG took the view that many people who take opioids

might encounter stigma from health workers and others in the community. The GDG highlighted the need for awareness about stigma and strategies to address stigma relating to opioid use to ensure that all people are treated with compassion, dignity and respect.

The GDG reached a consensus decision to recommend against the use of opioid analgesics. This decision was based on the GDG's judgement that the balance of benefits to harms did not favour opioids, particularly when considering indirect evidence of adverse events associated with long-term use, including the risk of overdose. The GDG also considered data from

the qualitative evidence synthesis, where moderate confidence evidence pointed to the lack of acceptability of some medicines, especially opioids, for older people, due to their potential for dependence, fatal overdose and side-effects. This decision also reflected the GDG's judgement that in some countries opioid analgesics were not widely available and associated with high cost. One GDG member did not agree with a conditional recommendation against opioid analgesics. The GDG also noted that WHO recommends opioids for the management of cancer pain in the [WHO Guidelines for the pharmacological and radiotherapeutic management of cancer pain in adults and adolescents \(124\)](#).

## D.1.2 Non-steroidal anti-inflammatory drugs (NSAIDs)



### Recommendation

**NSAIDs may be offered as part of care to adults with CPLBP**

*(conditional recommendation in favour of use, moderate certainty).*

### Remarks

- NSAIDs should be used/prescribed as a short-term or intermittent treatment option, irrespective of the selected class of NSAID and of the safety profile of the person with CPLBP.
- When NSAIDs are offered to people with CPLBP, they should be considered as part of a broader suite of effective treatments (i.e. not offered as a single intervention in isolation), based on a biopsychosocial assessment.
- When selecting an NSAID, prescribers should consider the chemical profile of the drug (COX-2 selective vs non-selective NSAIDs), its side-effect profile, and the risk profile of the person with CPLBP,

including pre-existing renal impairment, cardiovascular disease, use of other drugs and prior gastrointestinal events. In general, non-selective NSAIDs are contraindicated in people at increased risk of gastrointestinal adverse events. Very careful clinical judgements of benefit and risk should be made for people with renal impairment.

- A coprescribed gastroprotective agent may be considered to reduce the risk of gastrointestinal adverse events, such as ulceration or bleeding.
- For older people with multiple comorbidities such as cardiovascular diseases and renal impairment and who commonly take other medicines (e.g. anticoagulant agent), NSAIDs may be contraindicated. Prescription therefore requires careful attention to the older person's medical history, a medicines review, close follow-up and the shortest duration of treatment.



## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of NSAIDs (treatment duration  $\geq 12$  weeks) with **placebo** (4 trials, 1301 participants), the certainty of evidence ranged from high to low, and benefits were observed for pain and function.
    - › NSAIDs probably offered a small reduction in pain intensity at three to six months (moderate certainty evidence). Effects were larger in trials of the COX2-selective NSAID etoricoxib than the non-selective NSAID naproxen.
    - › NSAIDs probably offered a small increased likelihood of experiencing  $\geq 30\%$  reduction in pain at three to six months, but the estimate was imprecise and not statistically significant (moderate certainty evidence).
    - › NSAIDs probably offered a small improvement in function at three to six months (moderate certainty evidence). Effects were larger in trials of the COX2-selective NSAID etoricoxib than the non-selective NSAID naproxen.
  - › NSAIDs (etoricoxib only) made little to no difference to mental quality of life at three to six months (high certainty evidence) and offered trivial improvement to physical quality of life at three to six months (high certainty evidence).
- Harms were monitored across the trials and were identified for nausea. Serious adverse events were not detected.
- › NSAIDs may be associated with an increased likelihood of nausea (low certainty evidence), but the estimate was imprecise and not statistically significant.
  - › NSAIDs may not increase the likelihood of serious adverse events at three to six months (low certainty evidence).



- › NSAIDs may make little to no difference to the likelihood of discontinuation due to adverse events at three to six months (low certainty evidence).
- In the comparison of NSAIDs (treatment duration < 12 weeks) with **placebo** (four trials of five non-selective NSAIDs, 449 participants), the certainty of evidence ranged from high to very low and benefits were observed for pain and function.
  - › NSAIDs may offer a small reduction in pain intensity at < 1 month (low certainty evidence).
  - › NSAIDs offered a small reduction in pain intensity at 1 to 3 months (high certainty evidence).
  - › NSAIDs may offer a small improvement in function at 1 to 3 months (low certainty evidence).
- Harms were monitored in the trials.
  - › NSAIDs probably made little to no difference to the likelihood of adverse events generally (moderate certainty evidence).
  - › NSAIDs may increase the likelihood of nausea, constipation, and dizziness (low certainty evidence, small effects, risk estimates imprecise and not statistically significant).
- › It was uncertain whether NSAIDs increased the likelihood of discontinuation due to adverse events (very low certainty evidence, risk estimate imprecise and not statistically significant).
- › NSAIDs may reduce the risk of pruritis and headache (large effects, risk estimates imprecise and not statistically significant; low certainty evidence).
- It was uncertain whether NSAIDs reduced the risk vomiting and pruritis (large effects), since the certainty of the evidence was very low (risk estimates imprecise and not statistically significant).
  - › NSAIDs may make little to no difference to somnolence (low certainty evidence).

Refer to web Annex D.D1.2 for detailed GRADE evidence profile tables for NSAIDs.





## Rationale for judgements

The GDG judged overall net benefits as small to moderate. The majority of the GDG judged harms to be small to moderate, with one GDG member judging harms as uncertain. The GDG referred to the indirect evidence of harms associated with non-selective (diclofenac, etodolac, flurbiprofen, ketorolac, ibuprofen, indomethacin, meloxicam, naproxen, piroxicam, sulindac) and COX-2 selective (celecoxib, rofecoxib, valdecoxib) NSAIDs in older people (mean age 80 years) with osteoarthritis or rheumatoid arthritis derived from a health claims administrative database (125). This indirect evidence highlighted that COX-2 selective users experienced an increased risk of cardiovascular events, although in a sensitivity analysis where rofecoxib and valdecoxib users were removed the risk was no longer elevated. Rates of gastrointestinal bleeding were reduced in COX-2 selective users, irrespective of the sensitivity analysis. One GDG member commented that the standard best Clinical practice for the prescription of NSAIDs was to limit the treatment duration to less than 30 days, and that judgements about benefits and harms for a treatment duration of more than 12 weeks were, therefore, not relevant to current Clinical practice. The GDG judged the overall certainty of evidence to be moderate. The GDG judged that the balance of benefits to harms for NSAIDs favoured or probably favoured NSAIDs. One GDG member suggested that judging this balance without considering the difference in benefits and harms based on NSAID selectivity was unhelpful since selectivity is usually considered when prescribing NSAIDs (refer to Remarks). The evidence review team noted, however, that there were limited

trials to perform stratified analyses by NSAID selectivity and indirect evidence would need to be considered to evaluate harms more comprehensively, and by NSAID selectivity.

A description of GDG members' judgements relevant to all systemic pharmacotherapies for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C16)*. *Table C16* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for NSAIDs.

The GDG reached a consensus decision to make a conditional recommendation in favour of NSAIDs for adults. This decision was based on the GDG's judgement that the balance of benefits to harms was in favour of NSAIDs for most people. Since the mean age across the included trials was less than 60 years and there was indirect evidence of increased harm for older people, a conditional recommendation in favour that included older people specifically could not be made. The GDG noted the importance of considering NSAID selectivity and careful attention and monitoring of adverse events. Members noted the limitations in the current evidence to stratify benefits and harms by COX-2 selectivity, and stated that for this reason a recommendation based on selectivity could not be made. However, the GDG elected to include information about NSAID selectivity in the Remarks to highlight this issue as an important clinical practice consideration.

## D.1.3 Serotonin and noradrenaline reuptake inhibitor (SNRI) antidepressants

**Recommendation**  
**SNRI antidepressants should not be used as part of routine care for adults, including older people, with CPLBP**

*(conditional recommendation against use, low certainty).*

### Remarks

- The moderate increased risk of adverse events associated with SNRI antidepressants outweigh the small benefits offered.
- There are potentially serious adverse events associated with SNRI antidepressants among older people, including hyponatraemia, memory impairment, gastrointestinal events and falls, without evidence of benefit.

## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of SNRI antidepressants (treatment duration  $\geq 12$  weeks) with **placebo** (4 trials, 1499 participants), the certainty of evidence ranged from moderate to very low and benefits were observed for pain, while benefits for function, quality of life and psychological well-being were trivial. All trials evaluated duloxetine.
  - › SNRI antidepressants probably offered a small reduction in pain intensity at three to six months (moderate certainty evidence). Results were similar when the analysis was restricted to a duloxetine dose of 60 mg/day and when stratified by trial quality.
  - › SNRI antidepressants probably offered a small increase in the likelihood of reduced in pain intensity ( $\geq 30\%$  improvement) at three to six months (moderate certainty evidence). Results were similar when the analysis was restricted to a duloxetine dose of 60 mg/day and when stratified by trial quality.
  - › SNRI antidepressants probably offered a trivial improvement in function at three to six months (moderate certainty evidence). Results were similar when the analysis was restricted to a duloxetine dose of 60 mg/day and when stratified by trial quality.
  - › SNRI antidepressants may offer a trivial improvement in quality of life and psychological well-being at three to six months (low certainty evidence).

- › It was uncertain whether SNRI antidepressants made little to no difference to work-related outcomes (low to very low certainty evidence).

Harms were monitored across the trials and were identified for nausea, constipation, dizziness and somnolence.

- › SNRI antidepressants were probably associated with a large increase in the likelihood of discontinuation due to adverse events, nausea, constipation, dizziness and somnolence (moderate certainty evidence).
- › It was uncertain whether SNRI antidepressants were associated with a small increased likelihood of serious adverse events (very low certainty evidence).

- In the comparison of SNRI antidepressants (treatment duration < 12 weeks) with **placebo** (5 trials, 263 participants), the certainty of evidence was very low. It was uncertain whether SNRI antidepressants

made little to no difference to pain or psychological well-being at < 1 month or at 1–3 months; or to function or quality of life at 1–3 months.

Harms were monitored in the included trials, however, the certainty of evidence was very low. It was therefore uncertain whether SNRI antidepressants:

- › increased the likelihood of treatment discontinuation due to adverse events (large effect) and nausea (large effect);
- › made little to no difference to the likelihood of adverse events, serious adverse events, constipation, dizziness, somnolence, dry mouth, pruritus or headache; or
- › increased the likelihood of vomiting (large effect), although the risk ratio estimates exceeded 1.0.

Refer to web Annex D.D1.3 for detailed GRADE evidence profile tables for SNRI antidepressants.



## Rationale for judgements

For all adults, the GDG judged overall net benefits as trivial to small, limited mostly to a small effect on pain in the short-term. The GDG judged the harms to be small to moderate based on evidence from the RCTs. In particular, the GDG noted the moderate certainty evidence of a large increased risk of discontinuation due to adverse events, nausea, constipation, dizziness and somnolence in treatment durations of three months or more, and similarly large risks for

short-duration treatment, albeit with very low certainty evidence. The GDG also noted indirect evidence of publication bias towards the positive effects of anti-depressant agents when compared with the US Food and Drug Administration analysis of the evidence (126). Considering the higher certainty of evidence for outcomes of trials with longer duration treatment and lower certainty of evidence for outcomes of trials with shorter duration therapy, the GDG largely judged

the overall certainty of evidence to be low (three members judged its certainty to be moderate).

The GDG was mixed in its judgement concerning the balance of benefits to harms for SNRI antidepressants. Some members judged that the balance probably favoured SNRI antidepressants based on moderate certainty of evidence of small effects on pain with longer term therapy, while most judged that the balance probably did not favour SNRI antidepressants in view of the evidence of little to no benefits offered with short-term therapy and only trivial benefits offered in terms of function, quality of life and psychosocial well-being for long-term treatment.

A description of GDG members' judgements relevant to all systemic pharmacotherapies for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C17)*. *Table C17* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for SNRI antidepressants.

The GDG reached a consensus decision to recommend against SNRI antidepressants (conditional recommendation). This decision was based on the GDG's judgement that the balance of benefits to harms was not in favour of SNRI antidepressants when considering trivial to small benefits and moderate certainty evidence of a large increased risk of adverse events. The GDG also noted an absence of trial evidence in older people while

acknowledging potentially serious adverse events in this group including hyponatraemia, memory impairment, gastrointestinal events and falls, without evidence of benefit. The GDG also noted that, to date, no SNRI antidepressant has been recommended in the [WHO Model List of Essential Medicines](#) or [WHO mhGAP intervention guide \(106\)](#).

Three GDG members did not agree with a recommendation against of SNRI antidepressants and suggested a conditional recommendation in favour would be appropriate. The GDG also acknowledged that people who experience CPLBP often concurrently experience negative impacts on mental health, for which specific management of mental health conditions might be indicated, based on a clinical assessment. WHO provides guidance through the [WHO mhGAP intervention guide \(106\)](#).

## D.1.4 Tricyclic antidepressants



### Recommendation

**Tricyclic antidepressants should not be used as part of routine care for adults, including older people, with CPLBP**

*(conditional recommendation against use, very low certainty).*

### Remarks

- The potential harms associated with tricyclic antidepressants outweigh the trivial to small benefits offered.
- There are potentially serious adverse events associated with tricyclic antidepressants among older people, including postural hypotension, falls and delirium.



## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of tricyclic antidepressants (treatment duration  $\geq 12$  weeks) with **placebo** (3 trials, 294 participants), the certainty of evidence ranged from moderate to very low and benefits were observed for pain and function.
  - › Tricyclic antidepressants may be associated with a trivial to small reduction in pain intensity at three to less than six months, and a small reduction in pain intensity at six months (low certainty evidence). These estimates were not meta-analysed and were not statistically significant.
  - › Tricyclic antidepressants may be associated with a small increase in the likelihood of experiencing reduced pain by  $\geq 30\%$  or  $> 75\%$  at three to less than six months (low certainty evidence), although the relative risk estimates were imprecise (derived from a single trial) and not statistically significant.
  - › Tricyclic antidepressants may be associated with a trivial to small improvement in function at three to less than six months (low certainty evidence) and a trivial improvement in function at six months (low certainty evidence, estimate not statistically significant).
  - › Tricyclic antidepressants may offer a trivial benefit in terms of quality of life or psychological well-being outcomes at three to less than six months or at six months (low certainty evidence,

estimates not statistically significant and derived from a single trial).

- › Tricyclic antidepressants may be associated with a trivial decrease in work absence at three to less than six months, although the estimate was imprecise and not statistically significant (low certainty evidence). At six months, it was uncertain whether tricyclic antidepressants increased work absence: the estimate was imprecise and not statistically significant (very low certainty evidence).

Harms were monitored across the trials and were identified for dry mouth.

- › Tricyclic antidepressants were probably associated with an increased likelihood of dry mouth at three to less than six months (large effect; moderate certainty).
- › Relative risk estimates for serious adverse events, discontinuation due to adverse events, nausea, constipation and somnolence were imprecise (very low certainty evidence).

- In the comparison of tricyclic antidepressants (treatment duration <12 weeks) with **placebo** (6 trials, 290 participants), the certainty of evidence was very low. It was uncertain whether tricyclic antidepressants:

- › offered a trivial to small reduction in pain intensity at 1 to 3 months;
- › offered a small benefit to psychological well-being at 1 to 3 months (small effect, 1 trial, effect estimate not statistically significant); or
- › made little to no difference to function or quality of life at 1 to 3 months.

Harms were monitored in the included trials; however, since the certainty of evidence was very low, it was uncertain whether tricyclic antidepressants:

- › increased the likelihood of constipation (large effect) and dry mouth (small effect); or
- › made little to no difference to the likelihood of adverse events, withdrawals due to adverse events or somnolence.

Refer to web Annex D.D1.4 for detailed GRADE evidence profile tables for tricyclic antidepressants.



## Rationale for judgements

For all adults, the GDG judged overall net benefits to be trivial across critical outcomes, particularly for pain where effects were not meta-analysed and not statistically significant in long-term therapy trials, while other GDG members judged benefits to be

uncertain on the basis of low to very low certainty of evidence. The GDG judged the harms to be uncertain due to the very low certainty of evidence for most harms other than dry mouth. While no trials considered older people specifically, GDG members



reflected (based on their own experience) on potentially serious adverse events associated with tricyclic antidepressants in older people, including postural hypotension, falls and delirium. The GDG judged the overall certainty of evidence to be very low. The GDG judged that the balance of benefits to harms for tricyclic antidepressants did not favour or probably did not favour tricyclic antidepressants based on its assessment of benefits as being trivial or uncertain, and the potential for harms based on large risks of adverse events including dry mouth (moderate certainty) and constipation (very low certainty evidence). One GDG member judged the balance to be uncertain, given the low to very low certainty evidence for benefits and harms.

A description of GDG members' judgements relevant to all systemic pharmacotherapies for the EtD domains of values and

preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C18)*. *Table C18* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for tricyclic antidepressants.

The GDG reached a consensus decision to recommend against the use of tricyclic antidepressants (conditional recommendation). This decision was based on the lack of consistent evidence for a clinically worthwhile effect on critical outcomes and considering that potential harms, particularly for older people, outweighed possible benefits. One GDG member suggested no recommendation would be appropriate given the absence of sufficient evidence to judge the balance of benefits and harms.

## D.1.5 Anticonvulsants

**Recommendation**  
**Anticonvulsants should not be used as part of routine care for adults, including older people, with CPLBP**

*(conditional recommendation against use, very low certainty).*

### Remarks

- The large increased risk of adverse events associated with anticonvulsants substantially outweigh the small and short-term benefits offered.
- Harms associated with anticonvulsants might be more pronounced in older people. Furthermore, serious breathing difficulties have been associated with the use of gabapentin in people who have respiratory risk factors, such as chronic obstructive pulmonary disease, concomitant use of opioids and/or other central nervous system depressants, and in older people.

## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of anticonvulsants (treatment duration  $\geq 12$  weeks) with **placebo** (1 trial, 108 participants with and without spine-related leg pain, 43% had “radicular” pain), the certainty of evidence was very low and no benefits were observed. It was uncertain whether anticonvulsants (gabapentin) made little to no difference to pain intensity, the likelihood of experiencing a reduction in pain, or psychological well-being at three to six months.
    - › were associated with a large increased likelihood of failing memory, dry mouth, loss of balance and concentration difficulties;
    - › were associated with a moderate increased likelihood of asthenia (weakness and fatigue);
    - › were associated with a moderate increased likelihood of sedation and dizziness (not statistically significant);
    - › were associated with a small increased likelihood of discontinuation due to adverse events, although the estimate was imprecise and not statistically significant; or
- Harms were monitored in the trial; since the certainty of evidence was very low however, it was uncertain whether anticonvulsants (gabapentin):

- › made little to no difference to the likelihood of serious adverse events, constipation or nausea/vomiting.
- In the comparison of anticonvulsants (treatment duration < 12 weeks) with **placebo** (3 trials, 206 participants), the certainty of evidence ranged from very low to moderate. All trials excluded participants with neuropathic pain, but two trials included participants with spine-related leg pain (somatic referred leg pain). Benefits were observed for pain.
  - › Anticonvulsants probably made little to no difference to pain intensity at less than 1 month (moderate certainty evidence).
  - › Anticonvulsants probably offered a trivial to small reduction in pain intensity at 1 to 3 months (moderate certainty evidence).
  - › It was uncertain whether anticonvulsants offered a trivial to small improvement in function, quality of life and psychological well-being at 1 to 3 months (very low certainty evidence).
- › Anticonvulsants may increase the likelihood of nausea, constipation, dizziness, headache and somnolence (low certainty evidence); the risk estimates were imprecise however, and not statistically significant.
  - › It was uncertain whether anticonvulsants made little to no difference to the likelihood of withdrawals due to adverse events or pruritus (very low certainty evidence).

Refer to web *Annex D.D1.5* for detailed GRADE evidence profile tables for anticonvulsants.

Harms were monitored in the included trials and identified for adverse events as a group.

- › It was uncertain whether anticonvulsants increased the likelihood of adverse events (very low certainty evidence, large effect).



## Rationale for judgements

For all adults, the GDG largely judged overall net benefits as trivial, while some members judged benefits to be small or uncertain due to very low certainty of evidence. Although the GDG noted moderate certainty evidence of a benefit to pain at one to three months for short-term treatment, the size of the effect was trivial to small and there was no consistent signal of benefit across other time-points for pain. The GDG judged harms to be uncertain given the very low certainty evidence for harms outcomes, while noting signs of moderate to large effects for some adverse outcomes, including failing memory, concentration difficulties, dry mouth, loss of balance and asthenia. The GDG inferred that the risk of these harms, and potentially others, would be greater in older people, based on their experience. To support their judgements on harms, the GDG also referred to indirect evidence from the [US Food and Drug Authority](#) in December 2019 regarding the risk of serious breathing difficulties associated with the use of gabapentin in people who had respiratory risk factors such as chronic obstructive pulmonary disease, concomitant use of opioids and/or other central nervous system depressants, and in older people. The GDG also referred to other important external context and indirect evidence relating to the use of anticonvulsants in people with CPLBP, highlighting that these agents were increasingly used in practice without evidence of benefit ([127](#)), and that, despite the indication, there was no current evidence of benefit to pain and disability for gabapentin or topiramate in the context of co-existing possible or probable neuropathic spine-

related leg pain (moderate to high certainty) ([128](#)). The GDG judged the overall certainty of evidence to be very low. Since there was inconsistency in estimates and certainty ratings, the lowest certainty rating (very low) was applied. The GDG judged that the balance of benefits to harms for anticonvulsants did not favour anticonvulsants based on findings of little to no clinically worthwhile benefits and the potential for harm.

A description of GDG members' judgements relevant to all systemic pharmacotherapies for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C19)*. *Table C19* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for anticonvulsants.

The GDG reached a consensus decision to recommend against the use of anticonvulsants (conditional recommendation) on the basis of limited clinical benefit and because harms substantially outweighed possible benefit. While ten GDG members suggested that a strong recommendation against the use of anticonvulsants would be appropriate, this proportion did not meet the threshold for a consensus decision for a strong recommendation. One GDG member suggested no recommendation would be appropriate given the absence of sufficient evidence to judge the balance of benefits and harms.

## D.1.6 Skeletal muscle relaxants



### Recommendation

**Skeletal muscle relaxants should not be used as part of routine care for adults, including older people, with CPLBP**

*(conditional recommendation against use, very low certainty).*

### Remarks

- The potential harms associated with skeletal muscle relaxants outweigh the trivial to small benefits offered.
- There are potentially serious adverse events such as confusion, drowsiness, falls associated with skeletal muscle relaxants (baclofen) among older people, especially those with chronic kidney disease.



## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of skeletal muscle relaxants (treatment duration < 12 weeks) with **placebo** (4 trials, 143 participants), the certainty of evidence ranged from very low to moderate and benefits were observed for pain and function. All trials evaluated botulinum toxin A delivered via intramuscular injection into the paravertebral muscles.
  - › It was uncertain whether skeletal muscle relaxants increased the likelihood of a reduction in pain intensity ( $\geq 50\%$  difference in pre- and post-treatment scores on a 0–10 scale) at less than 1 month (very low certainty evidence, large effect)
  - › Skeletal muscle relaxants probably increased the likelihood of a reduction in pain intensity ( $\geq 50\%$  difference in pre- and post-treatment scores on a 0–10 scale) at 1 to 4 months (moderate certainty evidence, large effect).
  - › It was uncertain whether skeletal muscle relaxants made little to no difference to pain intensity (continuous outcome) at 1 to 4 months (very low certainty evidence).
  - › Skeletal muscle relaxants probably increased the likelihood of improved function, defined as “significant improvement” at 1 to 4 months (moderate certainty evidence, large effect).
  - › It was uncertain whether skeletal muscle relaxants made little to no



difference to function, quality of life or work-related outcomes at 1 to 4 months (very low certainty evidence).

Harms were monitored in the trials and none was identified. Skeletal muscle relaxants made little to no difference to the likelihood of adverse events (low certainty evidence).

- In the comparison of skeletal muscle relaxants (treatment duration <12 weeks) with **no treatment** (one trial of baclofen,

42 participants), the certainty of evidence was very low, and no differences were observed. It was uncertain whether skeletal muscle relaxants (baclofen) made little to no difference to pain intensity at less than 1 month, pain intensity at 1 to 3 months, or function at 1 to 3 months. The trial did not report on harms.

Refer to web Annex D.D1.6 for detailed GRADE evidence profile tables for skeletal muscle relaxants.



