

**Low back pain
a call for action**

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Viewpoint

Low back pain: A call for action

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***Manuscript**

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for *The Lancet* Low Back Pain Series Working Group*

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Key messages

1. Use the concept of 'positive health' for non-specific low back pain - the ability to adapt and to self-manage, in the face of social, physical and emotional challenges.
2. Avoid harmful and useless treatments by adopting a similar framework to drug regulation - only include them in public reimbursement packages if proven safe, effective and cost-effective.
3. Address widespread population and health professional misconceptions about the causes and prognosis of low back pain and the effectiveness of different treatments, and fragmented and outdated models of care.
4. Policy, public health, health care practice, social services and workplaces must jointly tackle the 'low back pain paradox' in low- and middle-income countries where improving social and economic conditions could prevent or reduce low back pain incidence, but at the same time create expectations and demands for medical investigations and low-value health care that increase the risk of long-term backrelated disability.

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Low back pain is the leading worldwide cause of years lost to disability and its burden is growing in tandem with the increasing and ageing population.¹ As these population shifts are more rapid in low- and middle- income countries, where adequate resources to address the problem may not exist, the impacts will likely be more extreme in these regions. Most low back pain is unrelated to specific identifiable spinal pathology, and our Viewpoint, the third paper in this *Lancet* series,^{2,3} is a call for action on this global problem of non-specific low back pain.

The challenges

Panel 1 summarises the most pressing political, public health and health care challenges and identifies actions to meet them. Preventing the onset and persistence of disability associated with low back pain requires recognition that the disability is inseparable from the social and economic context of people's lives and is entwined with personal and cultural beliefs about back pain.⁴ Health and workplace policies and disability payment systems are often ineffective and wasteful and represent key targets for improvements.

Socioeconomically disadvantaged people are overrepresented among those with disabling low back pain.⁵ In many settings they will be further disadvantaged by restricted access to accurate information sources, health care approaches that provide appropriate support for self-management of uncomplicated low back pain, and to more specialised effective interventions, such as multidisciplinary rehabilitation, for more complex persistent low back pain.

While independent associations are uncertain, public health programmes that tackle lifestyle issues of obesity and low levels of physical activity may provide a model and

5 structure for reducing the impact of low back pain on daily life.⁶ Implementation of these programmes are especially pressing in some low- and middle-income countries where increasing obesity rates and rapid industrial growth and consequent reductions in physical activity are occurring in urban areas. Health system and societal initiatives addressing low back pain should synergise with the WHO European Region Action plan for the prevention and control of non-communicable diseases which recognises the need for comprehensive promotion of musculoskeletal health. As low back pain disability affects employability in many informal sectors, multi-sectorial integration between health, labour and social services should also be a key goal.

Disabling low back pain is partly iatrogenic. Studies in low-income countries and indigenous and acculturated populations in high-income countries report harmful consequences from exposure to health care *per se*.⁷⁻⁹ Such negative effects reflect changes from traditional views (low back pain is a relatively benign part of daily life), to low back pain being a problem requiring medical attention. Increased use of ineffective and potentially harmful treatments has wasted limited health care resources and caused harm. The current epidemic of addiction and rising mortality resulting from increased opioid prescribing in the U.S. over the past 20 years provides a dramatic example of the disastrous effects of harmful medical intervention.¹⁰ In low- and middle-income countries, epidemiological evidence suggests that improving social and economic conditions could prevent or reduce low back pain incidence, but at the same time create expectations and demands for medical investigations and low-value health care that paradoxically increase the risk of long-term back-related disability (the 'low back pain paradox').

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The global challenge is to prevent the introduction and use of practices that are harmful or wasteful while at the same time ensuring equitable access to effective and affordable health care for those who need it. High rates of advice to rest and use of ineffective treatment modalities are already a reality in low- and middle-income countries. While overmedicalisation disproportionately affects the wealthy minority, it also threatens to reduce or obscure availability of high-value health care services for the poorer majority and further widen health and social disparities. Contextual factors, such as lack of suitable available work duties, may also mean that what would be considered appropriate in high-income countries, such as encouragement to remain or return early to work for people with low back pain, may not always be appropriate (or even an option) in less affluent countries. Protection of the public from unproven or harmful approaches to managing low back pain

requires that governments and health care leaders tackle entrenched and counterproductive reimbursement strategies, vested interests and financial and professional incentives that maintain the status quo. Funders should only pay for high-value care, stop paying for ineffective or harmful tests and treatments, and commission research on those that are unproven. Similar to strict drug regulations in many countries, new tests and non-drug treatments should only be available in trials until their status is established. Some countries are testing these approaches. In Australia, a clinician-led taskforce is reviewing all government-subsidised tests and procedures with the aim of removing funding for those that are unnecessary, outdated or potentially unsafe. In the Netherlands, unproven interventions are conditionally included in the public health insurance package only if there is an evaluation to inform a final decision. Stakeholders, including patients,

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agree in advance to design and eligibility criteria for the evaluation. This framework has already assessed radiofrequency denervation for patients with chronic low back pain.¹¹ As this treatment was not found to provide significant added benefit over a standardised exercise program alone, it is no longer being reimbursed.

A new approach to low back pain

The biopsychosocial model of low back pain has brought significant advances in understanding the prognostic significance of psychosocial factors in individual patients. It has had less success shifting practitioners away from managing patients within a biomedical framework. The importance of behavioural approaches to back pain management does not obscure the continuing need to investigate mechanisms and potential biological determinants of non-specific low back pain in phenotypically distinct subgroups. However, to move the field forward we propose adoption of the 'positive health' concept as the overarching strategic approach to the prevention of long-term disability from low back pain.¹² Positive health, as proposed by Huber et al, is 'the ability to adapt and to selfmanage, in the face of social, physical and emotional challenges'. This term encompasses a much broader concept of health than simply 'absence of disease' and its emphasis on medicalisation and cure.

There is evidence that population levels of long-term disabling low back pain could be reduced by adopting this positive health approach.^{13,14} For health professionals, positive health focuses on alternatives to 'treatment' and 'cure' that promote high-quality, meaningful lives for people with persistent low back pain. Public and patient expectations

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will need to change, with people not expecting a diagnosis or complete cure for their low back pain. This requires initiatives to change widespread and inaccurate beliefs about back pain,¹³ helping the next generation to avoid counterproductive patterns of illness behaviour. For people with persistent low back pain, positive health entails learning how to cope with a long-term health problem through self-management activities, seeking health care only when needed. While passive approaches such as rest and medication are linked with worsening disability, active strategies such as exercise are associated with lower levels of disability and less reliance on formal health care. There are numerous behavioural and cognitive strategies that people with chronic pain in the community use, regardless of whether or not they seek care.¹⁵ In the occupational setting, interventions focusing on positive health, including peer support for the notion that low back pain is not an 'injury' in need of medical treatment,¹⁶ and redirecting problem-solving efforts away from seeking cures towards improved adaptation to the pain, yield beneficial outcomes.¹⁷

Improved training and support of primary care doctors and other professionals engaged in activity and lifestyle facilitation (e.g. physiotherapists, chiropractors, nurses, community workers) could minimise use of unnecessary medical care. System changes that integrate and support health professionals from diverse disciplines and care settings to provide patients with consistent messages about mechanisms, causes, prognosis and natural history of low back pain as well as the benefits of physical activity and exercise, are crucial to changing behavior and improving delivery of effective care. Traditional healers where integrated into the health care system, community health workers and family remain important providers of lower cost basic education and/or care in many