## Rationale for judgements

For all adults, the GDG largely judged overall net benefits to be uncertain. This judgement was based on very low certainty evidence of little to no benefit to pain and function measured on a continuous scale in only one trial (3 trials used dichotomous outcomes) and very low certainty evidence for outcomes of treatment durations of less than 12 weeks. A minority of GDG members judged benefits to be trivial or small. The GDG judged harms to be uncertain given the very low certainty evidence for harms outcomes, while noting signs of large effects for some adverse outcomes. The GDG highlighted indirect evidence of potential harms of skeletal muscle relaxants, such as confusion, drowsiness and falls in older people, especially those with chronic kidney disease and emphasized that skeletal muscle relaxants were often contraindicated for this reason in older people (129). The GDG also referred to indirect evidence of harms from a separate systematic review examining

the benefits and safety of a broad range of skeletal muscle relaxants (antispastics, non-benzodiazepine antispasmodics, benzodiazepines and miscellaneous agents) for non-specific LBP of any duration (130). Considering antispastics (baclofen, dantrolene) in people with acute LBP, moderate certainty evidence of an increased risk of any adverse event was observed (RR [95% CI]: 2.0 [1.1 to 3.8]; 2 trials, 290 participants). Furthermore, participants taking antispastics for acute LBP were more likely to discontinue treatment owing to an adverse event (RR: 34.6 [2.1 to 568.0]; 1 trial, 195 participants, very low certainty evidence). Among people with chronic LBP taking miscellaneous agents (botulinum toxin, eszopiclone), moderate certainty evidence of a possible increased risk of any adverse event was observed, although not statistically significant (RR [95% CI]: 1.5 [0.4 to 5.7]; 2 trials, 95 participants). The GDG judged the overall certainty of evidence to be very



low. The GDG judged the balance of benefits to harms for skeletal muscle relaxants to be uncertain, based on very low certainty evidence for benefits and harms.

The GDG noted that there might be important resource and equity considerations relevant to some skeletal muscle relaxants, particularly those that need to be injected, such as botulinum toxin A. The GDG noted that botulinum toxin A could be very expensive in some settings which would potentially increase health inequities and costs to health systems. A description of the GDG members' judgements relevant to all systemic pharmacotherapies for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and is summarisedsummarized in *Annex 3 (Table C20)*. *Table C20* also provides a

summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for skeletal muscle relaxants.

The GDG reached a consensus decision to recommend against skeletal muscle relaxants (conditional recommendation). This decision was based on little to no benefit for pain and function outcomes when measured on a continuous scale and indirect evidence of harms, particularly for older people. The GDG also noted that skeletal muscle relaxants are typically coprescribed with other medicines, and concluded that RCTs evaluating these agents in isolation might not accurately reflect well current Clinical practice. Two GDG members did not agree with the conditional against recommendation and judged that no recommendation would be appropriate given the absence of sufficient evidence to judge the balance of benefits and harms.

## D.1.7 Glucocorticoids

**Recommendation**  
**Glucocorticoids should not be used as part of routine care for adults, including older people, with CPLBP**  
(conditional recommendation against use, very low certainty).

### Remarks

- The potential harms associated with long-term use of glucocorticoids outweigh the potential benefits offered, and these harms may be more serious in older people.
- In circumstances where glucocorticoids are used in the short term for people with an acute flare of CPLBP, they should be prescribed at the lowest possible dose and for the shortest possible duration with a plan for tapering to discontinuation.



## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of systemic glucocorticoids (any treatment duration) with **placebo** (1 trial, 100 participants with radiculopathy), the certainty of evidence was very low, and no statistically significant differences in outcomes were observed. The trial evaluated a 10-day course of dexamethasone. It was uncertain whether glucocorticoids (dexamethasone) increased the likelihood of symptom relief – “full symptom relief or greatly improved symptoms” – at 11 days (small effect, imprecise estimate, not statistically significant).

Results for harms were imprecise, although estimates suggested there may be an increased risk of worse mood (small effect, imprecise estimate, not statistically significant) and gastrointestinal symptoms (large effect, imprecise estimate, not statistically significant), with no increased risk of hyperglycaemia (defined as a blood sugar increase of at least 2.8 mmol/L or 50 mg/dL) or weight gain  $\geq 1.5$  kg (very low certainty evidence).

Refer to web Annex D.D1.7 for detailed GRADE evidence profile tables for glucocorticoids.



### Rationale for judgements

GDG members judged the balance of benefits to harms for glucocorticoids to be largely uncertain based on the very low certainty of evidence for benefits and harms from a single trial, while some judged that the balance was not in favour of glucocorticoids based on the potential risk of gastrointestinal symptoms and in consideration of other indirect evidence of harms, particularly with long-term use. The GDG judged the overall certainty of evidence to be very low, consistent with the systematic review team’s assessment. For all adults, the GDG judged overall net benefits

to be uncertain, based on very low certainty evidence. The GDG also referred to indirect evidence from an aligned Cochrane review, which identified no convincing benefit to pain for glucocorticoids in non-radicular LBP and spinal stenosis conditions, while there was equivocal evidence suggesting that short-term use of glucocorticoids might be of benefit in people with radicular symptoms with or without acute LBP (118). The GDG judged harms to be uncertain based on evidence from a single trial. In the aligned Cochrane review, harms were inconsistently reported and no clear signals of harms were

identified from the trials that monitored harms (118). GDG members noted from their clinical experience that while a short course (e.g. 7–14 days) of glucocorticoids was generally well tolerated and safe (albeit with some risk of sleeplessness, increased appetite and increased blood glucose), longer duration treatment might be associated with substantial adverse events such as increased blood glucose levels leading to diabetes, bruising, weight gain, proximal weakness, decreased bone density or fracture, and infection. The GDG rationalized that the risks of harms, particularly with prolonged use of glucocorticoids outweighed the potential benefits. The GDG also noted the mean age of participants in the single trial was 47 years, suggesting uncertainty about the benefits and harms for older people based on this direct evidence.

A description of GDG members' judgements relevant to all systemic pharmacotherapies for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and

feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C21)*. *Table C21* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for glucocorticoids.

The GDG reached a consensus decision to recommend against glucocorticoids (conditional recommendation). This decision was based on the very low certainty evidence for benefit and the potential for harms associated with prolonged glucocorticoid use. Two GDG members did not agree with the conditional against recommendation and judged that no recommendation would be appropriate given the absence of sufficient evidence to judge the balance of benefits and harms. The GDG noted that in circumstances where glucocorticoids are used short term for people with an acute flare of CPLBP, they ought to be prescribed at the lowest possible dose and for the shortest possible duration with a plan for tapering to discontinuation.

## D.1.8 Paracetamol (acetaminophen)

### Summary of the evidence

There were no trials identified that evaluated the benefits or harms of paracetamol (acetaminophen) in the management of CPLBP in adults.



### Rationale for judgements

Given the absence of direct evidence aligned to the PICO question, the GDG ruled not to undertake an EtD process for paracetamol and no recommendation was made. However, the GDG recognized that paracetamol (acetaminophen) is used in practice and that there may be important adverse events to consider when using this medicine. As such, key considerations were formulated to guide practice. A summary of these key considerations is also provided in *Box 1* in the executive summary.

#### Key considerations

- Paracetamol is commonly used as first-line analgesic medication and is included on the WHO Model List of Essential Medicines for the indication of pain.
- Available evidence for the use of paracetamol for LBP suggests it is no better than placebo for reducing pain in acute LBP (131). There is high-quality evidence that paracetamol has no effect on quality of life, function, global impression of recovery and sleep quality. There is no biological reason why its effectiveness would be different in CPLBP.
- The adverse events profile of paracetamol is now better understood. There are substantial increases in the risk of potential cardiovascular, renal and gastrointestinal harms and increased mortality risk, based on a systematic review of harms in observational studies (132).
- Older people and people with hepatic or renal impairment are likely to be at greatest risk of harm from paracetamol (133).
- Overdose of paracetamol is dangerous and potentially fatal.

## D.1.9 Benzodiazepines

### Summary of the evidence

There were no trials identified that evaluated the benefits or harms of benzodiazepines in the management of CPLBP in adults.



### Rationale for judgements

Given the absence of direct evidence aligned to the PICO question, the GDG ruled not to undertake an EtD process for benzodiazepines and no recommendation was made. However, the GDG recognized that benzodiazepines are used in practice and that there might be important adverse events to consider when using this medicine. As such, key considerations were formulated to guide practice. A summary of these key considerations is also provided in Box 1 in the executive summary.

#### Key considerations

- Indirect evidence outside trials for LBP suggest that benzodiazepines are associated with potential harms including memory impairment, misuse/abuse, overdose deaths from respiratory

depression, somnolence, fatigue and light-headedness leading to falls (133). Other complications of long-term use of benzodiazepines include development of tolerance, dependence and withdrawal syndrome particularly after abrupt cessation, which can be life threatening. WHO provides guidance on tapering, discontinuation and management of withdrawal syndrome in the [WHO mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings](#) (106).

- Benzodiazepines are not considered to be an appropriate medicine for the management of CPLBP, especially in older people, due to their unknown efficacy and indirect evidence of harm.

## D.2 Cannabis-related pharmaceutical preparations for therapeutic use



### Definition of the intervention

Cannabis-related pharmaceutical preparations for therapeutic use (referred to here as “cannabinoids”) refer to compounds that are active in cannabis. The two principal cannabinoid compounds include tetrahydrocannabinol (THC) and cannabidiol (CBD) (134).



### Summary of the evidence

There were no trials identified that evaluated the benefits or harms of cannabinoids in the management of CPLBP, based on an ongoing (living) Agency for Healthcare Research and Quality (AHRQ) systematic review of cannabis for chronic pain (134, 135).



### Rationale for judgements

Given the absence of direct evidence aligned to the PICO question, the GDG ruled not to undertake an EtD process for cannabinoids and no recommendation was made. However, the GDG recognized that cannabinoids are used in practice and that there might be important adverse events to consider when using this medicine. As such, key considerations were formulated to guide practice. A summary of these key considerations is also provided in *Box 1* in the executive summary.

#### Key considerations

- Cannabinoids are not likely to be an appropriate medicine for the management

of CPLBP due to a current lack of direct evidence for benefit in this condition and evidence of possible adverse events, including in older people (136). While indirect evidence from trials in populations with other pain conditions suggests benefits to pain relief, physical functioning and sleep quality, the effects were small to very small (137).

- The potential for a small to very small clinical effect associated with cannabinoids must be considered alongside evidence for harms, which may be more severe for older people. There is indirect evidence of harms in populations with other pain conditions,



including harms related to non-medicinal use (138). These harms, for example, may include short-term adverse events such as disturbances in the level of consciousness, cognition, perception, driving skills, affect or behaviour, other psychophysiological functions and responses, and adverse physical health effects, such as stroke or acute coronary syndrome. In the longer term, adverse events may include dependence, cognitive impairment, mental disorders (psychoses, depression, anxiety and suicidal behaviour), and adverse physical health effects such as cardiovascular disease, chronic obstructive

pulmonary disease and respiratory and other cancers (138).

- Regarding the importance of addressing the harms of associated with cannabinoids, the WHO mhGap 2023 guideline update currently states: “Considering high prevalence and well documented health risks associated with cannabis use, wider implementation and scale up of simple advice, brief interventions and, when appropriate, offer of referral to treatment can result in significant health gains at population level” (139).

## D.3 Injectable local anaesthetics



### Definition of the intervention

Injectable local anaesthetics include the subcutaneous, myofascial or intramuscular delivery of anaesthetic agents (lidocaine, articaine, bupivacaine, chlorprocaine, mepivacaine, procaine, ropivacaine and tetracaine) into local soft and/or connective tissues in the region of the lower back, between the 12th rib and gluteal fold. The injectate is delivered only to the extraspinal soft tissue and not delivered to intraspinal structures, as is the case with intradiscal, epidural, intrathecal, facet joint and nerve root injections.



### Recommendation

## **Injectable local anaesthetics should not be used as part of routine care for adults, including older people, with CPLBP**

*(conditional recommendation against use, very low certainty).*

### Remarks

- The potential harms associated with local anaesthetic injections outweigh the trivial to small benefits offered in the short-term.
- There are resource considerations and potentially negative equity impacts which are relevant in some contexts.



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

The evidence for the benefits and harms of injectable local anaesthetics into extraspinal soft and/or connective tissues of the low back region for the treatment of CPLBP was based on an update and extension to an earlier Cochrane review (140). The current synthesis comprised two trials with a total of 422 participants (mean age range 42–48 years). The two trials were undertaken in one HIC (Netherlands (Kingdom of the)) and one UMIC (Brazil). Neither study reported on older age groups separately. Both trials excluded participants with spine-related radicular leg pain (referred to as “lumbosciatic pain” and “sciatica”). Neither study reported on marginalized populations nor described the race/ethnicity of their included population. Both trials used lignocaine/lidocaine injections in the treatment arm. One trial compared a single dose (0.5% with 5 mL isotonic saline) injected over the medial part of the iliac crest using a 21-gauge needle with a placebo injection of saline only. The other

trial compared three paraspinous muscle lidocaine injections (3 mL 1% diffuse lidocaine infusion) injected for three consecutive weeks with a 3.7 cm 27-gauge disposable needle to two comparison groups: one group received three “placebo injections” with dry needling (no infiltration of the muscle) and the other received no treatment.

#### Outcomes

- In the comparison of injectable local anaesthetics with **placebo** (2 trials), some benefit was observed for pain. It was uncertain whether local anaesthetic injections made little to no difference to pain intensity or the likelihood of a 30% pain reduction in pain in the short term, since the certainty of evidence was very low. It was uncertain whether local anaesthetic injections increased the number of participants “feeling improved” in the short term (large effect with very wide 95% CI), since the certainty of evidence was

very low. Both trials monitored harms. It was uncertain whether local anaesthetics increased adverse events, since the certainty of evidence was very low and the 95% CI for the relative risk estimate exceeded 1.0. It was uncertain whether injectable local anaesthetics made little to no difference to serious adverse events, since the certainty of evidence was very low.

- In the comparison of injectable local anaesthetics with **no intervention** (1 trial) some benefit was observed for pain. It was uncertain whether anaesthetic injections made little to no difference in pain intensity and back-specific function in the short term, since the certainty of evidence was very low. It was uncertain whether local anaesthetic injections increased the number of participants experiencing a decrease of at least 30% in the pain visual analogue scale

in the short term (small effect), since the certainty of the evidence was very low. The trial monitored harms. It was uncertain whether local anaesthetics increased adverse events, since the certainty of evidence was very low and the 95% CI for the relative risk estimate exceeded 1.0.

- In the comparison of injectable local anaesthetics with **usual care**, no trial was identified.

Web Annex D.D3 provides the detailed GRADE evidence profile tables for the intervention, by comparator. The annex also provides a summary of qualitative evidence relevant to each of the EtD domains (discussed below) and a summary of the GDG's judgements of these domains and of the benefits and harms of the intervention.

## Qualitative review

No qualitative evidence was identified specific to injectable local anaesthetics. Some evidence from the qualitative evidence synthesis related to medicines in general and GDG members' judgements concerning EtD considerations for systemic pharmacotherapies are applicable to injectable local anaesthetics (Section D.1 **page 115**)



## Rationale for judgements

For all adults and older adults, the GDG judged overall net benefits to be mostly uncertain or trivial, since the certainty of evidence was very low, and no outcomes data were available beyond the short-term follow-up period. Similarly, the GDG judged harms to be mostly uncertain based on very low certainty evidence, although noted from members' clinical experience that harms might not be negligible if injections were delivered by untrained practitioners. The GDG judged the overall certainty of evidence to be very low, consistent with the systematic review team's assessment. The GDG judged that the balance of benefits to harms for injectable local anaesthetics was uncertain and probably did not favour the intervention. The uncertainty of judgement related to very low certainty evidence and source data from a limited number of trials, while the judgement of balance not in favour of the intervention related to the lack of evidence of clinical benefit and potential for harms.

Based on their experience, GDG members judged that values and preferences for older people relating to injectable local anaesthetics were likely to be applicable to all adults. Members judged that important or possibly important uncertainty or variability could exist since people with CPLBP were likely to value short-term relief and the potential for harms differently. One GDG member noted that in situations where people understood the evidence for benefits and harms, there would be less uncertainty or variability. The GDG judged that resource

requirements would be moderate to large when considering the combined costs of the medicines, storage requirements, biohazard equipment and staff training. Furthermore, given the likely requirement for repeat injections over several consultations, the direct costs to people with CPLBP could be large. In consideration of the potentially large resource requirements and need to access specialist health practitioners in some settings, the GDG judged that health equity might be negatively impacted for some groups, especially those in rural and remote locations or where health workforce shortages are significant, while for others the impact on equity could vary. The GDG judged that the acceptability of injectable local anaesthetics was likely to vary. While some people might appreciate the opportunity for potential short-term relief of symptoms, others could be less accepting based on the very limited evidence for benefit and potential for harms, based on the included trials. From the perspective of health workers, acceptability was likely to vary based on very high variations in practice between countries. Based on members' experience, the GDG suggested that in some countries the intervention was commonly used, while not used at all in others. The GDG judged that while delivery of the intervention in many settings was feasible, at a global level feasibility would vary due to the requirements for staff training and accessibility to trained health workers, as well as infrastructure requirements relating to intervention provision and biohazard considerations.

The GDG reached a consensus decision to recommend against injectable local anaesthetics (conditional recommendation). This decision was based on very little evidence of benefit (particularly where critical outcomes were not measured on a continuous scale), potential for harms (including consideration of harms when injections were delivered by untrained health practitioners) and the potential negative consequences for health equity and resource considerations.

Some GDGs noted that in their countries injectable local anaesthetics were commonly used and easily accessible. They also noted

that local anaesthetics are commonly injected into targeted trigger points and other myofascial structures and observed that the included trials might not reflect this contemporary practice for addressing specific myofascial pain syndromes. Considering these reasons and the absence of sufficient evidence of adequate certainty to balance benefits and harms, six GDG members rationalized that no recommendation would be appropriate.

*Annex 3 (Table C22)* provides a summary of the judgements made by the GDG for each EtD domain.



## D.4 Herbal medicines

This section provides a summary of the evidence relating to all herbal medicines generally, while subsections D.4.1–D.4.8 provide the intervention-specific evidence summaries, rationales and judgements.



### Definition of the intervention

WHO defines herbal medicines as herbs, herbal materials, herbal preparations and finished herbal products that contain, as active ingredients, parts of plants, or other plant materials, or combinations of both. For the purpose of the guideline, herbal medicines were restricted to plants or parts of plants used for medicinal purposes, administered orally (ingestion) or applied topically. This definition does not include plant substances, smoked individual chemicals derived from plants, or synthetic chemicals based on plant constituents.



### Summary of the evidence

#### Quantitative review

##### Characteristics of the evidence

The evidence for the benefits and harms of herbal medicines for the treatment of CPLBP was based on an update and extension to an earlier Cochrane review (141). The update included all types of herbal medicine taken orally or applied to the skin (topically). Fumigation and moxibustion treatments involving heating or smoking of herbal medicines were excluded. The update included those medicines previously evaluated in the earlier Cochrane review (141), including: Cayenne pepper [*Capsicum frutescens*], Devil's claw [*Harpagophytum*

*procumbens*], White willow [*Salix spp.*], Brazilian arnica [*Solidago chilensis*] and all other relevant herbal medicines for CPLBP evaluated by RCTs, including combinations of multiple herbal medicines and traditional Chinese medicines. The current synthesis comprised 12 trials with a total of 1723 participants evaluating eight different individual herbal medicines or combinations of herbal medicines, as outlined in *Table 12*. Further details on the formulations and dose of each medicine are provided in *Annex 2 Table B2*.



**Table 12:** Summary of trials of herbal medicines and combination medicines.

Herbal medicine class (route of administration)	Comparator	Number of trials (total sample size)
<b>Cayenne pepper [<i>Capsicum frutescens</i>]</b> (topical)	Placebo	3 (n=756)
<b>Devil's claw [<i>Harpagophytum procumbens</i>]</b> (oral)	Placebo	2 (n=315)
<b>White willow [<i>Salix spp.</i>]</b> (oral)	Placebo	2 (n=245) <sup>m</sup>
<b>Brazilian arnica [<i>Solidago chilensis</i>]</b> (topical)	Placebo	1 (n=20)
<b>Ginger [<i>Zingiber officinale</i> Roscoe]<sup>n</sup></b> (oral)	Placebo	1 (n=120) <sup>n</sup>
<b>White lily [<i>Lilium candidum</i>]</b> (topical)	Placebo	1 (n=30)
<b>Combination herbal compress [<i>Zingiber cassumunar</i> Roxb. Rhizomes (40%), <i>Curcuma longa</i> L. rhizomes (10%), <i>Cymbopogon citratus</i> (DC.) Stapf leaves and leaf sheaths (10%), <i>Croton roxburghii</i> N.P.Balakr. leaves (10%), <i>Tamarindus</i> <i>indica</i> L. leaves (10%), <i>Citrus hystrix</i> DC. peels (5%), <i>Blumea balsamifera</i> (L.) DC. leaves (5%), <i>Vitex trifolia</i> L. leaves (5%) and camphor (5%)]</b> (topical)	No intervention / where the effect of the intervention could be isolated	1 (n=140)
<b>Combination transdermal diffusional patch of 6 herbal oils [<i>Oleum thymi</i>, <i>Oleum limonis</i>, <i>Oleum nigra</i>, <i>Oleum rosmarini</i>, <i>Oleum</i> <i>chamomilla</i> and <i>Oleum lauri expressum</i>]</b> (topical)	Placebo	1 (n=97)

<sup>m</sup> only 1 trial reported on outcomes of interest for PICO

<sup>n</sup> the trial did not report data recuperable for analysis or GRADE assessment.

Nine of the trials were performed in home settings and three in hospital settings (two inpatient, one in an outpatient setting). Seven trials were carried out in HICs (Germany: 5 trials; Israel: 2 trials), three in an UMIC (Brazil: 1 trial; Thailand: 1 trial; Türkiye: 1 trial) and the remaining two in a LMIC (Islamic Republic of Iran). All trials included participants in an age group ranging from 18 to 80 years, with a mean age range of 40–60 years. One trial included older people with a mean age of 69 years in the intervention and 68 years in the control group. Ten trials included mixed

male and female populations; two trials reported no details on the sex or gender of the included participants. No trials reported on marginalized populations separately and three trials described the ethnicity of their population, reported as 100% Caucasian.



## Qualitative review

#	Review findings: values and preferences relevant to older people	GRADE-CERQual assessment of confidence	Explanation of confidence assessment
7	Some older people adopted alternative forms of treatment, including traditional or herbal medicines, as a part of their self-management approach when conventional treatments failed to provide relief from their chronic LBP. Some viewed this as experimenting to find a solution. Often older people did not inform their health care provider about taking this type of treatment.	LOW	No/very minor concerns regarding methodological limitations, no/very minor concerns regarding coherence, serious concerns regarding adequacy, and serious concerns regarding relevance.

No qualitative evidence was identified specific to herbal medicines for the following EtD domains: resource implications, equity and human rights, acceptability or feasibility.

## Overall judgements and EtD considerations for herbal medicines generally

**The GDG considered the EtD domains of values and preferences, resource requirements, equity and human rights, acceptability and feasibility for all herbal medicines together, since the GDG expected that judgements for these domains would not differ by herbal medicine. Therefore, this section outlines GDG judgements for those domains as they relate to herbal medicines in general. These judgements should be considered alongside the rationales for each herbal medicine**

The GDG judged that values and preferences for older people relating to herbal medicines were likely to be applicable to all adults. Members varied on their judgement for values and preferences with some suggesting possibly important uncertainty or variability and others suggesting no important uncertainty or variability. The GDG suggested that the variability in judgements probably reflected different practices and beliefs concerning herbal medicines across countries and that for topical Cayenne pepper in particular, people with CPLBP needed to balance likely benefits against possible harms (e.g. skin irritation). For this reason, resource requirements and impacts on equity were also judged to vary, given that costs and equity considerations are context-specific. The GDG judged that the feasibility to provide herbal medicines would vary by setting, accepting that Devil's claw, white willow and Cayenne pepper would be accessible in most settings, while the other medicines (and in particular, combination medicines) might be less accessible. The GDG judged that the acceptability of herbal medicines would be highly variable, based on differences in the social and cultural attitudes of people and health workers to herbal medicines. Based on their experience, GDG members noted that in some countries, such as India and Brazil,

acceptability varied by geography: herbal medicines were more accepted in rural than in urban centres in these countries. GDG members also noted from their experience that herbal medicines were often more acceptable when combined with other interventions, such as massage. The GDG noted that herbal medicines might not be universally acceptable to health workers, due to concerns about the quality assurance of ingredients, consistency of ingredients in preparations and absence of manufacturing quality standards for herbal medicines in general. For these reasons, assessing the risk of harms was more difficult.

The following sections (D.4.1–D.4.8) outline the recommendation, summary of quantitative evidence and rationale and evidence considerations for each herbal medicine. Web Annex D.D4 provides the detailed GRADE evidence profile tables for each herbal medicine, by comparator.

## D.4.1 Topical Cayenne Pepper [*Capsicum frutescens*]



### Recommendation

**Topical Cayenne pepper [*Capsicum frutescens*] may be offered as part of care to adults with CPLBP, including older people**

*conditional recommendation in favour of use, low certainty evidence*).

### Remarks

- When topical Cayenne pepper [*Capsicum frutescens*] is offered, information about possible adverse skin reactions should be outlined so that people may make informed decisions about accepting this intervention.
- When topical Cayenne pepper [*Capsicum frutescens*] is offered to people with CPLBP, it should be considered as part of a broader suite of effective treatments (i.e. not offered as a single intervention in isolation), based on a biopsychosocial assessment.



## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of topical Cayenne pepper [*Capsicum frutescens*] with **placebo** (3 trials), benefit was observed for pain. Cayenne pepper probably reduced pain (moderate effect) in the short term (moderate certainty evidence). Cayenne pepper may increase adverse events related to skin irritation in the short term (low certainty evidence).
- In the comparison of topical Cayenne pepper [*Capsicum frutescens*] with **no intervention, or where the effect of the intervention could be isolated**, no trials were identified.
- In the comparison of topical Cayenne pepper [*Capsicum frutescens*] with **usual care**, no trials were identified.

Refer to web Annex D.D4.1 for detailed GRADE evidence profile tables for Cayenne pepper [*Capsicum frutescens*].



## Rationale for judgements

For all adults and older people, the GDG judged overall net benefits as small to moderate, although a few suggested that benefits were uncertain due to limited evidence, that pain relief was estimated as a dichotomous outcome only rather than a continuous mean difference, and that outcomes were limited to short-term follow-up only. The GDG judged non-serious adverse events to be small to moderate. The GDG judged the overall certainty of evidence to be low. Most of the GDG judged that the balance of benefits to harms for topical Cayenne pepper probably favoured the intervention based on moderate certainty evidence of short-term benefit with regard to pain reduction, and considering that adverse events were likely to be non-serious, transient and expected, based on the therapeutic mechanism of action of topical Cayenne pepper. However, some GDG members considered this balance to be uncertain.

A description of GDG members' judgements relevant to all herbal medicines for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C23)*. *Table C23* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for topical Cayenne pepper.

The GDG reached a consensus decision to make a conditional recommendation in favour of topical Cayenne pepper based on moderate certainty evidence of a pain-reduction benefit in the short term. The GDG noted that the harms associated with Cayenne pepper were non-serious, acknowledging that unpleasant skin reactions were likely to be transient and expected as part of the therapeutic mechanism of action. The GDG was uncertain about the benefits and harms of Cayenne pepper beyond the short term.



### D.4.2

## Devil's claw [*Harpagophytum procumbens*]

### Recommendation

**Devil's claw [*Harpagophytum procumbens*] should not be used as part of routine care for adults, including older people, with CPLBP**

(conditional recommendation against use, very low certainty).

### Remarks

- The small benefits, when balanced against unknown harms, do not favour the intervention.



## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of Devil's claw [*Harpagophytum procumbens*] with **placebo** (2 trials), possible benefit was observed for pain. Devil's claw may reduce pain (large effect) in the short term (low certainty evidence). It was uncertain whether Devil's claw made little to no difference to back-specific function in the short term (very low certainty). It was uncertain whether Devil's claw made little to no difference to medication use in the short term (very low certainty). It was uncertain whether Devil's claw made little to no difference to adverse events since the certainty of the evidence was very low.
- In the comparison of Devil's claw [*Harpagophytum procumbens*] with **no intervention, or where the effect of the intervention could be isolated**, no trials were identified.
- In the comparison of Devil's claw [*Harpagophytum procumbens*] with **usual care**, no trials were identified.

Refer to web Annex D.D4.2 for detailed GRADE evidence profile tables for Devil's claw [*Harpagophytum procumbens*].



### Rationale for judgements

For all adults and older people, the GDG judged overall net benefits to be mostly uncertain for Devil's claw. In particular, the GDG was uncertain about benefits since the scale used to measure pain and function was dichotomous, creating uncertainty about absolute effect sizes, and because monitoring was limited to the short term only. Two GDG members suggested that the benefits were small to moderate for Devil's claw based on the large relative risk estimates for pain reduction. The GDG judged harms to be uncertain for Devil's claw due to limited reporting and very low certainty evidence.

The GDG judged the overall certainty of evidence to be low to very low. Since effects for benefits were inconsistent, an overall certainty of very low was applied. Most GDG members judged the balance of benefits to harms for Devil's claw as uncertain due to low to very low certainty evidence from two trials.

A description of GDG members' judgements relevant to all herbal medicines for the EtD domains of values and preferences, resource implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class




and summarized in *Annex 3 (Table C24)*. *Table C24* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for Devil's claw.

The GDG made a consensus decision to make a conditional recommendation against Devil's claw on the basis that benefits to pain and function were limited to low to very low certainty evidence for dichotomous outcomes

in the short term. In this context, the GDG was not confident that the balance of benefit to harm was in favour of Devil's claw. The GDG also noted that no evidence was available for older adults. Three GDG members disagreed with the judgement and instead suggested that no recommendation would be appropriate given the absence of sufficient evidence to judge the balance of benefits and harms.

### **D.4.3** **White willow [*Salix spp.*]**

 **Recommendation**  
**White willow [*Salix spp.*] should not be used as part of routine care for adults, including older people, with CPLBP**  
*(conditional recommendation against use, low certainty).*

#### **Remarks**

- The small benefits, when balanced against unknown harms, do not favour the intervention.

## **Summary of the evidence**

### **Quantitative review**

#### **Outcomes**

- In the comparison of white willow [*Salix spp.*] with **placebo**, two trials were identified, although outcomes could only be extracted from one trial. Possible benefits were observed for pain, function and medication use. White willow may reduce pain (large effect) in the short term

(low certainty evidence) and improve back-specific function (large effect) in the short term (low certainty evidence). It was uncertain whether white willow reduced medication use (large effect) in the short term (very certainty evidence). It was uncertain whether white willow was

associated with fewer adverse events in the short term compared with a placebo control group (large effect), since the certainty of evidence was very low.

- In the comparison of white willow [*Salix spp.*] with **no intervention, or where the effect of the intervention could be isolated**, no trials were identified.

- In the comparison of white willow [*Salix spp.*] with **usual care**, no trials were identified.

Refer to web Annex D.D4.3 for detailed GRADE evidence profile tables for white willow [*Salix spp.*].



## Rationale for judgements

For all adults and older people, the GDG judged overall net benefits to be mostly uncertain for white willow, in particular because the scale used to measure pain and function was dichotomous, creating uncertainty about absolute effect sizes for pain and function, and because monitoring was limited to the short term only. The GDG judged harms to be uncertain due to limited reporting and very low certainty evidence. The GDG judged the overall certainty of evidence to be low to very low for white willow. Since all effects were in a consistent direction for white willow, an overall certainty rating of low was applied. Most of the GDG judged the balance of benefits to harms for white willow as uncertain due to low to very low certainty evidence from two trials, with evidence available from only one of the two trials.

A description of GDG members' judgements relevant to all herbal medicines for the EtD domains of values and preferences, resource

implications, equity and human rights, acceptability and feasibility is presented in the introduction to this intervention class and summarized in *Annex 3 (Table C25)*. *Table C25* also provides a summary of judgements made by the GDG for benefits, harms, balance of benefits to harms, and overall certainty for white willow.

The GDG made a consensus decision to make a conditional recommendation against white willow on the basis that benefits to pain and function were limited to low certainty evidence for dichotomous outcomes in the short term with implausibly large effects. In this context, the GDG was not confident that the balance of benefits to harms was in favour of white willow. The GDG also noted that no evidence was available for older adults. Three GDG members disagreed with the judgement and instead suggested that no recommendation would be appropriate given the absence of sufficient evidence to judge the balance of benefits and harms.

## D.4.4 Topical Brazilian arnica [*Solidago chilensis*]



### Recommendation

**No recommendation: The evidence regarding the benefits and harms of topical Brazilian Arnica [*Solidago chilensis*] in managing CPLBP in adults is insufficient to formulate a recommendation**

(no recommendation, very low certainty evidence).



## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of topical Brazilian arnica [*Solidago chilensis*] with **placebo** (1 trial), possible benefit was observed for pain. It was uncertain whether Brazilian arnica reduced pain (large effect) in the short term since the certainty of the evidence was very low. The trial did not report on harms
- In the comparison of topical Brazilian arnica [*Solidago chilensis*] with **no intervention, or where the effect of the intervention could be isolated**, no trials were identified.
- In the comparison of herbal medicines with **usual care**, no trials were identified.




### Rationale for judgements

The GDG limited its EtD discussion to three herbal medicines only, including Cayenne pepper [*Capsicum frutescens*], Devil's claw [*Harpagophytum procumbens*] and white willow [*Salix spp.*], since only these three herbal medicines were evaluated in more

than one trial and had higher GRADE certainty assessments. Given that the evidence for topical Brazilian arnica [*Solidago chilensis*] was limited to one small trial, the GDG chose not to undertake an EtD process or to make recommendations for this herbal medicine.

## D.4.5 Ginger [*Zingiber officinale* Roscoe]

 **Recommendation**  
**No recommendation: The evidence regarding the benefits and harms of Ginger [*Zingiber officinale* Roscoe] in managing CPLBP in adults is insufficient to formulate a recommendation**  
(no recommendation, very low certainty evidence).

### Summary of the evidence

#### Quantitative review

##### Outcomes

- In the comparison of Ginger [*Zingiber officinale* Roscoe] with **placebo**, one trial was identified, although it did not report data in a format that allowed analysis or GRADE assessment. Consequently, no GRADE evidence profile was developed for this comparison.
- In the comparison of Ginger [*Zingiber officinale* Roscoe] with **no intervention, or where the effect of the intervention could be isolated**, no trials were identified.
- In the comparison of Ginger [*Zingiber officinale* Roscoe] with **usual care**, no trials were identified.



#### Rationale for judgements

The GDG limited its EtD discussion to three herbal medicines only, including Cayenne pepper [*Capsicum frutescens*], Devil's claw [*Harpagophytum procumbens*] and white willow [*Salix spp.*], since only these three herbal medicines were evaluated in more than one trial and had higher GRADE certainty

assessments. Given that the evidence for Ginger [*Zingiber officinale* Roscoe] was limited to one trial where the data were not recuperable or able to be appraised using GRADE methods, the GDG chose not to undertake an EtD process or to make recommendations for this herbal medicine.

## D.4.6 Topical white lily [*Lilium candidum*]



### Recommendation

**No recommendation: The evidence regarding the benefits and harms of topical white lily [*Lilium candidum*] in managing CPLBP in adults is insufficient to formulate a recommendation**

(no recommendation, very low certainty evidence).



## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of topical white lily [*Lilium candidum*] with **placebo** (1 trial), possible benefits were observed for pain and function. It was uncertain whether white lily reduced pain (large effect) and improved back-specific function in the short term (large effect). The trial did not report on harms.
- In the comparison of topical white lily [*Lilium candidum*] with **no intervention, or where the effect of the intervention could be isolated**, no trials were identified.
- In the comparison of white lily [*Lilium candidum*] with **usual care**, no trials were identified.



### Rationale for judgements

The GDG limited its EtD discussion to three herbal medicines only, including Cayenne pepper [*Capsicum frutescens*], Devil's claw [*Harpagophytum procumbens*] and white willow [*Salix spp.*], since only these three herbal medicines were evaluated in more

than one trial and had higher GRADE certainty assessments. Given that the evidence for topical white lily [*Lilium candidum*] was limited to one small trial, the GDG chose not to undertake an EtD process or to make recommendations for this herbal medicine.

## D.4.7 Topical combination herbal compress [*Zingiber cassumunar* Roxb. rhizomes, *Curcuma longa* L. rhizomes, *Cymbopogon citratus* (DC.), Stapf leaves and leaf sheaths, *Croton roxburghii* N.P.Balacr. leaves, *Tamarindus indica* L. leaves, *Citrus hystrix* DC. peels, *Blumea balsamifera* (L.) DC. leaves, *Vitex trifolia* L. leaves and camphor]



### Recommendation

**No recommendation:** The evidence regarding the benefits and harms of topical combination herbal compress [*Zingiber cassumunar* Roxb. Rhizomes, *Curcuma longa* L. rhizomes, *Cymbopogon citratus* (DC.), Stapf leaves and leaf sheaths, *Croton roxburghii* N.P.Balacr. leaves, *Tamarindus indica* L. leaves, *Citrus hystrix* DC. peels, *Blumea balsamifera* (L.) DC. leaves, *Vitex trifolia* L. leaves and camphor] in managing CPLBP in adults is insufficient to formulate a recommendation (no recommendation, very low certainty evidence).



## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of a topical combination herbal compress with **placebo**, no trials were identified.
- In the comparison of a topical combination herbal compress with **no intervention, or where the effect of the intervention could be isolated** (1 trial in older people), no benefits were observed. Massage with a combination herbal compress compared with massage alone may make little to no difference to pain, back-specific function or health-related quality of life in the short or intermediate terms (low certainty). The trial did not report on harms.
- In the comparison of a combination herbal compress with **usual care**, no trials were identified.







## Rationale for judgements

The GDG limited its EtD discussion to three herbal medicines only, including Cayenne pepper [*Capsicum frutescens*], Devil's claw [*Harpagophytum procumbens*] and white willow [*Salix spp.*], since only these three herbal medicines were evaluated in more than one trial and had higher GRADE certainty

assessments. Given that the evidence for a topical combination herbal compress was limited to one trial that was not placebo-controlled, the GDG chose not to undertake an EtD process or to make recommendations for this herbal medicine combination.



## D.4.8

### Topical combination transdermal diffusional patch [*Oleum thymi*, *Oleum limonis*, *Oleum nigra*, *Oleum rosmarini*, *Oleum chamomilla* and *Oleum lauri expressum*]



#### Recommendation

**No recommendation: The evidence regarding the benefits and harms of Topical combination transdermal diffusional patch [*Oleum thymi*, *Oleum limonis*, *Oleum nigra*, *Oleum rosmarini*, *Oleum chamomilla* and *Oleum lauri expressum*] in managing CPLBP in adults is insufficient to formulate a recommendation (no recommendation, very low certainty evidence).**



## Summary of the evidence

### Quantitative review

#### Outcomes

- In the comparison of a topical combination transdermal diffusional patch with **placebo** (1 trial), no benefits were observed. It was uncertain whether a combination

transdermal diffusion patch made little to no difference to pain or function in the short term, since the certainty of the evidence was very low. It was uncertain whether a

combination transdermal diffusion patch made little to no difference to adverse events in the short term, since the certainty of evidence was very low.

- In the comparison of a topical combination transdermal diffusional patch with **no**

**intervention, or where the effect of the intervention could be isolated**, no trials were identified.

- In the comparison of a combination transdermal diffusional patch with **usual care**, no trials were identified.



## Rationale for judgements

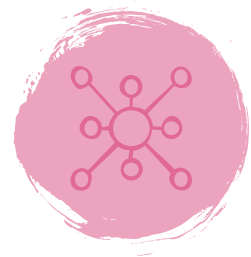
The GDG limited its EtD discussion to three herbal medicines only, including Cayenne pepper [*Capsicum frutescens*], Devil's claw [*Harpagophytum procumbens*] and white willow [*Salix spp.*], since only these three herbal medicines were evaluated in more than one trial and had higher GRADE certainty

assessments. Given that the evidence for topical combination transdermal diffusional patch was limited to one trial, the GDG chose not to undertake an EtD process or to make recommendations for this herbal medicine combination.



Intervention class **E**:

# Multicomponent interventions



## E.1 Weight management



### Definition of the intervention

Weight management refers to nonsurgical interventions adopting unimodal or multimodal interventions that can be delivered in a primary or community care setting and are aimed at improving outcomes for adults with CPLBP. These interventions may include weight loss for adults who are overweight or obese, weight maintenance for adults of normal body weight, or weight gain interventions for adults who are underweight or malnourished.



### Recommendation

**1. Pharmacological weight loss should not be used as part of routine care for adults, including older people, with CPLBP**

*(conditional recommendation against use, very low certainty).*

**2. Non-pharmacological weight loss: No recommendation: The balance between benefits and harms for non-pharmacological weight loss in managing CPLBP in adults, including older people, is so equivocal that a recommendation cannot be made**

*(no recommendation, very low certainty evidence).*

### Remarks

- The focus of the guideline is on the effect of weight management on CPLBP. The management of obesity, and unintentional weight loss due to undernutrition in older people, is important for their general health benefits, but is not within the scope of the guideline.
- Overweight/obesity is one of the metabolic risk factors for noncommunicable diseases such as cardiovascular diseases and diabetes. Treatment of overweight/obesity and management of its related conditions and behavioural or social risk factors may be important to improve health outside the management of CPLBP. From a public health perspective, supporting healthy weight is important for population health.
- Weight management is important for the health and physical and mental capacities of older people with CPLBP, particularly for those older people who experience unintentional weight loss due to undernutrition. WHO provides guidance in the ICOPE handbook on how to identify and manage undernutrition in an integrated manner (58).
- Caution is required for weight loss in older people, due to the potential for adverse events. The need for vigilance extends to weight loss interventions for older people who are overweight or obese.



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

The evidence for the benefits and harms of weight management interventions for the treatment of CPLBP was based on an update to an earlier moderate-quality systematic review (142). The current synthesis comprised seven trials of weight loss interventions only, with a total of 710 participants. Included trials by comparator are summarized in *Table 13*.

**Table 13:** Summary of trials by comparator for weight loss interventions

Weight loss intervention modality	Comparator	Number of trials (total sample size)
<b>Pharmacological weight loss interventions</b>		
<b>Pharmacological agents (topiramate and orlistat)</b>	Placebo	2 (n=209)
<b>Non-pharmacological weight loss interventions</b>		
<b>Diet interventions</b>	No intervention/ minimal care	1 (n=149)
<b>Aerobic exercise and diet</b>	No intervention/ minimal care	1 (n=36)
<b>Diet interventions</b>	Usual care	2 (n=156)
<b>Education and weight loss coaching (inclusive of diet and physical activity coaching)</b>	Usual care	1 (n=160)
<b>Total</b>		<b>7 (n=710)</b>

The mean age of participants across the included trials ranged from 39 to 63 years and chronic LBP duration ranged from two to 18.5 years. Two trials of pharmacological weight loss were conducted in two HICs: Germany and Republic of Korea. There were five trials of non-pharmacological weight loss, one

conducted in a HIC (Australia: 1) and the other four in three LMICs (Islamic Republic of Iran: 2, Brazil: 1 and Türkiye: 1). The intervention duration of completed trials ranged from 30 days to 26 weeks and follow-up duration from 30 days to 26 weeks.



One trial included males over 65 years, although it failed to provide relevant outcomes or usable results due to insufficient reporting. No other study reported on older age groups or single gender.

No trial provided information on ethnicity.

The intervention duration of trials ranged from 30 days to 26 weeks and follow-up from 30 days to 26 weeks. All trials reported results immediately post-intervention.

### Outcomes

- In the comparison of pharmacological weight loss interventions with **placebo** (2 trials), benefits were observed for pain and health-related quality of life. However, since the certainty of the evidence was very low, it was uncertain whether pharmacological interventions:
  - › reduced pain (small effect);
  - › made little to no difference to disability;
  - › improved health-related quality of life (small effect); or
  - › made little to no difference to body weight.

Harms were monitored in both trials. Since the certainty of evidence was very low, it was uncertain whether pharmacological weight loss interventions slightly increased the likelihood of adverse events (small effect, imprecise estimate, not statistically significant).

- In the comparison of dietary weight loss and dietary weight loss plus aerobic exercise (non-pharmacological weight loss) with **no intervention or where the effect of the intervention could be isolated** (2 trials), benefits were observed for body weight and body mass index (BMI). However, since the

certainty of evidence was very low, it was uncertain whether:

- › BMI was reduced (-1.64 to -2.65 kg/m<sup>2</sup>) with a dietary intervention or whether body weight was reduced (-4.3kg) with a combined diet plus exercise intervention; or
- › diet interventions alone made little to no difference to pain.

The included trials did not monitor harms.

- In the comparison of dietary interventions or combined education and weight loss coaching (including diet and physical activity coaching) interventions (non-pharmacological weight loss) with **usual care** (3 trials), benefit was observed for disability only. However, since the certainty of evidence was very low, it was uncertain whether these interventions:
  - › reduced disability (moderate to large effect), when considering all modes or diet only modes (no difference for education plus weight loss coaching mode);
  - › made little to no difference to pain intensity, irrespective of mode;



- › made little to no difference to health-related quality of life (diet and physical activity coaching); or
- › made little to no difference to body weight or BMI, irrespective of mode;
- › made little to no difference to psychological well-being (diet and physical activity coaching); and
- › made little to no difference to changes in medications (diet and physical activity coaching).

Harms were monitored in a single trial of diet and physical activity coaching. Since the certainty of the evidence was very low, it was uncertain whether the intervention resulted in fewer adverse events compared with usual care (small effect).

Web Annex D.E1 provides the detailed GRADE evidence profile tables for the intervention, by comparator.

## Qualitative review

No qualitative evidence was identified specific to weight management for the following EtD domains: values and preferences, resource implications, equity and human rights, acceptability or feasibility.



## Rationale for judgements

### Benefits and harms: pharmacological weight loss

For pharmacological weight loss, the GDG judged the net benefits to be uncertain, based on very low certainty evidence across outcomes with mostly small effects, particularly regarding the size of reductions in BMI and body mass reductions in obese adults. For all adults and older people, the GDG noted a lack of follow-up data beyond the conclusion of the intervention period in all trials, creating uncertainty about long-term benefits. Similarly, the GDG judged harms to be uncertain due to inadequate monitoring of harms across the included trials and very low certainty evidence where evidence of harms

was reported. GDG members acknowledged that harms associated with pharmacological weight loss interventions could be more important than those associated with dietary and exercise interventions, although data were inadequate to make this judgement with confidence. However, the GDG identified indirect evidence demonstrating that rates of adverse events in trials of pharmacological weight loss were higher than those of non-pharmacological behavioural interventions for weight loss (143). The GDG also noted the potential harms associated with weight loss in older adults, especially in older adults with

sarcopenic obesity, where loss of lean mass might be detrimental. The GDG judged the certainty of the evidence to be very low for pharmacological weight loss, consistent with the systematic review team's assessment.

### Benefits and harms: non-pharmacological weight loss

For non-pharmacological weight loss, the GDG judged the benefits to be uncertain, based on very low certainty evidence across outcomes with mostly small effects, particularly for the size of reductions in BMI and body mass for obese adults. For all adults and older people, the GDG noted a lack of follow-up data beyond the conclusion of the intervention period in all trials, creating uncertainty about long-term benefits of the interventions. Similarly, the GDG judged harms to be uncertain due to inadequate monitoring of harms across the included trials and very low certainty evidence where

Considering pharmacological weight loss interventions alone, the GDG judged the balance as uncertain and probably not in favour of pharmacological weight loss.

evidence of harms was reported. The GDG also noted the potential harms associated with weight loss in older adults, especially in older adults with sarcopenic obesity, where loss of lean mass might be detrimental. The GDG judged the certainty of the evidence to be very low for non-pharmacological weight loss, consistent with the systematic review team's assessment. Considering non-pharmacological weight loss interventions alone, the GDG judged the balance of benefits to harms to be uncertain due to very low certainty evidence across outcomes.

### Other EtD considerations for weight loss interventions in general

The GDG judged that it was likely that there would be significant uncertainty or variability among the values and preferences of people with CPLBP for weight loss interventions in general. The GDG acknowledged that people with CPLBP might value weight loss differently. GDG members conceded that while many people value the health benefits associated with weight loss, variability in social and cultural contexts and determinants, and stigma relating to body weight and weight loss are probable and could influence attitudes towards accessing weight loss interventions and their acceptability as a treatment for CPLBP at individual and community levels. In particular, the GDG acknowledged that

people might not value weight loss as a specific intervention for CPLBP; for example, perceiving that weight loss was neither relevant nor acceptable as an intervention to manage their CPLBP. The GDG judged that costs for weight loss interventions would vary considerably according to the health system in which they were delivered. The GDG considered that resource implications were likely to be moderate, particularly for multicomponent non-pharmacological interventions that involve several practitioners and/or require a substantial time or travel burden for people. The GDG acknowledged that while weight loss might improve health equity by improving overall health, weight loss interventions

themselves could reduce equity due to cost and stigma considerations. The GDG judged that the feasibility to deliver weight loss interventions would vary according to the setting and type of intervention. For example, intervention complexity varied across the included trials, with some non-pharmacological interventions requiring a specialized workforce such as nutritionists, dietitians, physiotherapists and others relying on telephone or internet-based delivery of intervention components. In general, multimodal non-pharmacological interventions required more personnel and infrastructure requirements. A lack of skilled workforce in community settings and potentially high treatment costs for multimodal non-pharmacological interventions without government or insurance subsidy could limit accessibility to people with CPLBP and create negative impacts on health equity. Variations in

sociocultural attitudes towards weight loss, accessibility limitations in community settings and potential out-of-pocket expenses might contribute to variations in the acceptability of these interventions for people with CPLBP. The GDG noted that in some settings, for instance, dietary modifications might not be acceptable or feasible when meal choices were made at the household level. In other contexts, individuals might not be able to implement or follow recommendations for behavioural weight loss interventions due to social or structural health contexts or inequities. The GDG judged that for most health workers, non-pharmacological weight loss interventions were probably acceptable, while harms associated with pharmacological weight loss interventions might make them less acceptable to health workers and ultimately people with CPLBP.

### **Recommendation: pharmacological weight loss**

The GDG reached a consensus decision to recommend against pharmacological weight loss interventions (conditional recommendation). This decision was based primarily on the very low certainty evidence for benefits and harms, no benefits regarding the primary outcomes of BMI and body mass, and the increased likelihood of harms associated with pharmacological weight loss, particularly for older people when not coupled with resistance exercise to maintain lean mass. Furthermore, the GDG rationalized that in the absence of benefit with regard to body mass and/or BMI, harms unrelated to the therapy (particularly the stigma associated with weight loss) suggested that

the balance between benefits and harms did not favour the intervention. Three GDG members disagreed with the judgement and instead suggested that no recommendation would be appropriate given the absence of sufficient evidence to judge the balance of benefits and harms.

*Annex 3 (Table C26)* provides a summary of the judgements made by the GDG for each EtD domain for pharmacological weight loss.

### Recommendation: non-pharmacological weight loss

The GDG reached a consensus decision to make no recommendation for non-pharmacological weight loss. This decision was based on the balance between benefits and potential harms being too equivocal for the GDG to confidently make a judgement. On the one hand, the GDG noted some benefit to BMI and body mass reductions in older males, yet the size of these effects was small and not consistently observed across trials. The GDG also noted the broader health and

public health benefits of weight loss for obese adults as well as evidence pointing to the health burden attributed to LBP due to high BMI (144). However, the GDG also noted equity, resourcing, acceptability and feasibility issues relating to the intervention, particularly where BMI and body mass benefits were limited.

*Annex 3 (Table C27)* provides a summary of the judgements made by the GDG for each EtD domain for non-pharmacological weight loss.

### Other considerations

The GDG stressed that its recommendations should not detract from the importance of weight loss for other health gains among people who are overweight or obese, as well as for public health gains. The GDG also stressed that weight loss might not be appropriate in older people, even overweight or obese older adults and that expert clinical

guidance in this area might be needed. In addition, the GDG acknowledged that other interventions could have been evaluated to support weight loss in different population groups and that this evidence would not have been considered for the current PICO question.

## E.2 Multicomponent biopsychosocial care



### Definition of the intervention

Multicomponent biopsychosocial care involves delivery of at least two of the three components of care from the biopsychosocial model: physical, psychological or social, delivered by a single provider or a multidisciplinary team. These components align with the biopsychosocial model of chronic pain and its applicability to older people (145, 146). Multicomponent biopsychosocial care adopts a rehabilitation approach that aims to optimize function and reduce disability in individuals with health conditions, in interaction with their environment. For the purpose of the guideline, trials of all types of interventions for multicomponent biopsychosocial care were included where they satisfied the criterion of a multicomponent intervention that targets functioning (body structures and functions, activities and participation). The intervention should target at least two domains of the biopsychosocial model: either the biological component targeting physical aspects of

functioning such as body structures or functions (e.g. an exercise programme targeting an increase in muscle strength), psychological component (e.g. addressing coping with pain) or social and occupational component (e.g. addressing involvement in meaningful life roles including work).



### Recommendation

**Multicomponent biopsychosocial care delivered by a multidisciplinary team may be offered as part of care for adults, including older people, with CPLBP**

*(conditional recommendation in favour of use, low certainty evidence).*

### Remarks

- Multicomponent biopsychosocial care should address at least two domains of the biopsychosocial model of chronic pain (biological, psychological and social) based on a person-centred assessment of individual needs from a biopsychosocial perspective.
- Evidence considered for this guideline suggests that multicomponent biopsychosocial care delivered by a multidisciplinary team of at least two different health practitioners is beneficial but does not exclude the potential benefits of multicomponent biopsychosocial care delivered by a single health worker with the requisite knowledge and skills.



## Summary of the evidence

### Quantitative review

#### Characteristics of the evidence

The evidence for the benefits and harms of multicomponent biopsychosocial care for the treatment of CPLBP was based on an update and extension to an earlier Cochrane review (147). While the original Cochrane review included only interventions delivered by a multidisciplinary team, the current synthesis also considered multicomponent biopsychosocial care delivered by a single practitioner. The current synthesis comprised 21 trials with a total of 3100 participants. Eighteen trials were carried out in 10 HICs (5 in Netherlands (Kingdom of the), 2 each in

Germany, Italy, Norway and the United States, 1 each in Denmark, Sweden, Finland, Canada and Spain) and three trials were conducted in one LMIC (Islamic Republic of Iran). All trials included participants across a wide age group with a mean cohort age range of 38–61 years. **No trials reported on older people separately.** One trial included only females while the other 20 trials included mixed male and female populations. No trial included only males. One trial evaluated single-provider multicomponent biopsychosocial care compared with usual care.





## Outcomes

- In the comparison of multicomponent biopsychosocial care with **placebo**, no trial was identified.
- In the comparison of multicomponent biopsychosocial care with **no intervention or where the effect of the intervention could be isolated** (4 trials: intervention delivered by a multidisciplinary team), benefits were observed for pain and back-specific function. However, since the certainty of evidence was very low, it was uncertain whether multicomponent biopsychosocial care delivered by a multidisciplinary team reduced pain (small effect) and improved back-specific function (small effect) in the short term. Multicomponent biopsychosocial care may make little to no difference to depression in the short term (low certainty evidence). The included trials did not monitor harms.
- In the comparison of multicomponent biopsychosocial care with **usual care** (1 trial: intervention delivered by a single provider; 16 trials: intervention delivered by a multidisciplinary team), benefits were observed for pain, function and anxiety. However, since the certainty of the evidence was very low, it was uncertain whether:
  - › multicomponent biopsychosocial care delivered by a single provider made little to no difference to the likelihood of people with CPLBP experiencing a reduction in pain intensity and improvement in back-specific function in the long term;
  - › multicomponent biopsychosocial care delivered by a multidisciplinary team reduced pain intensity (small effect) and improved back-specific function (small effect) in the short and intermediate terms;
  - › multicomponent biopsychosocial care delivered by a multidisciplinary team reduced anxiety in the short (small effect) and long (trivial effect) terms; or
  - › multicomponent biopsychosocial care delivered by a multidisciplinary team made little to no difference to health-related quality of life, depression and return to work in the short and intermediate terms.

In the long term, multicomponent biopsychosocial care delivered by a multidisciplinary team may make little to no difference or slightly reduce pain (trivial effect) and little to no difference or slightly improve back-specific function (trivial effect) (low certainty evidence). Multicomponent biopsychosocial care delivered by a multidisciplinary team may make little to no difference to depression or return to work (low certainty evidence). Only one trial of single-provider care monitored harms and did not identify any adverse events.

Web Annex D.E2 provides the detailed GRADE evidence profile tables for the intervention, by comparator.



## Qualitative review

No qualitative evidence was identified specific to multicomponent biopsychosocial care for the following EtD domains: values and preferences, resource implications, equity and human rights, acceptability or feasibility.



### Rationale for judgements

The GDG noted that for most pain and function outcomes for care delivered by a multidisciplinary team, the 95% CI of the standardized mean difference included a likely benefit. For single-provider care, the GDG noted that the evidence was very limited from the systematic review, highlighting a knowledge gap. However, the GDG referred to indirect evidence published after the completion of the evidence review which identified clinically meaningful and sustained benefits and the cost-effectiveness of cognitive functional therapy compared to usual care for adults aged 19–87 years with chronic and disabling LBP, delivered by a single provider (physiotherapists) (148). Cognitive functional therapy is a multicomponent intervention grounded on the biopsychosocial model that targets unhelpful pain-related cognitions, emotions and behaviours that contribute to pain and disability. Given the very limited reporting of harms across the included trials, the GDG judged harms to be uncertain across both care delivery modalities, but unlikely to represent a significant concern. The GDG judged the overall certainty of evidence to be very low for single-provider care and low for multidisciplinary care, consistent with the systematic review team's assessment. The

GDG judged that the balance of benefits to harms for multicomponent biopsychosocial care probably favoured the intervention when delivered by a multidisciplinary team. This judgement was based on consistent signs of small to moderate benefits for pain and function outcomes, although some GDG members considered the balance to be uncertain due to very low certainty evidence for several outcomes and heterogeneous effects across individual trials.

The GDG judged that there was likely to be important or possibly important uncertainty or variability among people's values and preferences related to the intervention and its outcomes. The GDG reflected on the general evidence from the qualitative evidence synthesis (not specific to a particular intervention) suggesting that some older people prefer a group-based care format which often reflects multidisciplinary service models for chronic pain, acknowledging that not all multicomponent biopsychosocial care delivered by a multidisciplinary team will be group-based. However, the GDG opined that while some people might appreciate a multidisciplinary intervention, others could find it too burdensome and unappealing

in terms of cost and travel requirements. The GDG judged resource requirements for multicomponent biopsychosocial care delivered by a multidisciplinary team to be moderate to large, based on workforce costs for health services and programme and travel costs for people with CPLBP, while single-provider resource implications were likely to be less, although the GDG acknowledged that resource implications for workforce training could still be substantial. Although equity impacts might vary across settings, the GDG acknowledged that multidisciplinary interventions could reduce equity for some people due to significant treatment costs, travel requirements and a lack of skilled workforce in rural (remote) settings. The GDG judged that the delivery of multidisciplinary care might not be feasible in all settings due to workforce capacity and costs, whereas it would be more feasible to deliver single-provider biopsychosocial care where health workers had appropriate knowledge and skills. While multicomponent biopsychosocial care delivered by a multidisciplinary team is largely acceptable to and preferred by health workers, since it aims to address the multiple contributing factors to a person's pain experience, its acceptability to people with CPLBP would probably vary due to the potential time and financial cost, travel requirements and people's understanding of the factors contributing to their pain experience.

The GDG reached a consensus decision to make a conditional recommendation in favour of multicomponent biopsychosocial care delivered by a multidisciplinary team. This decision was made owing to the benefit observed in the trials, the lack of potential harms and the fact that this intervention was largely acceptable to stakeholders. Based on the evidence available from the systematic review, the GDG determined there was insufficient evidence to make a recommendation about single-provider multicomponent biopsychosocial care, yet noted the benefits reported in a recent trial of single-provider care (physiotherapist-delivered) published after the WHO evidence review (148). The GDG noted that while there might be less flexibility in the components of care offered within the parameters of some trials, in *Clinical practice* the components of care offered ought to be aligned with the unique needs and preferences of people with CPLBP, based on a person-centred assessment from a biopsychosocial perspective and shared decision-making.

*Annex 3 (Table C28)* provides a summary of the judgements made by the GDG for each EtD domain.

# 5

## Implementation considerations

The recommendations outlined in the guideline have been formulated from a global public health and service delivery perspective. Implementation and upscaling of the recommendations across countries may require adaptation of the recommendations and remarks/key considerations to suit local Clinical practice within existing health care system contexts and needs as well as to support translation to service and clinical-level guidance, e.g. in the development of locally relevant and feasible care pathways. Adaptation and translation will need to consider the applicability of the recommendations to local health workers, available service delivery models and regulatory frameworks. Adaptation should be approached in consultation with multiple stakeholder groups including policy-makers, local health workers, professional societies, civil society organizations and people with CPLBP and their families. Its Guiding principles, however, are applicable across all settings and contexts and should be considered for the care of all adults, including older people with CPLBP.

Implementation considerations relevant to the guideline are summarized below, sections 5.1–5.3. Acting on these considerations will require commitments and actions from governments and relevant stakeholders. Monitoring implementation initiatives and sharing experiences and resources within and across countries may be helpful in supporting national and global implementation efforts.

**The recommended interventions outlined in the guideline are intended to be implemented by countries as a suite of evidence-based intervention options to support adults with CPLBP.**

For those interventions where a *conditional against* recommendation has been formulated, discontinuation of routine delivery is recommended for most contexts. Among those interventions where a *conditional in favour* recommendation has been formulated, health workers are encouraged to select and sequence interventions according to the needs and preferences of the person with CPLBP, informed by a biopsychosocial assessment. Given the multifactorial and complex aetiology of CPLBP, a single intervention in isolation may be inadequate to confer benefit, thereby rationalizing the need for countries to provide a complete suite of effective intervention options from which health workers can select, tailor and sequence according to the unique needs and circumstances of individuals, informed from a biopsychosocial perspective, shared decision-making and contextual considerations relating to the local health system.

## 5.1 Health care policy and systems considerations

- Universal health coverage (UHC) intends that all individuals and communities receive the full spectrum of essential, quality health services needed along the life course without suffering financial hardship. As a foundation for, and movement towards UHC, it is critical to strengthen and reorient health systems towards primary health care (PHC). PHC is the most inclusive, equitable, cost-effective and efficient approach to enhance people's physical and mental health, as well as social well-being. CPLBP is a common reason for care-seeking in primary care and non-surgical interventions for adults with CPLBP can feasibly be delivered in primary health care settings, supported by appropriate referral and care pathways. Enhancing the evidence-based management of CPLBP in primary and community care – the focus of this guideline – is therefore relevant to UHC and important for improving health outcomes and access to effective and acceptable interventions.
- In many national health systems, musculoskeletal health including LBP is not identified as a public health priority or a priority condition at the population level or in specific groups, such as younger and older people (149-151). This context might limit opportunities for governments to act on optimizing the management of CPLBP and its importance within UHC. A commitment by governments and relevant stakeholders to elevate the priority level of musculoskeletal health within health systems and act on CPLBP is needed to facilitate implementation of the guideline into practice. Coupled with a policy response is a need for broad dissemination of the guideline supported by targeted public health messaging and leveraging of cross-sectoral partnerships to increase awareness about recommended care for people with CPLBP, as well as care that is not recommended. It may be appropriate to integrate dissemination and public health messaging with established public health initiatives in

healthy ageing, rehabilitation, physical activity and prevention and control of noncommunicable diseases.

- Governments may need to assess system- and service-level readiness and capacity to act on CPLBP and integrate evidence-based interventions into local service delivery. The [WHO integrated care for older people \(ICOPE\) implementation framework: guidance for systems and services](#) provides an operational example of such assessment and system- and service-level implementation actions (152).
- Recommended interventions may not be available in all settings due to regulatory frameworks, workforce capacity or financing constraints. Countries will

need to strengthen system and service delivery capabilities to ensure availability, accessibility of quality of care and financing (affordability) of recommended interventions such as multicomponent biopsychosocial care, psychological interventions, some medicines and other non-pharmacological interventions, as well as support the downscaling of interventions that are conditionally not recommended.

- Processes and outcomes of implementation activities should be monitored and documented including coverage and use of services and health outcomes.

## 5.2 Workforce considerations

- Delivery of recommended care for adults, including older people, with CPLBP requires health workers with skills and knowledge in assessment, diagnosis and clinical management, particularly in relation to person-centred chronic pain care from a biopsychosocial perspective (refer to [Section 3 Guiding principles](#)) and behaviour change methods. Building workforce capacity within primary and community care settings will be required to deliver recommended interventions and discontinue care that is not recommended for most people, such as the use of traction, therapeutic ultrasound, TENS, lumbar braces, belts and/or supports, and medicines such as opioid analgesics, antidepressants and anticonvulsants. In this context, it may be necessary to provide support for assessing current workforce capacities and opportunities for expanding

cadres. A focus on encouraging evidence-based chronic pain care and providing technical guidance in assessment, diagnosis and care pathways, including validated and locally available tools to inform assessment and care-planning from a biopsychosocial perspective, will be needed.

- Health workers of different disciplines (depending on setting) may be involved in the care of people with CPLBP. Care standards and competencies that are transdisciplinary, informed by the guideline, may reduce unwarranted care variation and delivery of ineffective care. Support within health systems to deliver multidisciplinary care is also critical to develop and monitor high-quality, person-centred care.
- Long-term planning is needed for resource generation and budget allocation to



address the shortage of health workers to strengthen and sustain high-quality services for management of CPLBP.

- Liaison and collaboration with education and training institutions will be needed to ensure that the Guiding principles and recommendations (and any future

updates) are reflected in clinical training for pre- and post-licensure health practitioner education. In particular, there will be a need to ensure that curricula align with evolving standards for person-centred chronic pain care (153).

### 5.3 Service delivery considerations

- Development or revision of national guidelines and/or care standards for CPLBP to guide local service delivery models may be required.
- In many countries, service models and referral pathways for CPLBP may not be established or well developed. Co-creation of service models, inclusive of appropriate referral pathways, that are locally acceptable, feasible and explicitly address equity in access to care will be needed to translate and operationalize recommendations at the service and clinical levels. Co-creation should involve people with CPLBP (154), health workers, civil society and other groups, following practices recommended by WHO for Integrated people-centred health services and the Framework for meaningful engagement of people living with noncommunicable diseases and mental health conditions (155, 156). Similarly, co-creation of accurate public health

messaging about care for CPLBP will be important.

- Additional implementation considerations for service delivery include:
  - › ensuring availability and accessibility of recommended interventions in community settings and primary health care;
  - › minimizing the travel, time and cost burden related to accessing interventions;
  - › enabling, where feasible, social interaction (e.g. group-based structured exercise programmes); and
  - › ensuring that explicit and accessible information about the likely benefits and harms (including dependence, overdose, adverse drug reactions and withdrawal requirements) of interventions, especially medicines, is available to people with CPLBP and families.



# 6

## Research implications

During the guideline development process, the GDG and systematic review teams identified substantial limitations in the certainty of the available evidence across included interventions, largely due to a lack of high-quality trials, while for some interventions there were no trials available. Nonetheless, the GDG interpreted the available evidence and debated in detail domains of the ETD process beyond the evidence of benefits and harms to make recommendations for 25 of the 37 interventions considered. The GDG also observed knowledge gaps across the intervention classes and in relation to specific population groups. Raising awareness of these research gaps can inform future research efforts that are relevant to global health and enable provision of further guidance in the clinical management of CPLBP. In order to advance the field and create recommendations with a greater level of certainty and implementation feasibility, research priorities must extend beyond high-quality trials where evidence gaps exist. Research efforts must include implementation research, health economics outcomes and interpreting evidence from large health databases/registries that capture outcomes in real-world settings, including from people in low- and middle-income countries and older people. Importantly, sampling should be inclusive of people living with other health conditions comorbid to CPLBP, and allow interrogation of health and well-being outcomes in populations of interest such as marginalized and vulnerable groups.

The conduct of further small and low-quality trials should not be prioritized, as these are unlikely to assist clinical decision-making or strengthen service delivery and systems for CPLBP. Critically, to

**ensure trials evaluate interventions and measure outcomes that are important and meaningful to people with CPLBP,**

health workers and other stakeholders, trials and other research studies should be co-designed in partnership with these stakeholder groups. A summary of the key research implications and priorities is provided in the box below and outlined in detail in the following sub-sections 6.1–6.3.

## Key research implications and priorities

- High-quality trials are needed in areas of CPLBP care where the certainty of evidence for benefits and harms is currently low or very low. Undertaking more low-quality trials is unlikely to assist clinical decision-making or strengthen service delivery and systems.
- Future trials of interventions for CLPBP should be undertaken in different population groups, such as sex/gender and migrant or ethnic groups, as appropriate to the setting, and sample older people with diversity in intrinsic capacity and settings.
- Future trials should monitor the benefits and harms of interventions in the longer term (e.g. 12 months) and measure outcomes meaningful to people with CPLBP and their care providers, such as social participation.
- Priority knowledge gaps include:
  - › benefits and harms of integrative approaches to CPLBP care, where combinations of treatments are selected and sequenced according to the needs of the person experiencing LBP from a biopsychosocial perspective, including combination pharmacotherapies;
  - › benefits and harms of interventions that may be valued by health workers and people with CPLBP, including mobility assistive products; paracetamol (acetaminophen); cannabis-related pharmaceutical preparations for therapeutic use; herbal medicines; weight management interventions; and multicomponent biopsychosocial care delivered by single providers; and
- › comparative effectiveness of exercise modalities assessed with network meta-analysis.
- Observational research from population-level health registries in countries at all levels of economic development is needed, in particular to monitor harms associated with interventions.
- Implementation research that evaluates the feasibility and acceptability of interventions across settings, will be important for informing future global guidance in CPLBP care. In particular, there is a need for high-quality, primary qualitative studies from lower-income countries to inform global guidelines.

## 6.1 Knowledge gaps for specific population groups

Across the included interventions, there were very limited data on benefits and harms for older people. While trials often included an upper age limit inclusive of older people (> 60 years), the mean age in most trials was around 45–55 years and very few trials sampled older people as a target population or specific subgroup and/or disaggregated findings for older people, consistent with earlier observations (59). Where older people were included in trials, individuals with comorbidity, or those in residential long term care facilities were excluded, creating a knowledge gap regarding the care of more vulnerable older people. Across the interventions considered, no trials considered older people separately for psychological interventions, systemic pharmacotherapies, local injectable anaesthetics, therapeutic ultrasound, traction, assistive products or multicomponent biopsychosocial care. Only one or two trials assessed benefits and harms for older people separately in relation to education, needling therapies, massage, spinal manipulative therapy, TENS, weight management and herbal medicines. Trials assessing the benefits and harms among older people were more common for exercise, which may reflect the fact that exercise is the most widely researched intervention for CPLBP. Across interventions, where older people were considered separately in trials, the certainty of the evidence was typically very low.

The GDG also noted gaps in evidence for other population groups. The most commonly observed knowledge gaps related to disaggregated findings by sex and/or gender and race and/or ethnicity. A lack of data, or lack of disaggregation in relation to these characteristics, was identified in the

reviews of trials on weight management, TENS, education, needling therapies, spinal manipulative therapy and traction. Among the trials evaluating psychological interventions, cohorts were not stratified by mental health status. A better understanding of the benefits and harms of psychological interventions among people with mental health impairments may change effect estimates and their precision. Among the pharmacological interventions, some trials reported data disaggregated by sex/gender and race/ethnicity, but this was limited to trials of opioids only. Given that LBP is frequently comorbid with other chronic health conditions, sampling for trials and other research studies should ensure that cohorts are representative of this real-world context to ensure greater clinical relevance and transferability of findings.

The GDG was unable to confidently interpret the effects of interventions for subpopulations with spine-related leg pain owing to inconsistent reporting and classification across included trials. Recently published recommendations in this area will probably improve classification and reporting of somatic referred and radicular spine-related leg pain presentations in trials (67). While not the population focus of the guideline, the GDG noted that the onset of LBP can occur early in life for some people (157) and that LBP experienced in childhood increases the risk of a LBP experience in adulthood (158), highlighting a need for trials examining the effectiveness of interventions for life course stages (e.g. children) as well as trials evaluating the effectiveness of primary prevention interventions.

The majority of trials for interventions in CPLBP were conducted in high- and upper middle-income countries. This limited knowledge transferability to lower-income countries and the ability to undertake subgroup comparisons by level of economic development. Support for research (high-quality trials, implementation studies, observational studies leveraging population-

level databases) to be undertaken in lower-resource settings, coupled with evaluation of feasibility and acceptability of interventions in these settings, will be important for informing future global guidance for CPLBP. In particular, there is a need for high-quality, primary qualitative studies from lower-income countries to inform EtD domains relevant to global guidelines.

## 6.2 Knowledge gaps for interventions

The certainty of the evidence for many of the non-pharmacological interventions was rated as low or very low, often influenced by small and low-quality trials (limited by bias, inconsistency and imprecision). While recognizing the challenges in undertaking trials of behavioural interventions, undertaking further small, low-quality trials of behavioural interventions is unlikely to change the evidence certainty landscape for CPLBP, particularly for exercise and cognitive behavioural therapies. This underlines the need for large, high-quality trials in the field, designed in partnership with people with CPLBP, including trials undertaken in different settings and with different population groups. Many trials of non-pharmacological interventions were excluded from reviews since they were designed as comparative effectiveness evaluations, rather than evaluations of interventions compared with placebo, no intervention or usual care; these comparators provide evidence that is more informative for determining whether an intervention should be recommended in practice. This is particularly the case for exercise, manual therapies and multicomponent biopsychosocial care, where a vast literature focuses on comparative effectiveness research. To improve the certainty and usability of evidence for such

interventions, a comparison against placebo/sham, no care or usual care should first be prioritized.

The GDG noted that in Clinical practice interventions are often delivered in combination (e.g. combination medicines, medicines combined with other non-pharmacological interventions, and combinations of non-pharmacological interventions such as exercise plus manual therapy). Combined interventions (integrated care models) were not evaluated in the guideline and there are limited trials of combination interventions or “integrated care models” for CPLBP compared to placebo, no intervention or usual care. Future PICO questions that evaluate clinically meaningful treatment combinations (including interventions that are selected and sequenced according to the unique needs of the person with CPLBP) and/or common treatment combinations that align to the biopsychosocial model of pain should be formulated. This knowledge gap has also been empirically identified in a recent evidence and gap map (159). A recent trial of personalized multicomponent biopsychosocial care delivered by single health practitioners provides evidence of benefit

and cost-effectiveness within a high-income setting (148). Replicating these findings and exploring the implementation feasibility of such interventions in other settings will be important.

Education messages about topics unrelated to specific interventions for LBP are rarely evaluated in clinical trials (88). However, some evidence points to the benefits of mass media public health messaging about LBP in high-income settings, evaluated through a range of research designs (160). The GDG also noted the heterogeneity of content included in trials of structured and standardized education and/or advice, making it difficult to determine which education topics were most effective, for whom, where and when. While [section 3 Guiding principle 3](#) and [Clinical practice consideration 2](#) identify the importance of validating a person's pain experience and providing personalized education, a key knowledge gap about what are appropriate and globally relevant public health or global awareness campaign messages for CPLBP remains. Relevant to public health messages, an Australian study identified 30 unique messages with some variation between what experts and what people living with LBP considered important (88). Others have identified 10 unhelpful and 10 helpful health facts and myths about LBP for public health messaging (161). Extension of such efforts to capture the perspectives of people of different ages, social contexts and across countries at different levels of economic development would be important to identify educational messages that are helpful and globally relevant.

The GDG observed the wide variety in exercise modalities evaluated in trials yet noted that there was insufficient evidence to identify the benefits of one modality over another.

Further high-quality, primary evidence is needed, which could then be synthesized and appraised in a network meta-analysis, such as the analysis reported by Hayden et al. (162). Findings should be applied in the context of values and preferences of the person with CPLBP.

The GDG noted a lack of trials involving interventions for adults with CPLBP that could be valued by health workers and/or people with CPLBP, including:

- mobility assistive products;
- paracetamol (acetaminophen);
- cannabis-related pharmaceutical preparations for therapeutic use;
- herbal medicines;
- weight management other than weight loss for obesity (particularly for older people); and
- multicomponent biopsychosocial care delivered by single providers across different settings.

While a recent review evaluated the benefits of cannabinoids for chronic pain, the stated conditions did not include CPLBP and benefits and harms in older people could not be disaggregated (137). The GDG noted that herbal medicines and combinations of herbal medicines are used in many countries to manage CPLBP. The qualitative evidence synthesis and an aligned review identified that people with CPLBP value exploring herbal medicines as an intervention for their chronic LBP (163). However, many of these herbal medicines and combinations have not been subject to evaluation in clinical trials or have been tested in trials published in local languages that have not been systematically reviewed.



The GDG noted that delivery of behavioural, educational and psychological interventions using digital technology (e.g. smart phone apps, telehealth, web-based platforms) is becoming more commonplace in many parts of the world, accelerated by the impact of COVID-19. The digital divide may pose challenges for older people due to lack of skills, accessibility and acceptability, and in some

parts of the world may amplify health inequity. In addition to effectiveness evaluation, it will be important to evaluate the implementation feasibility, acceptability and (in)equity outcomes related to digitally delivered care for people with CPLBP. As such evidence emerges, there will be a need to synthesize and appraise it when developing future updates to the guideline.

### 6.3 Knowledge gaps for critical outcomes and long-term monitoring

Several gaps were identified by the GDG in relation to evidence for critical outcomes and longer-term outcomes, consistent with findings from a recent mapping review (159). Most trials reported outcomes for the immediate and short term and intermediate follow-up periods only, creating an important knowledge gap concerning long-term adherence and long-term (beyond 6–12 months) benefits and harms profiles. While international consensus has already determined the nature of critical outcomes to be assessed in trials for low back pain (164) and chronic pain (165), the GDG identified several other critical outcomes for adults and older people with CPLBP which were infrequently measured in clinical trials. For future trials to inform global guidelines, these additional outcomes should be measured, notably social participation, health-related quality of life, reduction in the use of medicines, and functional ability such as mobility and falls (166). It will also be important to support further research to ensure that outcomes for trials are meaningful to people with lived experience (167). This highlights the importance of partnering with people with CPLBP and other stakeholders in the design of clinical trials

and prioritizing meaningful outcomes and determining the size of worthwhile effects (78). Economic aspects are important for implementation planning and addressing the investment case for UHC. The GDG also noted that while trials are not the appropriate design for monitoring adverse health outcomes, there was limited monitoring of harms across the included trials. Future trials should ensure that harms are monitored and reported, even when no adverse events are identified. For example, a recent systematic review identified that while the reporting of adverse events associated with spinal manipulative therapy in RCTs has increased over time, in general reporting remains low and inconsistent (168).



# 7

## Dissemination

The recommendations in the guideline will be disseminated through WHO regional and country offices, Ministries of Health and relevant policy makers, professional associations, WHO collaborating centres, WHO [Clinical Consortium on Healthy Ageing](#), and other United Nations agencies and civil society organizations.

The recommendations will be made available on the WHO website and integrated with aligned programmatic activities, including [WHO integrated care for older people \(ICOPE\)](#) and [Package of interventions for rehabilitation](#). The executive summary and related communication materials will be translated into the six UN languages for dissemination. Evidence profiles that

informed this guideline will be available on the WHO website as Web Annex D. It is anticipated that targeted journal publications will be prepared that highlight the recommendations and implementation considerations, in compliance with WHO [publication policies](#).

Technical meetings and webinars will be held with stakeholders and partners, including presentations at scientific and other conferences, to share the recommendations and derivative products as they are developed. Evidence briefs, and ultimately an implementation guide, for policy-makers, programme managers and health workers will be developed and disseminated in collaboration with partners.

# 8

## Monitoring and evaluating the impact of the recommendations

The implementation and impact of these recommendations will be monitored at the health service (e.g. health facility), subnational and national levels. In collaboration with the monitoring and evaluation team of the WHO Departments of Maternal, Newborn, Child and Adolescent Health and Ageing, data will be collected through targeted surveys. A monitoring and evaluation framework, including a list of core indicators, is to be developed with support from the Technical Advisory Group for Measurement, Monitoring and Evaluation of the UN Decade of Healthy Ageing. Broader stakeholder engagement

in policy design, implementation, and monitoring and evaluation is planned to ensure that the national adaptation of these guidelines results in programmes that are legitimate, acceptable, effective, equitable and address needs.

# 9

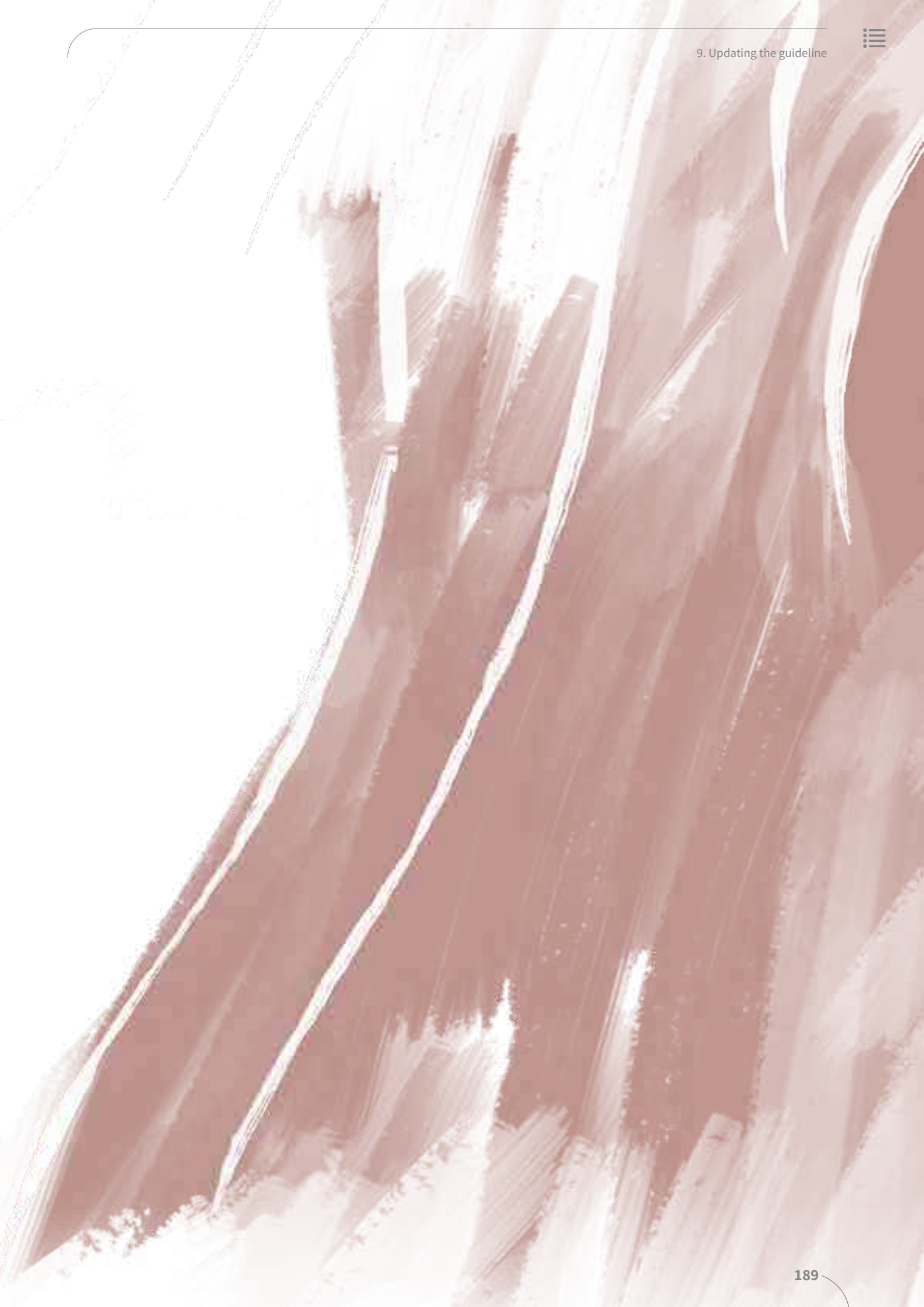
## Updating the guideline

Consistent with WHO standards, the guideline will be periodically reviewed for currency and to ensure alignment with current and emerging evidence (7).

Subject to operational priorities at the time, WHO will re-review new evidence published in seven to 10 years. Priority will be given to reviewing emerging evidence for interventions where no recommendation was made based on very low certainty evidence, where no evidence was available and where ongoing trials were identified in the systematic reviews for the guideline.

When new evidence that could potentially impact the current evidence base for any of the recommendations is identified, the recommendation may be updated accordingly. If no new reports or information are identified for a particular recommendation, the recommendation will be revalidated within seven to 10 years.

Any concern about the validity of a recommendation should be shared by email with the WHO Department of Maternal, Newborn, Child and Adolescent Health and Ageing ([mncah@who.int](mailto:mncah@who.int)). All communications will be reviewed, and plans made to update the recommendation, as appropriate. WHO welcomes suggestions regarding additional questions for inclusion in future updates of the guideline: suggestions can be addressed by email to the same department ([mncah@who.int](mailto:mncah@who.int)).



# References

1. Nicholas M, Vlaeyen JWS, Rief W, Barke A, Aziz Q, Benoliel R et al. The IASP classification of chronic pain for ICD-11: chronic primary pain. *Pain*. 2019;160:28-37. (<https://doi.org/10.1097/j.pain.0000000000001390>).
2. World Health Organization. WHO global report on traditional and complementary medicine 2019. Geneva: WHO; 2019 (<https://iris.who.int/handle/10665/312342>).
3. World Health Organisation. World Report on Ageing and Health. Geneva: WHO; 2015 (<https://iris.who.int/handle/10665/186463>).
4. Henschke N, Ostelo R, van Tulder MW, Vlaeyen JWS, Morley S, Assendelft WJJ et al. Behavioural treatment for chronic low-back pain. *Cochrane Database Syst Rev*. 2010. (<https://doi.org/10.1002/14651858.CD002014.pub3>).
5. Morley S, Williams A. New developments in the psychological management of chronic pain. *Can J Psychiatry*. 2015;60:168-75. (<https://doi.org/10.1177/070674371506000403>).
6. Abenhaim L, Rossignol M, Valat JP, Nordin M, Avouac B, Blotman F et al. The role of activity in the therapeutic management of back pain. Report of the International Paris Task Force on Back Pain. *Spine*. 2000;25:1s-33s. (<https://doi.org/10.1097/00007632-200002151-00001>).
7. World Health Organization. WHO Handbook for Guideline Development. 2nd ed. Geneva: WHO; 2014 (<https://iris.who.int/handle/10665/145714>).
8. Hartvigsen J, Hancock MJ, Kongsted A, Louw Q, Ferreira ML, Genevay S et al. What low back pain is and why we need to pay attention. *Lancet*. 2018;391:2356-67. ([https://doi.org/10.1016/S0140-6736\(18\)30480-X](https://doi.org/10.1016/S0140-6736(18)30480-X)).
9. Maher C, Underwood M, Buchbinder R. Non-specific low back pain. *Lancet*. 2017;389 :736-47. ([https://doi.org/10.1016/S0140-6736\(16\)30970-9](https://doi.org/10.1016/S0140-6736(16)30970-9)).
10. Ferreira ML, de Luca K, Haile LM, Steinmetz JD, Culbreth GT, Cross M et al. Global, regional, and national burden of low back pain, 1990-2020, its attributable risk factors, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021. *Lancet Rheumatol*. 2023;5:e316-e29. ([https://doi.org/10.1016/S2665-9913\(23\)00098-X](https://doi.org/10.1016/S2665-9913(23)00098-X)).
11. Tamrakar M, Kharel P, Traeger A, Maher C, O’Keeffe M, Ferreira G. Completeness and quality of low back pain prevalence data in the Global Burden of Disease Study 2017. *BMJ Glob Health*. 2021;6. (<https://doi.org/10.1136/bmjgh-2021-005847>).
12. Sharma S, McAuley JH. Low back pain in low- and middle-income countries, Part 1: The problem. *J Orthop Sports Phys Ther*. 2022;52:233-5. (<https://doi.org/10.2519/jospt.2022.11145>).
13. Reis FJJ, Nijs J, Parker R, Sharma S, Wideman TH. Culture and musculoskeletal pain: strategies, challenges, and future directions to develop culturally sensitive physical therapy care. *Braz J Phys Ther*. 2022;26:100442. (<https://doi.org/10.1016/j.bjpt.2022.100442>).





14. March L, Smith EU, Hoy DG, Cross MJ, Sanchez-Riera L, Blyth F et al. Burden of disability due to musculoskeletal (MSK) disorders. *Best Pract Res Clin Rheumatol*. 2014;28:353-66. (<https://doi.org/10.1016/j.berh.2014.08.002>).
15. Foster NE, Anema JR, Cherkin D, Chou R, Cohen SP, Gross DP et al. Prevention and treatment of low back pain: evidence, challenges, and promising directions. *Lancet*. 2018 ;391 :2368-83. ([https://doi.org/10.1016/S0140-6736\(18\)30489-6](https://doi.org/10.1016/S0140-6736(18)30489-6)).
16. Dieleman JL, Cao J, Chapin A, Chen C, Li Z, Liu A et al. US health care spending by payer and health condition, 1996-2016. *JAMA*. 2020;323:863-84. (<https://doi.org/10.1001/jama.2020.0734>).
17. Koes BW, van Tulder MW, Thomas S. Diagnosis and treatment of low back pain. *BMJ*. 2006;332:1430-4. doi: <https://doi.org/10.1136/bmj.332.7555.1430>
18. Henschke N, Maher CG, Refshauge KM, Herbert RD, Cumming RG, Bleasel J et al. Prevalence of and screening for serious spinal pathology in patients presenting to primary care settings with acute low back pain. *Arthritis Rheum*. 2009;60:3072-80. (<https://doi.org/10.1002/art.24853>).
19. Hill JC, Konstantinou K, Egbewale BE, Dunn KM, Lewis M, van der Windt D. Clinical outcomes among low back pain consulters with referred leg pain in primary care. *Spine*. 2011;36:2168-75. (<https://doi.org/10.1097/BRS.0b013e31820712bb>).
20. Williamson E, Sanchez Santos MT, Morris A, Garrett A, Conway O, Boniface G et al. The prevalence of back and leg pain and the cross-sectional association with adverse health outcomes in community dwelling older adults in England. *Spine*. 2021;46:54-61. (<https://doi.org/10.1097/brs.0000000000003719>).
21. Kongsted A, Kent P, Albert H, Jensen TS, Manniche C. Patients with low back pain differ from those who also have leg pain or signs of nerve root involvement – a cross-sectional study. *BMC Musculoskelet Disord*. 2012;13:236. (<https://doi.org/10.1186/1471-2474-13-236>).
22. Muthuri SG, Kuh D, Cooper R. Longitudinal profiles of back pain across adulthood and their relationship with childhood factors: evidence from the 1946 British birth cohort. *Pain*. 2018;159:764-74. (<https://doi.org/10.1097/j.pain.0000000000001143>).
23. da Silva T, Mills K, Brown BT, Herbert RD, Maher CG, Hancock MJ. Risk of recurrence of low back pain: A systematic review. *J Orthop Sports Phys Ther*. 2017;47:305-13. (<https://doi.org/10.2519/jospt.2017.7415>).
24. da Silva T, Mills K, Brown BT, Pocovi N, de Campos T, Maher C et al. Recurrence of low back pain is common: a prospective inception cohort study. *J Physiother*. 2019;65:159-65. (<https://doi.org/10.1016/j.jphys.2019.04.010>).
25. Kyrönlahti SM, Nygård C-H, K. C P, Neupane S. Trajectories of low back pain from midlife to retirement and functional ability at old age. *Eur J Public Health*. 2021;32:497-503. (<https://doi.org/10.1093/eurpub/ckab191>).
26. Chou R, Shekelle P. Will this patient develop persistent disabling low back pain? *JAMA*. 2010;303:1295-302. (<https://doi.org/10.1001/jama.2010.344>).



27. Itz CJ, Geurts JW, van Kleef M, Nelemans P. Clinical course of non-specific low back pain: A systematic review of prospective cohort studies set in primary care. *Eur J Pain.* 2013;17:5-15. doi: (<https://doi.org/10.1002/j.1532-2149.2012.00170.x>).
28. Kongsted A, Kent P, Axen I, Downie AS, Dunn KM. What have we learned from ten years of trajectory research in low back pain? *BMC Musculoskelet Disord.* 2016;17:220. (<https://doi.org/10.1186/s12891-016-1071-2>).
29. Parreira PCS, Maher CG, Ferreira ML, Machado GC, Blyth FM, Naganathan V et al. A longitudinal study of the influence of comorbidities and lifestyle factors on low back pain in older men. *Pain.* 2017;158:1571-6. (<https://doi.org/10.1097/j.pain.0000000000000952>).
30. Gaskin DJ, Richard P. The economic costs of pain in the United States. *J Pain.* 2012;13:715-24. (<https://doi.org/10.1016/j.jpain.2012.03.009>).
31. Jackson T, Thomas S, Stabile V, Shotwell M, Han X, McQueen K. A systematic review and meta-analysis of the global burden of chronic pain without clear etiology in low and middle-income countries: Trends in heterogeneous data and a proposal for new assessment methods. *Anesth Analg.* 2016;123:739-48. (<https://doi.org/10.1213/ane.0000000000001389>).
32. Dagenais S, Caro J, Haldeman S. A systematic review of low back pain cost of illness studies in the United States and internationally. *Spine J.* 2008;8:8-20. (<https://doi.org/10.1016/j.spinee.2007.10.005>).
33. Schofield DJ, Callander EJ, Shrestha RN, Percival R, Kelly SJ, Passey ME. Labor force participation and the influence of having back problems on income poverty in Australia. *Spine.* 2012;37:1156-63. (<https://doi.org/10.1097/BRS.0b013e31824481ee>).
34. Schofield D, Kelly S, Shrestha R, Callander E, Passey M, Percival R. The impact of back problems on retirement wealth. *Pain.* 2012;153:203-10. (<https://doi.org/10.1016/j.pain.2011.10.018>).
35. Lacey RJ, Belcher J, Croft PR. Does life course socio-economic position influence chronic disabling pain in older adults? A general population study. *Eur J Public Health.* 2013;23:534-40. (<https://doi.org/10.1093/eurpub/cks056>).
36. Sharma S, Traeger AC, Mishra SR, Sharma S, Maher CG. Delivering the right care to people with low back pain in low- and middle-income countries: the case of Nepal. *J Glob Health.* 2019;9:010304. (<https://doi.org/10.7189/jogh.09.010304>).
37. Shmigel A, Foley R, Ibrahim H. Epidemiology of chronic low back pain in US adults: Data from the 2009-2010 National Health and Nutrition Examination Survey. *Arthritis Care Res.* 2016;68:1688-94. (<https://doi.org/10.1002/acr.22890>).
38. Ikeda T, Sugiyama K, Aida J, Tsuboya T, Watabiki N, Kondo K et al. Socioeconomic inequalities in low back pain among older people: the JAGES cross-sectional study. *Int J Equity Health.* 2019;18:15. (<https://doi.org/10.1186/s12939-019-0918-1>).
39. Karran EL, Grant AR, Moseley GL. Low back pain and the social determinants of health: a systematic review and narrative synthesis. *Pain.* 2020;161:2476-93. (<https://doi.org/10.1097/j.pain.0000000000001944>).



40. Beyera GK, O'Brien J, Campbell S. Health-care utilisation for low back pain: a systematic review and meta-analysis of population-based observational studies. *Rheumatol Int*. 2019;39:1663-79. (<https://doi.org/10.1007/s00296-019-04430-5>).
41. Deyo RA, Mirza SK, Turner JA, Martin BI. Overtreating Chronic Back Pain: Time to back off? *J Am Board Fam Med*. 2009;22:62-8. (<https://doi.org/10.3122/jabfm.2009.01.080102>).
42. Wong AY, Karppinen J, Samartzis D. Low back pain in older adults: risk factors, management options and future directions. *Scoliosis Spinal Disord*. 2017;12:14. (<https://doi.org/10.1186/s13013-017-0121-3>).
43. Vigdal ØN, Storheim K, Munk Killingmo R, Småstuen MC, Grotle M. Characteristics of older adults with back pain associated with choice of first primary care provider: a cross-sectional analysis from the BACE-N cohort study. *BMJ Open*. 2021 ;11 :e053229. (<https://doi.org/10.1136/bmjopen-2021-053229>).
44. Dionne CE, Dunn KM, Croft PR. Does back pain prevalence really decrease with increasing age? A systematic review. *Age Ageing*. 2006;35:229-34. (<https://doi.org/10.1093/ageing/afj055>).
45. Henschke N, Maher CG, Refshauge KM, Herbert RD, Cumming RG, Bleasel J et al. Prognosis in patients with recent onset low back pain in Australian primary care: inception cohort study. *BMJ*. 2008;337:a171. (<https://doi.org/10.1136/bmj.a171>).
46. Meyer T, Cooper J, Raspe H. Disabling low back pain and depressive symptoms in the community-dwelling elderly: a prospective study. *Spine*. 2007;32:2380-6. (<https://doi.org/10.1097/BRS.0b013e3181557955>).
47. Stamm TA, Pieber K, Crevenna R, Dorner TE. Impairment in the activities of daily living in older adults with and without osteoporosis, osteoarthritis and chronic back pain: a secondary analysis of population-based health survey data. *BMC Musculoskelet Disord*. 2016;17:139. (<https://doi.org/10.1186/s12891-016-0994-y>).
48. Makris UE, Higashi RT, Marks EG, Fraenkel L, Gill TM, Friedly JL et al. Physical, emotional, and social impacts of restricting back pain in older adults: a qualitative study. *Pain Med*. 2016;18:1225-35. (<https://doi.org/10.1093/pm/pnw196>).
49. Hartvigsen J, Christensen K, Frederiksen H. Back pain remains a common symptom in old age. A population-based study of 4486 Danish twins aged 70-102. *Eur Spine J*. 2003;12:528-34. (<https://doi.org/10.1007/s00586-003-0542-y>).
50. Hartvigsen J, Frederiksen H, Christensen K. Physical and mental function and incident low back pain in seniors: a population-based two-year prospective study of 1387 Danish Twins aged 70 to 100 years. *Spine*. 2006;31:1628-32. (<https://doi.org/10.1097/01.brs.0000222021.00531.ea>).
51. Hartvigsen J, Frederiksen H, Christensen K. Back and neck pain in seniors-prevalence and impact. *Eur Spine J*. 2006;15:802-6. (<https://doi.org/10.1007/s00586-005-0983-6>).
52. Fernandez M, Boyle E, Hartvigsen J, Ferreira ML, Refshauge KM, Maher CG et al. Is this back pain killing me? All-cause and cardiovascular-specific mortality in older Danish twins with spinal pain. *Eur J Pain*. 2017;21:938-48. (<https://doi.org/10.1002/ejp.996>).

53. Stewart Williams J, Ng N, Peltzer K, Yawson A, Biritwum R, Maximova T et al. Risk factors and disability associated with low back pain in older adults in low- and middle-income countries. Results from the WHO Study on Global AGEing and Adult Health (SAGE). *PLoS One*. 2015;10:e0127880. (<https://doi.org/10.1371/journal.pone.0127880>).
54. Hicks GE, Gaines JM, Shardell M, Simonsick EM. Associations of back and leg pain with health status and functional capacity of older adults: findings from the retirement community back pain study. *Arthritis Rheum*. 2008;59:1306-13. (<https://doi.org/10.1002/art.24006>).
55. Kimachi K, Kimachi M, Takegami M, Ono R, Yamazaki S, Goto Y et al. Level of low back pain-related disability is associated with risk of subsequent falls in an older population: Locomotive Syndrome and Health Outcomes in Aizu Cohort Study (LOHAS). *Pain Med*. 2019;20:2377-84. (<https://doi.org/10.1093/pm/pny313>).
56. Øverås CK, Johansson MS, de Campos TF, Ferreira ML, Natvig B, Mork PJ et al. Distribution and prevalence of musculoskeletal pain co-occurring with persistent low back pain: a systematic review. *BMC Musculoskelet Disord*. 2021;22:91. (<https://doi.org/10.1186/s12891-020-03893-z>).
57. Chaplin WJ, McWilliams DF, Millar BS, Gladman JRF, Walsh DA. The bidirectional relationship between chronic joint pain and frailty: data from the Investigating Musculoskeletal Health and Wellbeing cohort. *BMC Geriatr*. 2023;23:273. (<https://doi.org/10.1186/s12877-023-03949-4>).
58. World Health Organization. Integrated care for older people (ICOPE): Guidance for person-centred assessment and pathways in primary care. Geneva: WHO; 2019 (<https://iris.who.int/handle/10665/326843>).
59. Paeck T, Ferreira ML, Sun C, Lin CWC, Tiedemann A, Maher CG. Are older adults missing from low back pain clinical trials? A systematic review and meta-analysis. *Arthritis Care Res*. 2014;66:1220-6. (<https://doi.org/10.1002/acr.22261>).
60. Carvalho do Nascimento PR, Ferreira ML, Poitras S, Bilodeau M. Exclusion of older adults from ongoing clinical trials on low back pain: A review of the WHO Trial Registry Database. *J Am Geriatr Soc*. 2019;67:603-8. (<https://doi.org/10.1111/jgs.15684>).
61. Traeger A, Buchbinder R, Harris I, Maher C. Diagnosis and management of low-back pain in primary care. *CMAJ*. 2017;189:E1386-e95. (<https://doi.org/10.1503/cmaj.170527>).
62. World Health Organization. Package of interventions for rehabilitation: module 2: musculoskeletal conditions. Geneva: WHO; 2023 (<https://iris.who.int/handle/10665/370503>).
63. The GRADE Working Group. GRADE handbook for grading quality of evidence and strength of recommendations. Updated October 2013: Grading of Recommendations, Assessment, Development and Evaluations (GRADE); 2013 ([www.guidelinedevelopment.org/handbook](http://www.guidelinedevelopment.org/handbook)).
64. Moberg J, Oxman AD, Rosenbaum S, Schünemann HJ, Guyatt G, Flottorp S et al. The GRADE Evidence to Decision (EtD) framework for health system and public health decisions. *Health Res Policy Syst*. 2018;16:45. (<https://doi.org/10.1186/s12961-018-0320-2>).



65. Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *BMJ*. 2017;358:j4008. (<https://doi.org/10.1136/bmj.j4008>).
66. Dionne CE, Dunn KM, Croft PR, Nachemson AL, Buchbinder R, Walker BF et al. A consensus approach toward the standardization of back pain definitions for use in prevalence studies. *Spine*. 2008;33:95-103. (<https://doi.org/10.1097/BRS.0b013e31815e7f94>).
67. Schmid AB, Tampin B, Baron R, Finnerup NB, Hansson P, Hietaharju A et al. Recommendations for terminology and the identification of neuropathic pain in people with spine-related leg pain. Outcomes from the NeuPSIG working group. *Pain*. 2023;164:1693-1704. (<https://doi.org/10.1097/j.pain.0000000000002919>).
68. Agency for Healthcare Research and Quality. Methods Guide for Effectiveness and Comparative Effectiveness Reviews. AHRQ Publication No. 10(14)-EHC063-EF. Rockville, MD: AHRQ; 2014 ([https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/cer-methods-guide\\_overview.pdf](https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/cer-methods-guide_overview.pdf)).
69. Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ et al. *Cochrane Handbook for Systematic Reviews of Interventions* version 6.2 (updated February 2021). London: Cochrane; 2021 ([www.training.cochrane.org/handbook](http://www.training.cochrane.org/handbook)).
70. Goldet G, Howick J. Understanding GRADE: an introduction. *J Evid Based Med*. 2013;6:50-4. (<https://doi.org/10.1111/jebm.12018>).
71. AHRQ Methods for Effective Health Care. Assessing the Risk of Bias in Systematic Reviews of Health Care Interventions. Content last reviewed August 2019. In: *Methods Guide for Effectiveness and Comparative Effectiveness Reviews*. Rockville, MD: Agency for Healthcare Research and Quality; 2019 (<https://effectivehealthcare.ahrq.gov/products/methods-bias-update/methods>).
72. Higgins JPT, Altman DG, Gøtzsche PC, Jüni P, Moher D, Oxman AD et al. The Cochrane Collaboration's tool for assessing risk of bias in randomised trials. *BMJ*. 2011;343:d5928. (<https://doi.org/10.1136/bmj.d5928>).
73. Glenton C, Bohren MA, Downe S, Paulsen EJ, Lewin S. *EPOC Qualitative Evidence Synthesis: Protocol and review template*. Oslo: Norwegian Institute of Public Health; 2020 (<https://epoc.cochrane.org/resources/epoc-resources-review-authors>).
74. Lawless MT, Marshall A, Mittinty MM, Harvey G. What does integrated care mean from an older person's perspective? A scoping review. *BMJ Open*. 2020;10:e035157. (<https://doi.org/10.1136/bmjopen-2019-035157>).
75. Chua J, Briggs AM, Hansen P, Chapple C, Abbott JH. Choosing interventions for hip or knee osteoarthritis – What matters to stakeholders? A mixed-methods study. *Osteoarthritis Cartilage*. 2020;100062. doi: (<https://doi.org/10.1016/j.jocarto.2020.100062>).
76. O'Neill J, Tabish H, Welch V, Petticrew M, Pottie K, Clarke M et al. Applying an equity lens to interventions: using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. *J Clin Epidemiol*. 2014;67:56-64. (<https://doi.org/10.1016/j.jclinepi.2013.08.005>).

77. Lewin S, Glenton C, Munthe-Kaas H, Carlsen B, Colvin CJ, Gülmezoglu M et al. Using qualitative evidence in decision making for health and social interventions: an approach to assess confidence in findings from qualitative evidence syntheses (GRADE-CERQual). *PLoS Med*. 2015;12:e1001895. (<https://doi.org/10.1371/journal.pmed.1001895>).
78. Abdel Shaheed C, Mathieson S, Wilson R, Furmage A-M, Maher CG. Who should judge treatment effects as unimportant? *J Physiother*. 2023;69:133-135. (<https://doi.org/10.1016/j.jphys.2023.04.001>).
79. Ferreira ML, Herbert RD, Ferreira PH, Latimer J, Ostelo RW, Nascimento DP et al. A critical review of methods used to determine the smallest worthwhile effect of interventions for low back pain. *J Clin Epidemiol*. 2012;65:253-61. (<https://doi.org/10.1016/j.jclinepi.2011.06.018>).
80. Jaeschke R, Guyatt GH, Dellinger P, Schünemann H, Levy MM, Kunz R et al. Use of GRADE grid to reach decisions on clinical practice guidelines when consensus is elusive. *Bmj*. 2008;337:a744. (<https://doi.org/10.1136/bmj.a744>).
81. The American Geriatrics Society Expert Panel on Person-Centered Care. Person-centered care: A definition and essential elements. *J Am Geriatr Soc*. 2016;64:15-8. (<https://doi.org/10.1111/jgs.13866>).
82. Hutting N, Caneiro JP, Ong'wen OM, Miciak M, Roberts L. Person-centered care for musculoskeletal pain: Putting principles into practice. *Musculoskelet Sci Pract*. 2022;62:102663. (<https://doi.org/10.1016/j.msksp.2022.102663>).
83. World Health Organization. Global report on ageism. Geneva: WHO; 2021 (<https://iris.who.int/handle/10665/340208>).
84. Belton J, Birkinshaw H, Pincus T. Patient-centered consultations for persons with musculoskeletal conditions. *Chiropr Man Therap*. 2022;30:53. (<https://doi.org/10.1186/s12998-022-00466-w>).
85. World Health Organization. Quick guide to avoid ageism in communication. Geneva: WHO; 2021 (<https://www.who.int/publications/m/item/quick-guide-to-avoid-ageism-in-communication>).
86. Santesso N, Glenton C, Dahm P, Garner P, Akl EA, Alper B et al. GRADE guidelines 26: informative statements to communicate the findings of systematic reviews of interventions. *J Clin Epidemiol*. 2020;119:126-35. (<https://doi.org/10.1016/j.jclinepi.2019.10.014>).
87. Jones CMP, Shaheed CA, Ferreira GE, Kharel P, Christine Lin C-W, Maher CG. Advice and education provide small short-term improvements in pain and disability in people with non-specific spinal pain: a systematic review. *J Physiother*. 2021;67:263-270. (<https://doi.org/10.1016/j.jphys.2021.08.014>).
88. French SD, Nielsen M, Hall L, Nicolson PJA, van Tulder M, Bennell KL et al. Essential key messages about diagnosis, imaging, and self-care for people with low back pain: a modified Delphi study of consumer and expert opinions. *Pain*. 2019;160:2787-97. (<https://doi.org/10.1097/j.pain.0000000000001663>).





89. Hayden JA, Ellis J, Ogilvie R, Malmivaara A, van Tulder MW. Exercise therapy for chronic low back pain. *Cochrane Database Syst Rev.* 2021. (<https://doi.org/10.1002/14651858.CD009790.pub2>).
90. World Health Organization. WHO guidelines on physical activity and sedentary behaviour. Geneva: WHO; 2020 (<https://iris.who.int/handle/10665/336656>).
91. Hayden JA, van Tulder MW, Tomlinson G. Systematic review: strategies for using exercise therapy to improve outcomes in chronic low back pain. *Ann Intern Med.* 2005;142:776-85. (<https://doi.org/10.7326/0003-4819-142-9-200505030-00014>).
92. Andre N, Hans L, Signe Nilssen S, Thomas I, Cathrine Luhaäär G, Claus Thomas J et al. Adverse events of exercise therapy in randomised controlled trials: a systematic review and meta-analysis. *Br J Sports Med.* 2020;54:1073. (<https://doi.org/10.1136/bjsports-2018-100461>).
93. Pahor M, Guralnik JM, Ambrosius WT, Blair S, Bonds DE, Church TS et al. Effect of structured physical activity on prevention of major mobility disability in older adults: the LIFE study randomized clinical trial. *JAMA.* 2014;311:2387-96. (<https://doi.org/10.1001/jama.2014.5616>).
94. World Health Organization. Standard precautions for the prevention and control of infections: aide-memoire. Geneva: WHO; 2022 (<https://iris.who.int/handle/10665/356855>).
95. Mu J, Furlan AD, Lam WY, Hsu MY, Ning Z, Lao L. Acupuncture for chronic nonspecific low back pain. *Cochrane Database Syst Rev.* 2020. (<https://doi.org/10.1002/14651858.CD013814>).
96. Rubinstein SM, de Zoete A, van Middelkoop M, Assendelft WJJ, de Boer MR, van Tulder MW. Benefits and harms of spinal manipulative therapy for the treatment of chronic low back pain: systematic review and meta-analysis of randomised controlled trials. *BMJ.* 2019;364:l689. (<https://doi.org/10.1136/bmj.l689>).
97. Furlan AD, Giraldo M, Baskwill A, Irvin E, Imamura M. Massage for low-back pain. *Cochrane Database Syst Rev.* 2015. (<https://doi.org/10.1002/14651858.CD001929.pub3>).
98. Shu J, Li D, Tao W, Chen S. Observation on the curative effect of massage manipulation combined with core strength training in patients with chronic nonspecific low back pain. *Evid Based Complement Alternat Med.* 2021;2021:7534577. (<https://doi.org/10.1155/2021/7534577>).
99. Wegner I, Widyahening IS, van Tulder MW, Blomberg SE, de Vet HC, Brønfort G et al. Traction for low-back pain with or without sciatica. *Cochrane Database Syst Rev.* 2013;2013:CD003010. (<https://doi.org/10.1002/14651858.CD003010.pub5>).
100. Ebadi S, Henschke N, Forogh B, Nakhostin Ansari N, van Tulder MW, Babaei-Ghazani A et al. Therapeutic ultrasound for chronic low back pain. *Cochrane Database Syst Rev.* 2020. (<https://doi.org/10.1002/14651858.CD009169.pub3>).
101. Khadilkar A, Odebiyi DO, Brosseau L, Wells GA. Transcutaneous electrical nerve stimulation (TENS) versus placebo for chronic low-back pain. *Cochrane Database Syst Rev.* 2008. (<https://doi.org/10.1002/14651858.CD003008.pub3>).



102. Quartana PJ, Campbell CM, Edwards RR. Pain catastrophizing: a critical review. *Expert Rev Neurother.* 2009;9:745-58. (<https://doi.org/10.1586/ern.09.34>).
103. Deyo RA, Walsh NE, Martin DC, Schoenfeld LS, Ramamurthy S. A controlled trial of transcutaneous electrical nerve stimulation (TENS) and exercise for chronic low back pain. *N Engl J Med.* 1990;322:1627-34. (<https://doi.org/10.1056/nejm199006073222303>).
104. World Health Organization and the United Nations Children’s Fund (UNICEF). Global report on assistive technology. Geneva: WHO and UNICEF; 2022 (<https://iris.who.int/handle/10665/354357>).
105. World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF). A manual for public procurement of assistive products, accessories, spare parts and related services. Geneva: WHO and UNICEF; 2020 (<https://iris.who.int/handle/10665/341892>).
106. World Health Organization. mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health Gap Action Programme (mhGAP) – version 2.0. Geneva: WHO; 2016 (<https://iris.who.int/handle/10665/250239>).
107. Williams AcdC, Fisher E, Hearn L, Eccleston C. Psychological therapies for the management of chronic pain (excluding headache) in adults. *Cochrane Database Syst Rev.* 2020. (<https://doi.org/10.1002/14651858.CD007407.pub4>).
108. Nguyen T-L, Leguelinel-Blache G, Kinowski J-M, Roux-Marson C, Rougier M, Spence J et al. Improving medication safety: Development and impact of a multivariate model-based strategy to target high-risk patients. *PLoS One.* 2017;12:e0171995. (<https://doi.org/10.1371/journal.pone.0171995>).
109. Wang R, Chen L, Fan L, Gao D, Liang Z, He J et al. Incidence and effects of polypharmacy on clinical outcome among patients aged 80+: A five-year follow-up study. *PLoS One.* 2015;10:e0142123. (<https://doi.org/10.1371/journal.pone.0142123>).
110. Hodkinson A, Tyler N, Ashcroft DM, Keers RN, Khan K, Phipps D et al. Preventable medication harm across health care settings: a systematic review and meta-analysis. *BMC Med.* 2020;18:313. (<https://doi.org/10.1186/s12916-020-01774-9>).
111. World Health Organization. Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence. Geneva: WHO; 2009 (<https://iris.who.int/handle/10665/43948>).
112. Dowell D, Ragan KR, Jones CM, Baldwin GT, Chou R. CDC clinical practice guideline for prescribing opioids for pain – United States, 2022. *MMWR Recomm Rep.* 2022;71:1-95. (<https://doi.org/10.15585/mmwr.rr7103a1>).
113. Hamilton M, Kwok WS, Hsu A, Mathieson S, Gnjjidic D, Deyo R et al. Opioid deprescribing in patients with chronic noncancer pain: a systematic review of international guidelines. *Pain.* 2023;164:485-93. (<https://doi.org/10.1097/j.pain.0000000000002746>).
114. World Health Organization. Community management of opioid overdose. Geneva: WHO; 2014 (<https://iris.who.int/handle/10665/137462>).
115. Cheetham A, Picco L, Barnett A, Lubman DI, Nielsen S. The impact of stigma on people with opioid use disorder, opioid treatment, and policy. *Subst Abuse Rehabil.* 2022;13:1-12. (<https://doi.org/10.2147/sar.S304566>).



116. Chou R, Hartung D, Turner J, Blazina I, Chan B, Levander X et al. Opioid Treatments for Chronic Pain. Comparative Effectiveness Review No. 229. (Prepared by the Pacific Northwest Evidence-based Practice Center under Contract No. 290-2015-00009-I.) Rockville, MD: Agency for Healthcare Research and Quality; 2020 (<https://effectivehealthcare.ahrq.gov/products/opioids-chronic-pain/research>).
117. McDonagh MS, Selph SS, Buckley DI, Holmes RS, Mauer K, Ramirez S et al. Nonopioid Pharmacologic Treatments for Chronic Pain. Comparative Effectiveness Review No. 228. (Prepared by the Pacific Northwest Evidence-based Practice Center under Contract No. 290-2015-00009-I.) Rockville, MD: Agency for Healthcare Research and Quality; 2020 (<https://effectivehealthcare.ahrq.gov/products/nonopioid-chronic-pain/research>).
118. Chou R, Pinto RZ, Fu R, Lowe RA, Henschke N, McAuley JH et al. Systemic corticosteroids for radicular and non-radicular low back pain. *Cochrane Database Syst Rev*. 2022. (<https://doi.org/10.1002/14651858.CD012450.pub2>).
119. Bagg MK, McLachlan AJ, Maher CG, Kamper SJ, Williams CM, Henschke N et al. Paracetamol, NSAIDs and opioid analgesics for chronic low back pain: a network meta-analysis. *Cochrane Database Syst Rev*. 2018. (<https://doi.org/10.1002/14651858.CD013045>).
120. Wewege MA, Bagg MK, Jones MD, McAuley JH, Cashin AG, Day RO et al. Analgesic medicines for adults with low back pain: protocol for a systematic review and network meta-analysis. *Syst Rev*. 2020;9:255. (<https://doi.org/10.1186/s13643-020-01506-3>).
121. Furlan AD, Malmivaara A, Chou R, Maher CG, Deyo RA, Schoene M et al. 2015 Updated method guideline for systematic reviews in the Cochrane Back and Neck Group. *Spine*. 2015;40:1660-73. (<https://doi.org/10.1097/brs.0000000000001061>).
122. Jones CMP, Day RO, Koes BW, Latimer J, Maher CG, McLachlan AJ et al. Opioid analgesia for acute low back pain and neck pain (the OPAL trial): a randomised placebo-controlled trial. *Lancet*. 2023;402:304-312. ([https://doi.org/10.1016/S0140-6736\(23\)00404-X](https://doi.org/10.1016/S0140-6736(23)00404-X)).
123. Humphreys K, Shover CL, Andrews CM, Bohnert ASB, Brandeau ML, Caulkins JP et al. Responding to the opioid crisis in North America and beyond: recommendations of the Stanford-Lancet Commission. *Lancet*. 2022;399:555-604. ([https://doi.org/10.1016/s0140-6736\(21\)02252-2](https://doi.org/10.1016/s0140-6736(21)02252-2)).
124. World Health Organization. WHO guidelines for the pharmacological and radiotherapeutic management of cancer pain in adults and adolescents. Geneva: WHO; 2018 (<https://iris.who.int/handle/10665/279700>).
125. Solomon DH, Rassen JA, Glynn RJ, Lee J, Levin R, Schneeweiss S. The comparative safety of analgesics in older adults with arthritis. *Arch Intern Med*. 2010;170:1968-78. (<https://doi.org/10.1001/archinternmed.2010.391>).
126. Turner EH, Matthews AM, Linardatos E, Tell RA, Rosenthal R. Selective publication of antidepressant trials and its influence on apparent efficacy. *N Engl J Med*. 2008;358:252-60. (<https://doi.org/10.1056/NEJMsa065779>).
127. Anderson PA, McLachlan AJ, Shaheed CA, Gnjidic D, Ivers R, Mathieson S. Deprescribing interventions for gabapentinoids in adults: a scoping review. *Br J Clin Pharmacol* 2023;89:2677-2690. (<https://doi.org/10.1111/bcp.15798>).

128. Enke O, New HA, New CH, Mathieson S, McLachlan AJ, Latimer J et al. Anticonvulsants in the treatment of low back pain and lumbar radicular pain: a systematic review and meta-analysis. *CMAJ*. 2018;190:E786-e93. (<https://doi.org/10.1503/cmaj.171333>).
129. Spence MM, Shin PJ, Lee EA, Gibbs NE. Risk of injury associated with skeletal muscle relaxant use in older adults. *Ann Pharmacother*. 2013;47:993-8. (<https://doi.org/10.1345/aph.1R735>).
130. Cashin AG, Folly T, Bagg MK, Wewege MA, Jones MD, Ferraro MC et al. Efficacy, acceptability, and safety of muscle relaxants for adults with non-specific low back pain: systematic review and meta-analysis. *BMJ*. 2021;374:n1446. (<https://doi.org/10.1136/bmj.n1446>).
131. Saragiotto BT, Machado GC, Ferreira ML, Pinheiro MB, Abdel Shaheed C, Maher CG. Paracetamol for low back pain. *Cochrane Database Syst Rev*. 2016. (<https://doi.org/10.1002/14651858.CD012230>).
132. Roberts E, Delgado Nunes V, Buckner S, Latchem S, Constanti M, Miller P et al. Paracetamol: not as safe as we thought? A systematic literature review of observational studies. *Ann Rheum Dis*. 2016;75:552-9. (<https://doi.org/10.1136/annrheumdis-2014-206914>).
133. Pangarkar SS, Kang DG, Sandbrink F, Bevevino A, Tillisch K, Konitzer L et al. VA/DoD clinical practice guideline: Diagnosis and treatment of low back pain. *J Gen Intern Med*. 2019;34:2620-9. (<https://doi.org/10.1007/s11606-019-05086-4>).
134. McDonagh MS, Morasco BJ, Wagner J, Ahmed AY, Fu R, Kansagara D et al. Cannabis-based products for chronic pain. A systematic review. *Ann Intern Med*. 2022;175:1143-53. (<https://doi.org/10.7326/M21-4520>).
135. McDonagh MS, Wagner J, Ahmed AY, Fu R, Morasco B, Kansagara D et al. Living Systematic Review on Cannabis and Other Plant-Based Treatments for Chronic Pain. Comparative Effectiveness Review No. 250. (Prepared by Pacific Northwest Evidence-based Practice Center under Contract No. 75Q80120D00006) Rockville, MD: Agency for Healthcare Research and Quality; 2021 (<https://effectivehealthcare.ahrq.gov/products/plant-based-chronic-pain-treatment/living-review>).
136. Senderovich H, Wagman H, Zhang D, Vinoraj D, Waicus S. The effectiveness of cannabis and cannabis derivatives in treating lower back pain in the aged population: a systematic review. *Gerontology*. 2022;68:612-24. (<https://doi.org/10.1159/000518269>).
137. Wang L, Hong PJ, May C, Rehman Y, Oparin Y, Hong CJ et al. Medical cannabis or cannabinoids for chronic non-cancer and cancer related pain: a systematic review and meta-analysis of randomised clinical trials. *BMJ*. 2021;374:n1034. (<https://doi.org/10.1136/bmj.n1034>).
138. World Health Organization. The health and social effects of nonmedical cannabis use. Geneva: WHO; 2016 (<https://iris.who.int/handle/10665/251056>).
139. World Health Organization. Mental Health Gap Action Programme (mhGAP) guideline for mental, neurological and substance use disorders, [3rd ed.]. Geneva: WHO; 2023. (<https://iris.who.int/handle/10665/374250>).



140. Staal JB, de Bie R, de Vet HCW, Hildebrandt J, Nelemans P. Injection therapy for subacute and chronic low-back pain. *Cochrane Database Syst Rev.* 2008. (<https://doi.org/10.1002/14651858.CD001824.pub3>).
141. Oltean H, Robbins C, van Tulder MW, Berman BM, Bombardier C, Gagnier JJ. Herbal medicine for low-back pain. *Cochrane Database Syst Rev.* 2014. (<https://doi.org/10.1002/14651858.CD004504.pub4>).
142. Robson EK, Hodder RK, Kamper SJ, O'Brien KM, Williams A, Lee H et al. Effectiveness of weight-loss interventions for reducing pain and disability in people with common musculoskeletal disorders: a systematic review with meta-analysis. *J Orthop Sports Phys Ther.* 2020;50:319-33. (<https://doi.org/10.2519/jospt.2020.9041>).
143. LeBlanc ES, Patnode CD, Webber EM, Redmond N, Rushkin M, O'Connor EA. Behavioral and pharmacotherapy weight loss interventions to prevent obesity-related morbidity and mortality in adults: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA.* 2018;320:1172-91. (<https://doi.org/10.1001/jama.2018.7777>).
144. Chen N, Fong DYT, Wong JYH. Health and economic outcomes associated with musculoskeletal disorders attributable to high body mass index in 192 countries and territories in 2019. *JAMA Netw Open.* 2023;6:e2250674. (<https://doi.org/10.1001/jamanetworkopen.2022.50674>).
145. Gatchel RJ, Peng YB, Peters ML, Fuchs PN, Turk DC. The biopsychosocial approach to chronic pain: scientific advances and future directions. *Psychol Bull.* 2007;133:581-624. (<https://doi.org/10.1037/0033-2909.133.4.581>).
146. Miaskowski C, Blyth F, Nicosia F, Haan M, Keefe F, Smith A et al. A biopsychosocial model of chronic pain for older adults. *Pain Med.* 2019;21:1793-805. (<https://doi.org/10.1093/pm/pnz329>).
147. Kamper SJ, Apeldoorn AT, Chiarotto A, Smeets RJ, Ostelo RW, Guzman J et al. Multidisciplinary biopsychosocial rehabilitation for chronic low back pain. *Cochrane Database Syst Rev.* 2014;9:CD000963. (<https://doi.org/10.1002/14651858.CD000963.pub3>).
148. Kent P, Haines T, O'Sullivan P, Smith A, Campbell A, Schutze R et al. Cognitive functional therapy with or without movement sensor biofeedback versus usual care for chronic, disabling low back pain (RESTORE): a randomised, controlled, three-arm, parallel group, phase 3, clinical trial. *Lancet.* 2023;401:1866-1877. ([https://doi.org/10.1016/s0140-6736\(23\)00441-5](https://doi.org/10.1016/s0140-6736(23)00441-5)).
149. Briggs AM, Jordan JE, Sharma S, Young JJ, Chua J, Foster HE et al. Context and priorities for health systems strengthening for pain and disability in low- and middle-income countries: a secondary qualitative study and content analysis of health policies. *Health Policy Plan.* 2023;38:129-149. (<https://doi.org/10.1093/heapol/czac061>).
150. Briggs AM, Persaud JG, Deverell ML, Bunzli S, Tampin B, Sumi Y et al. Integrated prevention and management of non-communicable diseases, including musculoskeletal health: a systematic policy analysis among OECD countries. *BMJ Glob Health.* 2019;4:e001806. (<https://doi.org/10.1136/bmjgh-2019-001806>).

151. Oliveira CB, Ferreira GE, Buchbinder R, Machado GC, Maher CG. Do national health priorities align with Global Burden of Disease estimates on disease burden? An analysis of national health plans and official governmental websites. *Public Health*. 2023;222:66-74. (<https://doi.org/10.1016/j.puhe.2023.06.038>).
152. World Health Organization. Integrated care for older people (ICOPE) implementation framework: guidance for systems and services. Geneva: WHO; 2019 (<https://iris.who.int/handle/10665/325669>).
153. Slater H, Jordan JE, O'Sullivan PB, Schütze R, Goucke R, Chua J et al. 'Listen to me, learn from me': a priority setting partnership for shaping interdisciplinary pain training to strengthen chronic pain care. *Pain*. 2022;163:1145-63. (<https://doi.org/10.1097/j.pain.0000000000002647>).
154. Belton JL, Slater H, Ravindran TKS, Briggs AM. Harnessing people's lived experience to strengthen health systems and support equitable musculoskeletal health care. *J Orthop Sports Phys Ther*. 2023;53:162-71. (<https://doi.org/10.2519/jospt.2022.11427>).
155. World Health Organization. Framework on integrated, people-centred health services. Geneva: WHO; 2016 (<https://iris.who.int/handle/10665/252698>).
156. World Health Organization. WHO framework for meaningful engagement of people living with noncommunicable diseases, and mental health and neurological conditions. Geneva: WHO; 2023 (<https://iris.who.int/handle/10665/367340>).
157. Swain MS, Henschke N, Kamper SJ, Gobina I, Ottova-Jordan V, Maher CG. An international survey of pain in adolescents. *BMC Public Health*. 2014;14:447. (<https://doi.org/10.1186/1471-2458-14-447>).
158. Hestbaek L, leboeuf-Yde C, Kyvik KO, Manniche C. The course of low back pain from adolescence to adulthood. Eight year follow-up of 9600 twins. *Spine*. 2006;31:468-72. (<https://doi.org/10.1097/01.brs.0000199958.04073.d9>).
159. Lyng KD, Djurtoft C, Bruun MK, Christensen MN, Lauritsen RE, Larsen JB et al. What is known and what is still unknown within chronic musculoskeletal pain? A systematic evidence and gap map. *Pain*. 2023;164:1406-1415. (<https://doi.org/10.1097/j.pain.0000000000002855>).
160. Suman A, Armijo-Olivo S, Deshpande S, Marietta-Vasquez J, Dennett L, Miciak M et al. A systematic review of the effectiveness of mass media campaigns for the management of low back pain. *Disabil Rehabil*. 2021;43:3523-51. (<https://doi.org/10.1080/09638288.2020.1743777>).
161. O'Sullivan PB, Caneiro JP, O'Sullivan K, Lin I, Bunzli S, Wernli K et al. Back to basics: 10 facts every person should know about back pain. *Br J Sports Med*. 2020;54:698-9. (<https://doi.org/10.1136/bjsports-2019-101611>).
162. Hayden JA, Ellis J, Ogilvie R, Stewart SA, Bagg MK, Stanojevic S et al. Some types of exercise are more effective than others in people with chronic low back pain: a network meta-analysis. *J Physiother*. 2021;67:252-62. (<https://doi.org/10.1016/j.jphys.2021.09.004>).





163. Chou L, Ranger TA, Peiris W, Cicuttini FM, Urquhart DM, Briggs AM et al. Patients' perceived needs for allied health, and complementary and alternative medicines for low back pain: A systematic scoping review. *Health Expect*. 2018;21:824-47. (<https://doi.org/10.1016/j.jphys.2021.09.004>).
164. Chiarotto A, Boers M, Deyo RA, Buchbinder R, Corbin TP, Costa LOP et al. Core outcome measurement instruments for clinical trials in nonspecific low back pain. *Pain*. 2018;159:481-95. (<https://doi.org/10.1097/j.pain.0000000000001117>).
165. Dworkin RH, Turk DC, Farrar JT, Haythornthwaite JA, Jensen MP, Katz NP et al. Core outcome measures for chronic pain clinical trials: IMMPACT recommendations. *Pain*. 2005;113:9-19. (<https://doi.org/10.1016/j.pain.2004.09.012>).
166. Ashton-James CE, Anderson SR, Mackey SC, Darnall BD. Beyond pain, distress, and disability: the importance of social outcomes in pain management research and practice. *Pain*. 2022;163:e426-e31. (<https://doi.org/10.1097/j.pain.0000000000002404>).
167. Hickey M, Barry D, Redito J, Anand N, Bianchi N, Reneman M et al. Content validity of patient-reported outcome measures for patients with chronic pain: considering the patient's perspective. *Pain*. 2023;164:252-7. (<https://doi.org/10.1097/j.pain.0000000000002714>).
168. Gorrell LM, Brown BT, Engel R, Lystad RP. Reporting of adverse events associated with spinal manipulation in randomised clinical trials: an updated systematic review. *BMJ Open*. 2023;13:e067526. (<https://doi.org/10.1136/bmjopen-2022-067526>).



## ANNEX 1: GRADE DEFINITIONS

**Table A1:** Definitions of GRADE evidence certainty criteria.

Certainty criteria	Definition
Risk of bias	Where limitations in the design or conduct of a trial (or group of trials) limit confidence in the results presented. Tools are available to assess the risk of bias in individual RCTs: the Cochrane Risk of Bias Tool 1 was used for the evidence reviews (72), other than for trials assessing long-term treatment duration of systemic pharmacotherapies, which were assessed using AHRQ criteria (71).
Inconsistency	When there is significant and unexplained variability in results from different trials.
Imprecision	When wide confidence intervals reduce the precision of the estimate of effect.
Publication bias	Publication bias is a systematic under- or over-estimation of the underlying beneficial or harmful effect due to the selective publication of trials.

**Table A2:** Definitions of GRADE certainty ratings.

Certainty level	Definition
High	The GDG is very confident that the true effect lies close to that of the estimate of the effect.
Moderate	The GDG is moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low	The confidence of the GDG in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
Very low	The GDG is has very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of the effect.

**Table A3:** Definitions of GRADE-CERQual confidence ratings.

<b>Confidence levels</b>	<b>Definition</b>
<b>High</b>	It is highly likely that the review finding is a reasonable representation of the phenomenon of interest.
<b>Moderate</b>	It is likely that the review finding is a reasonable representation of the phenomenon of interest.
<b>Low</b>	It is possible that the review finding is a reasonable representation of the phenomenon of interest.
<b>Very low</b>	It is not clear whether the review finding is a reasonable representation of the phenomenon of interest.

## ANNEX 2: CHARACTERISTICS OF MEDICINES TRIALS

**Table B1:** Characteristics of trials by systemic pharmacotherapy agent. All agents were administered orally, unless indicated otherwise.

Systemic pharmacotherapy agent	Sample	Age and sex
<b>Opioid analgesics</b> (treatment duration $\geq$ 1 month) vs placebo.	27 trials. Sample sizes ranged from 21 to 1017 (n=8688).	Mean age of participants ranged from 42 to 64 years and the female proportion from 43% to 62%.
<b>Opioid analgesics</b> (treatment duration $<$ 1 month) vs placebo.	1 trial; n=25.	Not reported.
<b>Non-steroidal anti-inflammatory drugs (NSAIDs)</b> (treatment duration $\geq$ 12 weeks) vs placebo.	4 trials. Sample sizes ranged from 132 to 525 (n=1301).	Mean age of participants ranged from 52 to 53 years and the female proportion from 50% to 62%.
<b>Non-steroidal anti-inflammatory drugs (NSAIDs)</b> (treatment duration $<$ 12 weeks) vs placebo.	4 trials. Sample sizes ranged from 25 to 239 (n=449).	Mean age of participants ranged from 51 to 59 years and the female proportion from 51% to 65%.

Systemic pharmacotherapy agent	Economic development of trial host country	Medicines evaluated in each trial
<p><b>Opioid analgesics</b> (treatment duration <math>\geq</math> 1 month) vs placebo.</p>	<p>All trials were conducted in HICs (21 trials in the United States or Canada, 4 trials in Europe [Germany, Netherlands (Kingdom of the), Czech Republic] and two trials in Japan).</p>	<p>Fifteen trials evaluated an opioid agonist (morphine, oxycodone, hydrocodone, hydromorphone or oxymorphone), 5 trials a partial opioid agonist (buprenorphine) and 8 trials a mixed agent (tapentadol or tramadol); one of the trials evaluated both an opioid agonist and a mixed agent. The mean dose of opioids ranged from 40 to 186 mg morphine equivalents/day. The duration of treatment ranged from 4 to 12 weeks in all trials except for three, which had a treatment duration of 14 to 16 weeks.</p>
<p><b>Opioid analgesics</b> (treatment duration <math>&lt;</math> 1 month) vs placebo.</p>	<p>Romania (HIC).</p>	<p>Tramadol (100 mg/day) for seven days.</p>
<p><b>Non-steroidal anti-inflammatory drugs (NSAIDs)</b> (treatment duration <math>\geq</math> 12 weeks) vs placebo.</p>	<p>All trials were conducted in the United States (HIC).</p>	<p>Two trials evaluated a non-selective NSAID (naproxen 1000 mg/day) and two trials evaluated a cyclo-oxygenase-2 (COX-2) selective NSAID (etoricoxib, 60 or 90 mg/day). The duration of treatment ranged from 12 to 16 weeks.</p>
<p><b>Non-steroidal anti-inflammatory drugs (NSAIDs)</b> (treatment duration <math>&lt;</math> 12 weeks) vs placebo.</p>	<p>All trials were conducted in HICs: United Kingdom, United States, Australia, Germany.</p>	<p>One trial evaluated two non-selective NSAIDs (naproxen 1100 mg/day, diflunisal 100 mg/day) vs placebo, with each treatment delivered for 2 weeks. One trial evaluated two non-selective NSAIDs (flurbiprofen 300 mg/day, indomethacin 150 mg/day) vs placebo, with each treatment delivered for 2 weeks. One trial evaluated a non-selective NSAID (naproxen 1000 mg/day) for 4 weeks. One trial evaluated a non-selective NSAID (modified-release flupirtine) for 4 weeks.</p>

**Table B1:** Characteristics of trials by systemic pharmacotherapy agent. All agents were administered orally, unless indicated otherwise.

Systemic pharmacotherapy agent	Sample	Age and sex
<b>Serotonin and noradrenaline reuptake inhibitor (SNRI) antidepressants</b> (treatment duration $\geq$ 12 weeks) vs placebo.	4 trials. Sample sizes ranged from 236 to 458 (n=1499).	Mean age of participants ranged from 51 to 59 years and the female proportion female from 52% to 61%.
<b>Serotonin and noradrenaline reuptake inhibitor (SNRI) antidepressants</b> (treatment duration < 12 weeks) vs placebo.	5 trials. Sample sizes ranged from 14 to 98 (n=263).	Mean age of participants ranged from 36 to 57 years and the female proportion female from 0% to 54%.
<b>Tricyclic antidepressants</b> (treatment duration $\geq$ 12 weeks) vs placebo.	3 trials. Sample sizes ranged from 70 to 146 (n=294).	Mean age of participants ranged from 46 to 57 years and the female proportion from 11% to 39%.
<b>Tricyclic antidepressants</b> (treatment duration < 12 weeks) vs placebo.	6 trials. Sample sizes ranged from 15 to 68 (n=290).	Mean age of participants ranged from 30 to 49 years and the female proportion from 0% to 75%.
<b>Anticonvulsants</b> (treatment duration $\geq$ 12 weeks) vs placebo.	1 trial; n=108.	Mean age was 56 year and 23% were female.
<b>Anticonvulsants</b> (treatment duration < 12 weeks) vs placebo.	3 trials. Sample sizes ranged from 30 to 96 (n=206).	Mean age of participants ranged from 42 to 49 years and the female proportion from 38% to 55%.
<b>Skeletal muscle relaxants<sup>^</sup></b> (treatment duration < 12 weeks) vs placebo.	4 trials. Sample sizes ranged from 19 to 50 (n=143).	Mean age of participants ranged from 38 to 50 years and the female proportion from 54% to 85%.

HIC: high-income country; LMIC: lower middle-income country; UMIC: upper middle-income country

NSAIDs: nonsteroidal anti-inflammatory drugs

SNRI: serotonin and norepinephrine reuptake inhibitor

<sup>^</sup> administered via intramuscular injection into the paravertebral muscles

<b>Systemic pharmacotherapy agent</b>	<b>Economic development of trial host country</b>	<b>Medicines evaluated in each trial</b>
<p><b>Serotonin and noradrenaline reuptake inhibitor (SNRI) antidepressants</b> (treatment duration <math>\geq</math> 12 weeks) vs placebo.</p>	<p>One trial was conducted in Japan (HIC) and three trials were multinational study sites including France, Germany, Netherlands (Kingdom of the), Poland, Russia, Spain United States, Brazil and Mexico): HICs and UMICs.</p>	<p>All trials evaluated duloxetine. Doses were 60 to 120 mg/day in all trials, with one trial also evaluating a dose of 20 mg/day. The duration of treatment ranged from 12 to 14 weeks.</p>
<p><b>Serotonin and noradrenaline reuptake inhibitor (SNRI) antidepressants</b> (treatment duration <math>&lt;</math> 12 weeks) vs placebo.</p>	<p>Three trials were conducted in the United States, one in the United Kingdom, and one in Austria (all HICs).</p>	<p>Two trials evaluated duloxetine (60–120 mg/day), 2 trials evaluated paroxetine (20–30 mg/day) and 1 trial evaluated milnacipran (100–200 mg/day).</p>
<p><b>Tricyclic antidepressants</b> (treatment duration <math>\geq</math> 12 weeks) vs placebo.</p>	<p>Two trials were conducted in the United States and one trial was conducted in Australia (all HICs).</p>	<p>Two trials evaluated desipramine (20–60 mg/day) and 1 trial evaluated amitriptyline (25 mg/day). The duration of treatment ranged from 12 to 24 weeks.</p>
<p><b>Tricyclic antidepressants</b> (treatment duration <math>&lt;</math> 12 weeks) vs placebo.</p>	<p>Four trials were conducted in the United States, 1 trial in Denmark, and 1 trial in France (all HICs).</p>	<p>One trial evaluated imipramine (150 mg/day), 1 trial evaluated nortriptyline (up to 100 mg/day), 1 trial evaluated maprotiline (up to 150 mg/day), 1 trial evaluated amitriptyline (up to 150 mg/day), 1 trial evaluated clomipramine (up to 75 mg/day) and 1 trial evaluated two medicines (clomipramine up to 150 mg/day, mianserin up to 60 mg/day).</p>
<p><b>Anticonvulsants</b> (treatment duration <math>\geq</math> 12 weeks) vs placebo.</p>	<p>United States (HIC).</p>	<p>The trial evaluated 3600 mg/day of gabapentin (mean 3265 mg/day) and treatment was provided for 12 weeks.</p>
<p><b>Anticonvulsants</b> (treatment duration <math>&lt;</math> 12 weeks) vs placebo.</p>	<p>Two trials were conducted in Ireland and 1 trial in Germany (all HICs).</p>	<p>Two trials evaluated gabapentin (1 trial used a dosage of up to 1200 mg/day, the other trial used a dosage of 15 mg/kg based on the participant's body mass) and 1 trial evaluated topiramate (up to 300 mg/day).</p>
<p><b>Skeletal muscle relaxants<sup>^</sup></b> (treatment duration <math>&lt;</math> 12 weeks) vs placebo.</p>	<p>Three trials were conducted in HICs (2 in the United States, 1 in France) and 1 in a LMIC (Islamic Republic of Iran).</p>	<p>All trials evaluated a single administration of botulinum toxin A delivered via intramuscular injection into the paravertebral muscles.</p>



**Table B1:** Characteristics of trials by systemic pharmacotherapy agent. All agents were administered orally, unless indicated otherwise.

<b>Systemic pharmacotherapy agent</b>	<b>Sample</b>	<b>Age and sex</b>	<b>Economic development of trial host country</b>	<b>Medicines evaluated in each trial</b>
<b>Skeletal muscle relaxants</b> (treatment duration < 12 weeks) vs no intervention.	1 trial; n=42.	Mean age of participants was 55 years, and all participants were male.	Islamic Republic of Iran (LMIC).	Baclofen (30 mg/day) for a duration of 5 weeks.
<b>Glucocorticoids</b> (any treatment duration) vs placebo.	1 trial; n=100 [CLBP with radicular symptoms].	Mean age was 47 years and 31% were female.	Germany (HIC).	The trial evaluated a 10-day course of dexamethasone (24 mg/day for 5 days, 12 mg/day for 3 days, 8 mg/day for 1 day, and 4 mg/day for 1 day).

**Table B2:** Characteristics of trials by herbal medicine agent.

Herbal medicine agent (route of administration)	Sample	Age and sex	Economic development of trial host country	Formulations evaluated in each trial
Cayenne pepper [ <i>Capsicum frutescens</i> ] (topical)	3 placebo-controlled trials. Sample size ranged from 154 to 320 (n=756).	Inclusion criteria age range was 18–75 yrs. Proportion of female participants ranged from 48 to 65%.	All trials conducted in HICs: 1 trial in Germany; 2 trials in Germany and Austria	<ul style="list-style-type: none"> <li>• Cream containing 2.2–2.6 g soft extract of capsici fructus acer (DER 5.5:1 (4–7:1) per 100 g corresponding to 53 mg capsaicin (0.05%; Finalgon® CPD Wärmecreme); rubbed as a thin layer onto the painful area 3 times daily for 3 weeks.</li> <li>• Plaster containing an ethanolic soft extract of cayenne pepper standardized to 22 mg/cm<sup>2</sup> of capsaicinoids applied in the morning on the site of maximum pain and kept in place for 4–8 hours; daily for 3 weeks.</li> <li>• Plaster containing 11 mg of capsaicinoids per plaster (standardized ethanolic soft extract of cayenne pepper: 0.4598–0.5517 g, corresponding to 11 mg capsaicinoids, calculated as capsaicin); applied daily at site of maximum pain for 4–12 hours/day, for 3 weeks.</li> </ul>

**Table B2:** Characteristics of trials by herbal medicine agent.

Herbal medicine agent (route of administration)	Sample	Age and sex	Economic development of trial host country	Formulations evaluated in each trial
<p><b>Devil's claw</b> [<i>Harpagophytum procumbens</i>] (oral)</p>	<p>2 placebo-controlled trials. Sample size ranged from 118 to 197 (n=315).</p>	<p>Mean age of participants ranged from 53 to 60 years. Proportion of female participants ranged from 57 to 69%.</p>	<p>All trials conducted in Germany (HIC).</p>	<ul style="list-style-type: none"> <li>• 400 mg tablets; 2 tablets, 3 times a day (2400 mg daily) for 4 weeks.</li> <li>• Two formulations:               <ul style="list-style-type: none"> <li>- a daily dose of 600 mg (each tablet contained 200 mg Harpagophytum WS 1531 extract (17 mg harpagoside per tablet); 1 tablet, 3 times a day for 4 weeks; and</li> <li>- a daily dose of 1200 mg; each tablet contained 400 mg Harpagophytum WS 1531 extract (34 mg harpagoside per tablet); 1 tablet, 3 times a day for 4 weeks.</li> </ul> </li> </ul>
<p><b>White willow</b> [<i>Salix spp.</i>] (oral)</p>	<p>2 placebo-controlled trials. Sample size ranged from 35 to 210 (n=245). Only 1 trial reported on outcomes of interest for PICO</p>	<p>Mean age of participants ranged from 55 to 59 years. Proportion of female participants ranged from 54 to 60%.</p>	<p>All trials conducted in Israel (HIC).</p>	<ul style="list-style-type: none"> <li>• Two formulations:               <ul style="list-style-type: none"> <li>- 120 mg of salicin per day (0.153 mg salicin per mg extract) in 393.24 mg dry willow bark extract, 2 times daily for 4 weeks; or</li> <li>- 240 mg of salicin per day (0.153 mg salicin per mg extract) in 786.78 mg dry willow bark extract, 2 times daily for 4 weeks.</li> </ul> </li> <li>• 393.24 mg dry extract per pill (Assalix); a 70% ethanol extract contained 0.153 mg salicin per mg (15.3%). 240 mg salicin per day, 2 pills, 2 times a day, for 4 weeks. willow bark extract, 2 times daily for 4 weeks.</li> </ul>

**Table B2:** Characteristics of trials by herbal medicine agent.

<b>Brazilian arnica</b> <i>[Solidago chilensis]</i> (topical)	1 placebo-controlled trial (n=20).	Participants ranged from 18-44 years; 70% females.	Trial conducted in Brazil (UMIC).	<ul style="list-style-type: none"> <li>• topical gel: 2 daily</li> <li>• applications of 10g, containing a 5% extract in glycol, for 15 days onto the local area.</li> </ul>
<b>Ginger</b> [ <i>Zingiber officinale Roscoe</i> ] <sup>^</sup> (oral)	1 placebo-controlled trial (n=120).	Inclusion criteria age range 30–80 years. Proportion of female participants not reported.	Trial conducted in the Islamic Republic of Iran (LMIC).	<ul style="list-style-type: none"> <li>• supplement for 6 weeks. Dosage information (or product brand name) was not reported.</li> </ul>
<b>White lily</b> [ <i>Lilium candidum</i> ] (topical)	1 placebo-controlled trial (n=30).	Inclusion criteria age range 20–55 years. Proportion of female participants not reported.	Trial conducted in the Islamic Republic of Iran (LMIC).	<ul style="list-style-type: none"> <li>• 120 cc of a preparation of <i>Lilium candidum</i> flowers in sesame oil, ratio of 1:18 (w/w), applied topically to the area of pain at bedtime for 8 weeks.</li> </ul>
<b>Combination herbal compress</b> <i>[Zingiber cassumunar Roxb. Rhizomes (40%), Curcuma longa L. rhizomes (10%), Cymbopogon citratus (DC.) Stapf leaves and leaf sheaths (10%), Croton roxburghii N.P.Balacr. leaves (10%), Tamarindus indica L. leaves (10%), Citrus hystrix DC. Peels (5%), Blumea balsamifera (L.) DC. Leaves (5%), Vitex trifolia L. leaves (5%) and camphor (5%)]</i> (topical)	1 trial where the effect of the intervention could be isolated (n=140).	Mean age 68–69 years across control and intervention groups. Proportion of female participants 74%.	Trial conducted in Thailand (UMIC).	<ul style="list-style-type: none"> <li>• herbal compress ball heated by steam for 20 min to a surface temperature &lt; 45°C. The intervention group received a 60-min massage including 15 min with the hot herbal compress ball, 2 times a week for 5 weeks.</li> </ul>

**Table B2:** Characteristics of trials by herbal medicine agent.

Herbal medicine agent (route of administration)	Sample	Age and sex	Economic development of trial host country	Formulations evaluated in each trial
<p>Combination transdermal diffusional patch of 6 herbal oils [<i>Oleum thymi</i>, <i>Oleum limonis</i>, <i>Oleum nigra</i>, <i>Oleum rosmarini</i>, <i>Oleum chamomilla</i> and <i>Oleum lauri expressum</i>] (topical)</p>	<p>1 placebo-controlled trial (n=97).</p>	<p>Mean age 42–44 years across control and intervention groups. Proportion of female participants 50%, all with spine-related radicular leg pain.</p>	<p>Trial conducted in Türkiye (UMIC).</p>	<ul style="list-style-type: none"> <li>patch placed over L4/5 area. Participants were hospitalized for 24 h in a supine position. They were allowed to stand up for a maximum of 3 times each hour during 24 h.</li> </ul>

HIC: high-income country; LMIC: lower middle-income country; UMIC: upper middle-income country.

^ the trial did not report data recuperable for analysis or GRADE assessment.

## ANNEX 3: SUMMARIES OF JUDGEMENTS ACROSS ETD DOMAINS

This Annex provides a summary of judgements made by the GDG for each ETD domain, by intervention. The tables reflect judgements made by all GDG members, while the rationale text for each intervention summarises the majority judgements.

**Table C1:** Summary of judgements for structured and standardized education and/or advice (intervention A.1).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; trivial	Uncertain
<b>Harms</b>	Trivial; uncertain	Uncertain
<b>Balance benefits to harms</b>	Probably favours standardized education and/or advice	Probably favours standardized education and/or advice
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	Possibly important uncertainty or variability; no important uncertainty or variability	Possibly important uncertainty or variability; no important uncertainty or variability
<b>Resource considerations</b>	Moderate costs; varies	Moderate costs; varies
<b>Equity and human rights</b>	Probably increased	Probably increased
<b>Acceptability</b>	Yes	Yes
<b>Feasibility</b>	Yes; probably yes	Yes; probably yes



**Table C2:** Summary of judgements for structured exercise therapies or programmes ([intervention B.1](#)).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; moderate; trivial; uncertain	Small; moderate
<b>Harms</b>	Trivial; uncertain	Uncertain
<b>Balance benefits to harms</b>	Favours exercise; probably favours exercise; uncertain	Probably favours exercise; uncertain
<b>Overall certainty</b>	Low; very low	Very low
<b>Values and preferences</b>	Possibly important uncertainty or variability; no important uncertainty or variability	Possibly important uncertainty or variability; no important uncertainty or variability
<b>Resource considerations</b>	Moderate costs; negligible costs and savings; varies (according to country and health system)	Moderate costs; negligible costs and savings; varies (according to country and health system)
<b>Equity and human rights</b>	Probably increased; probably reduced; no impact; varies	Probably increased; probably reduced; no impact; varies
<b>Acceptability</b>	Yes; probably yes; uncertain; varies	Probably yes; uncertain; varies
<b>Feasibility</b>	Yes	Yes

**Table C3:** Summary of judgements for needling therapies (intervention B.2).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; uncertain	Small; trivial; uncertain
<b>Harms</b>	Trivial; uncertain	Trivial; uncertain
<b>Balance benefits to harms</b>	Probably favours needling therapies; probably does not favour needling therapies; uncertain	Probably favours needling therapies; probably does not favour needling therapies; uncertain
<b>Overall certainty</b>	Low; very low	Very low
<b>Values and preferences</b>	Important uncertainty or variability; possibly important uncertainty or variability	Important uncertainty or variability; possibly important uncertainty or variability
<b>Resource considerations</b>	Large costs; moderate costs; varies	Large costs, moderate costs; varies
<b>Equity and human rights</b>	Probably reduced; uncertain	Probably reduced; uncertain
<b>Acceptability</b>	Probably yes; varies	Probably yes; varies
<b>Feasibility</b>	Uncertain; varies	Uncertain; varies

**Table C4:** Summary of judgements for spinal manipulative therapy (SMT) ([intervention B.3](#)).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Moderate; small; trivial; uncertain; varies	Moderate; small; trivial; uncertain
<b>Harms</b>	Small; trivial; uncertain	Small; trivial; uncertain
<b>Balance benefits to harms</b>	Probably favours SMT; probably does not favour SMT; uncertain	Probably favours SMT; probably does not favour SMT; uncertain
<b>Overall certainty</b>	Very low; low	Very low
<b>Values and preferences</b>	Probably important uncertainty or variability; possibly important uncertainty or variability	Probably important uncertainty or variability; possibly important uncertainty or variability
<b>Resource considerations</b>	Moderate costs; varies	Moderate costs; varies
<b>Equity and human rights</b>	No impact; probably reduced (traction especially); uncertain; varies	No impact; probably reduced (traction especially); uncertain; varies
<b>Acceptability</b>	Yes; probably yes; probably no; uncertain; varies	Yes; probably yes; probably no; uncertain; varies
<b>Feasibility</b>	Yes; probably yes; varies	Yes; probably yes; varies

**Table C5:** Summary of judgements for massage (intervention B.4).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; trivial; uncertain; varies	Small; trivial; uncertain
<b>Harms</b>	Uncertain	Uncertain
<b>Balance benefits to harms</b>	Probably favours massage; probably does not favour massage; uncertain	Probably favours massage; probably does not favour massage; uncertain
<b>Overall certainty</b>	Low; very low	Low; very low
<b>Values and preferences</b>	Probably important uncertainty or variability; possibly important uncertainty or variability	Probably important uncertainty or variability; possibly important uncertainty or variability
<b>Resource considerations</b>	Moderate costs; uncertain; varies	Moderate costs; varies
<b>Equity and human rights</b>	No impact; probably reduced (traction especially); varies	No impact; probably reduced (traction especially); uncertain; varies
<b>Acceptability</b>	Yes; probably yes; probably no; uncertain; varies	Yes; probably yes; probably no; uncertain; varies
<b>Feasibility</b>	Yes; probably yes; varies	Yes; probably yes; varies

**Table C6:** Summary of judgements for traction (intervention B.5).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; trivial; uncertain	Small; trivial; uncertain
<b>Harms</b>	Uncertain	Uncertain
<b>Balance benefits to harms</b>	Probably does not favour traction; uncertain	Probably does not favour traction; uncertain
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	Probably important uncertainty or variability; possibly important uncertainty or variability	Probably important uncertainty or variability; possibly important uncertainty or variability
<b>Resource considerations</b>	Moderate costs; varies	Moderate costs; varies
<b>Equity and human rights</b>	Probably reduced; uncertain; varies	Probably reduced; uncertain; varies
<b>Acceptability</b>	Yes; probably yes; probably no; uncertain; varies	Yes; probably yes; probably no; uncertain; varies
<b>Feasibility</b>	Yes; probably yes; varies	Yes; probably yes; varies

**Table C7:** Summary of judgements for therapeutic ultrasound (intervention B.6).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; trivial; uncertain	Small; trivial; uncertain
<b>Harms</b>	Trivial; uncertain	Trivial; uncertain
<b>Balance benefits to harms</b>	Does not favour ultrasound; probably does not favour ultrasound; uncertain	Does not favour ultrasound; probably does not favour ultrasound; uncertain
<b>Overall certainty</b>	Low; very low	Low; very low
<b>Values and preferences</b>	Possibly important uncertainty or variability; probably no important uncertainty or variability	Possibly important uncertainty or variability; probably no important uncertainty or variability
<b>Resource considerations</b>	Moderate; moderate costs; negligible; negligible costs and savings	Moderate; moderate costs; negligible; negligible costs and savings
<b>Equity and human rights</b>	No impact; probably reduced; uncertain	No impact; probably reduced; uncertain
<b>Acceptability</b>	Yes; probably yes; probably no; varies	Yes; probably yes; probably no; varies
<b>Feasibility</b>	Yes; probably yes; varies	Yes; probably yes; varies



**Table C8:** Summary of judgements for transcutaneous electrical nerve stimulation (intervention B.7).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; uncertain	Small; uncertain
<b>Harms</b>	Small; uncertain	Small; uncertain
<b>Balance benefits to harms</b>	Uncertain	Uncertain
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	Important uncertainty or variability; possibly important uncertainty or variability	Important uncertainty or variability; possibly important uncertainty or variability
<b>Resource considerations</b>	Moderate costs; high costs; varies (according to country and health system)	Moderate costs; high costs; varies (according to country and health system)
<b>Equity and human rights</b>	No impact; probably reduced; varies	No impact; probably reduced; varies
<b>Acceptability</b>	Probably yes; uncertain; varies	Probably yes; uncertain; varies
<b>Feasibility</b>	Probably yes	Probably yes

**Table C9:** Summary of judgements for assistive products: lumbar braces, belts and/or supports (intervention B.8.1).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Moderate; trivial; uncertain: no evidence	Trivial; uncertain: no evidence
<b>Harms</b>	Moderate; trivial; uncertain: no evidence	Moderate; uncertain: no evidence
<b>Balance benefits to harms</b>	Probably favours lumbar braces, belts and/or supports; probably does not favour lumbar braces, belts and/or supports; uncertain: no evidence	Probably favours lumbar braces, belts and/or supports; probably does not favour lumbar braces, belts and/or supports; uncertain: no evidence
<b>Overall certainty</b>	Very low: no evidence	Very low: no evidence
<b>Values and preferences</b>	Important uncertainty; possibly important uncertainty or variability; probably no important uncertainty; no important uncertainty or variability	Important uncertainty; possibly important uncertainty or variability; probably no important uncertainty; no important uncertainty or variability
<b>Resource considerations</b>	Moderate; moderate costs; negligible; varies	Moderate; moderate costs; negligible; varies
<b>Equity and human rights</b>	No impact; reduced; uncertain	No impact; reduced; uncertain
<b>Acceptability</b>	Yes, probably yes; probably no	Yes; probably yes; probably no
<b>Feasibility</b>	Yes; probably yes; uncertain	Yes; probably yes; uncertain

**Table C10:** Summary of judgements for operant therapy ([intervention C.1](#)).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Moderate; uncertain	Moderate; uncertain
<b>Harms</b>	Trivial; uncertain	Trivial; uncertain
<b>Balance benefits to harms</b>	Probably favours operant therapy; uncertain	Probably favours operant therapy; uncertain
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	Important uncertainty or variability; possibly important uncertainty or variability	Important uncertainty or variability; possibly important uncertainty or variability
<b>Resource considerations</b>	Moderate; large; varies	Moderate; large; varies
<b>Equity and human rights</b>	Possibly reduced; no impact; uncertain; varies	Possibly reduced; no impact; uncertain; varies
<b>Acceptability</b>	Probably yes; probably no; varies	Probably yes; probably no; varies
<b>Feasibility</b>	Varies	Varies

**Table C11:** Summary of judgements for respondent therapy (intervention C.2).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; trivial; uncertain	Uncertain
<b>Harms</b>	Trivial; uncertain	Uncertain
<b>Balance benefits to harms</b>	Uncertain	Uncertain
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	Important uncertainty or variability; possibly important uncertainty or variability	Important uncertainty or variability; possibly important uncertainty or variability
<b>Resource considerations</b>	Moderate; large; varies	Moderate; large; varies
<b>Equity and human rights</b>	Possibly reduced; no impact; uncertain; varies	Possibly reduced; no impact; uncertain; varies
<b>Acceptability</b>	Probably yes; probably no; varies	Probably yes; probably no; varies
<b>Feasibility</b>	Varies	Varies

**Table C12:** Summary of judgements for cognitive therapy (intervention C.3).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Trivial; uncertain	Uncertain
<b>Harms</b>	Trivial; uncertain	Trivial; uncertain
<b>Balance benefits to harms</b>	Uncertain	Uncertain
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	Important uncertainty or variability; possibly important uncertainty or variability	Important uncertainty or variability; possibly important uncertainty or variability
<b>Resource considerations</b>	Moderate; large; varies	Moderate; large; varies
<b>Equity and human rights</b>	Possibly reduced; no impact; uncertain; varies	Possibly reduced; no impact; uncertain; varies
<b>Acceptability</b>	Probably yes; probably no; varies	Probably yes; probably no; varies
<b>Feasibility</b>	Varies	Varies

**Table C13:** Summary of judgements for cognitive behavioural therapy ([intervention C.4](#)).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; trivial; uncertain	Small; trivial; uncertain
<b>Harms</b>	Trivial; uncertain	Trivial; uncertain
<b>Balance benefits to harms</b>	Probably favours cognitive behavioural therapy; uncertain	Probably favours cognitive behavioural therapy; uncertain
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	Important uncertainty or variability; possibly important uncertainty or variability	Important uncertainty or variability; possibly important uncertainty or variability
<b>Resource considerations</b>	Moderate; large; varies	Moderate; large; varies
<b>Equity and human rights</b>	Possibly reduced; no impact; uncertain; varies	Possibly reduced; no impact; uncertain; varies
<b>Acceptability</b>	Probably yes; probably no; varies	Probably yes; probably no; varies
<b>Feasibility</b>	Varies	Varies



**Table C14:** Summary of judgements for mindfulness-based stress reduction therapy (intervention C.5).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Uncertain	Uncertain
<b>Harms</b>	Trivial; uncertain	Trivial; uncertain
<b>Balance benefits to harms</b>	Uncertain	Uncertain
<b>Overall certainty</b>	Low; very low	Low; very low
<b>Values and preferences</b>	Important uncertainty or variability; possibly important uncertainty or variability	Important uncertainty or variability; possibly important uncertainty or variability
<b>Resource considerations</b>	Moderate; large; varies	Moderate; large; varies
<b>Equity and human rights</b>	Possibly reduced; no impact; uncertain; varies	Possibly reduced; no impact; uncertain; varies
<b>Acceptability</b>	Probably yes; probably no; varies	Probably yes; probably no; varies
<b>Feasibility</b>	Varies	Varies

**Table C15:** Summary of judgements for opioid analgesics (intervention D.1.1).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; moderate	Small; moderate
<b>Harms</b>	Small; moderate; large	Small; moderate; large
<b>Balance benefits to harms</b>	Probably favours opioid analgesics; probably does not favour opioid analgesics; does not favour opioid analgesics	Probably favours opioid analgesics; probably does not favour opioid analgesics; does not favour opioid analgesics
<b>Overall certainty</b>	Moderate	Moderate
<b>Values and preferences</b>	No important uncertainty or variability; varies	No important uncertainty or variability; varies
<b>Resource considerations</b>	Large costs; moderate costs; varies	Large costs; moderate costs; varies
<b>Equity and human rights</b>	No impact; probably reduced	No impact; probably reduced
<b>Acceptability</b>	Yes; probably no	Yes; probably no
<b>Feasibility</b>	Yes	Yes

**Table C16:** Summary of judgements for non-steroidal anti-inflammatory drugs (NSAIDs) (intervention D.1.2).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; moderate	Small; moderate
<b>Harms</b>	Small; moderate	Small; moderate
<b>Balance benefits to harms</b>	Favours NSAIDs; probably favours NSAIDs	Favours NSAIDs; probably favours NSAIDs
<b>Overall certainty</b>	Moderate	Moderate
<b>Values and preferences</b>	No important uncertainty or variability; varies	No important uncertainty or variability; varies
<b>Resource considerations</b>	Large costs; moderate costs; varies	Large costs; moderate costs; varies
<b>Equity and human rights</b>	No impact; probably reduced	No impact; probably reduced
<b>Acceptability</b>	Yes; probably no	Yes; probably no
<b>Feasibility</b>	Yes	Yes

**Table C17:** Summary of judgements for serotonin and noradrenaline reuptake inhibitor (SNRI) antidepressants (intervention D.1.3).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; trivial	Small; trivial
<b>Harms</b>	Small; moderate	Small; moderate
<b>Balance benefits to harms</b>	Probably favours SNRI antidepressants; probably does not favour SNRI antidepressants	Probably favours SNRI antidepressants; probably does not favour SNRI antidepressants
<b>Overall certainty</b>	Low	Low
<b>Values and preferences</b>	No important uncertainty or variability; varies	No important uncertainty or variability; varies
<b>Resource considerations</b>	Large costs; moderate costs; varies	Large costs; moderate costs; varies
<b>Equity and human rights</b>	No impact; probably reduced	No impact; probably reduced
<b>Acceptability</b>	Yes; probably no	Yes; probably no
<b>Feasibility</b>	Yes	Yes

**Table C18:** Summary of judgements for tricyclic antidepressants ([intervention D.1.4](#)).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Trivial; uncertain	Trivial; uncertain
<b>Harms</b>	Uncertain	Uncertain
<b>Balance benefits to harms</b>	Probably does not favour tricyclic antidepressants; does not favour tricyclic antidepressants	Probably does not favour tricyclic antidepressants; does not favour tricyclic antidepressants
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	No important uncertainty or variability; varies	No important uncertainty or variability; varies
<b>Resource considerations</b>	Large costs; moderate costs; varies	Large costs; moderate costs; varies
<b>Equity and human rights</b>	No impact; probably reduced	No impact; probably reduced
<b>Acceptability</b>	Yes; probably no	Yes; probably no
<b>Feasibility</b>	Yes	Yes

**Table C19:** Summary of judgements for anticonvulsants ([intervention D.1.5](#)).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Trivial; uncertain; small	Trivial; uncertain
<b>Harms</b>	Uncertain; moderate	Uncertain; moderate
<b>Balance benefits to harms</b>	Does not favour anticonvulsants	Does not favour anticonvulsants
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	No important uncertainty or variability; varies	No important uncertainty or variability; varies
<b>Resource considerations</b>	Large costs; moderate costs; varies	Large costs; moderate costs; varies
<b>Equity and human rights</b>	No impact; probably reduced	No impact; probably reduced
<b>Acceptability</b>	Yes; probably no	Yes; probably no
<b>Feasibility</b>	Yes	Yes



**Table C20:** Summary of judgements for skeletal muscle relaxants ([intervention D.1.6](#)).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; trivial; uncertain	Small; trivial; uncertain
<b>Harms</b>	Uncertain	Uncertain
<b>Balance benefits to harms</b>	Uncertain	Uncertain
<b>Overall certainty</b>	Low; very low	Low; very low
<b>Values and preferences</b>	No important uncertainty or variability; varies	No important uncertainty or variability; varies
<b>Resource considerations</b>	Large costs; moderate costs; varies	Large costs; moderate costs; varies
<b>Equity and human rights</b>	No impact; probably reduced	No impact; probably reduced
<b>Acceptability</b>	Yes; probably no	Yes; probably no
<b>Feasibility</b>	Yes	Yes

**Table C21:** Summary of judgements for glucocorticoids (intervention D.1.7).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Uncertain	Uncertain
<b>Harms</b>	Uncertain	Uncertain
<b>Balance benefits to harms</b>	Does not favour glucocorticoids; uncertain	Does not favour glucocorticoids; uncertain
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	No important uncertainty or variability; varies	No important uncertainty or variability; varies
<b>Resource considerations</b>	Large costs; moderate costs; varies	Large costs; moderate costs; varies
<b>Equity and human rights</b>	No impact; probably reduced	No impact; probably reduced
<b>Acceptability</b>	Yes; probably no	Yes; probably no
<b>Feasibility</b>	Yes	Yes

**Table C22:** Summary of judgements for injectable local anaesthetics (intervention D.3).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Trivial; uncertain	Trivial; uncertain
<b>Harms</b>	Trivial; uncertain	Trivial; uncertain
<b>Balance benefits to harms</b>	Probably does not favour injectable local anaesthetics; uncertain	Probably does not favour injectable local anaesthetics; uncertain
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	Important uncertainty or variability; possibly important uncertainty or variability	Important uncertainty or variability; possibly important uncertainty or variability
<b>Resource considerations</b>	Large costs; moderate costs; varies	Large costs; moderate costs; varies
<b>Equity and human rights</b>	Probably reduced; reduced; no impact; uncertain; varies	Probably reduced; reduced; no impact; uncertain; varies
<b>Acceptability</b>	Probably yes; probably no; uncertain; varies	Probably yes; probably no; uncertain; varies
<b>Feasibility</b>	Yes; probably yes	Yes; probably yes

**Table C23:** Summary of judgements for topical Cayenne pepper [*Capsicum frutescens*] (intervention D.4.1).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Moderate; small; uncertain	Moderate; small; uncertain
<b>Harms</b>	Moderate; small; uncertain	Moderate; small; uncertain
<b>Balance benefits to harms</b>	Probably favours topical Cayenne pepper; probably does not favour topical Cayenne pepper; neutral; uncertain	Probably favours topical Cayenne pepper; probably does not favour topical Cayenne pepper; neutral; uncertain
<b>Overall certainty</b>	Low	Low
<b>Values and preferences</b>	Possibly important uncertainty or variability; probably no important uncertainty or variability	Possibly important uncertainty or variability; probably no important uncertainty or variability
<b>Resource considerations</b>	Moderate costs; varies	Moderate costs; varies
<b>Equity and human rights</b>	No impact; uncertain; varies	No impact; uncertain; varies
<b>Acceptability</b>	Yes; varies	Yes; varies
<b>Feasibility</b>	Yes; probably yes; varies	Yes; probably yes; varies

**Table C24:** Summary of judgements for Devil's claw [*Harpagophytum procumbens*] (intervention D.4.2).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Small; trivial; uncertain	Small; trivial; uncertain
<b>Harms</b>	Uncertain	Uncertain
<b>Balance benefits to harms</b>	Probably does not favour Devil's claw; uncertain	Probably does not favour Devil's claw; uncertain
<b>Overall certainty</b>	Low; very low	Low; very low
<b>Values and preferences</b>	Possibly important uncertainty or variability; probably no important uncertainty or variability	Possibly important uncertainty or variability; probably no important uncertainty or variability
<b>Resource considerations</b>	Moderate; varies	Moderate; varies
<b>Equity and human rights</b>	No impact; uncertain; varies	No impact; uncertain; varies
<b>Acceptability</b>	Yes; varies	Yes; varies
<b>Feasibility</b>	Yes; probably yes; varies	Yes; probably yes; varies



**Table C25:** Summary of judgements for white willow [*Salix spp.*] (intervention D.4.3).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Uncertain	Uncertain
<b>Harms</b>	Uncertain	Uncertain
<b>Balance benefits to harms</b>	Uncertain	Uncertain
<b>Overall certainty</b>	Low; very low	Low; very low
<b>Values and preferences</b>	Possibly important uncertainty or variability; probably no important uncertainty or variability	Possibly important uncertainty or variability; probably no important uncertainty or variability
<b>Resource considerations</b>	Moderate; varies	Moderate; varies
<b>Equity and human rights</b>	No impact; uncertain; varies	No impact; uncertain; varies
<b>Acceptability</b>	Yes; varies	Yes; varies
<b>Feasibility</b>	Yes; probably yes; varies	Yes; probably yes; varies



**Table C26:** Summary of judgements for pharmacological weight loss (intervention E.1.1).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Uncertain	Uncertain
<b>Harms</b>	Uncertain	Uncertain
<b>Balance benefits to harms</b>	Uncertain; probably does not favour pharmacological weight loss	Uncertain; probably does not favour pharmacological weight loss
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	Probably important uncertainty or variability	Probably important uncertainty or variability
<b>Resource considerations</b>	Moderate costs; varies (according to country and health system)	Moderate costs; varies (according to country and health system)
<b>Equity and human rights</b>	Possibly increased; uncertain; possibly reduced (especially related to stigma)	Possibly increased; uncertain; possibly reduced (especially related to stigma)
<b>Acceptability</b>	Yes, probably yes (among health workers); uncertain for people with CPLBP	Yes, probably yes (among health workers); uncertain for people with CPLBP
<b>Feasibility</b>	Probably yes, probably no, uncertain, varies	Probably yes, probably no, uncertain, varies

**Table C27:** Summary of judgements for non-pharmacological weight loss ([intervention E.1.2](#)).

<b>EtD domain</b>	<b>All adults</b>	<b>Older people</b>
<b>Benefits</b>	Uncertain	Uncertain
<b>Harms</b>	Uncertain	Uncertain
<b>Balance benefits to harms</b>	Uncertain	Uncertain
<b>Overall certainty</b>	Very low	Very low
<b>Values and preferences</b>	Probably important uncertainty or variability	Probably important uncertainty or variability
<b>Resource considerations</b>	Moderate costs; varies (according to country and health system)	Moderate costs; varies (according to country and health system)
<b>Equity and human rights</b>	Possibly increased; uncertain; possibly reduced (especially related to stigma)	Possibly increased; uncertain; possibly reduced (especially related to stigma)
<b>Acceptability</b>	Yes, probably yes (among health workers); uncertain for people with CPLBP	Yes, probably yes (among health workers); uncertain for people with CPLBP
<b>Feasibility</b>	Probably yes, probably no, uncertain, varies	Probably yes, probably no, uncertain, varies

**Table C28:** Summary of judgements for multicomponent biopsychosocial care (intervention E.2).

EtD domain	Care delivered by a single provider		Care delivered by a multi-disciplinary team (MDT)	
	All adults	Older people	All adults	Older people
<b>Benefits</b>	Small; uncertain	Small; uncertain	Moderate; small; uncertain	Small; uncertain
<b>Harms</b>	Uncertain	Uncertain	Uncertain	Uncertain
<b>Balance benefits to harms</b>	Probably favours multicomponent biopsychosocial care (single provider); uncertain	Probably favours multicomponent biopsychosocial care (single provider); uncertain	Probably favours multicomponent biopsychosocial care (MDT* provider); uncertain	Probably favours multicomponent biopsychosocial care (MDT provider); uncertain
<b>Overall certainty</b>	Very low	Very low	Low; very low	Low; very low
<b>Values and preferences</b>	Important uncertainty; possibly important uncertainty or variability; probably no important uncertainty	Important uncertainty; possibly important uncertainty or variability; probably no important uncertainty	Important uncertainty; possibly important uncertainty or variability; probably no important uncertainty	Important uncertainty; possibly important uncertainty or variability; probably no important uncertainty
<b>Resource considerations</b>	Large costs; moderate costs; varies	Large costs; moderate costs; varies	Large costs; moderate costs; varies	Large costs; moderate costs; varies
<b>Equity and human rights</b>	Increased; probably increased; probably reduced; reduced; varies	Increased; probably increased; probably reduced; reduced; varies	Increased; probably increased; probably reduced; reduced; varies	Increased, probably increased; probably reduced; reduced; varies
<b>Acceptability</b>	Yes; probably yes; varies	Yes; probably yes; varies	Yes; probably yes; varies	Yes; probably yes; varies
<b>Feasibility</b>	Yes; probably yes; probably no; varies	Yes; probably yes; probably no; varies	Yes; probably yes; probably no; varies	Yes; probably yes; probably no; varies

\* MDT = multidisciplinary team



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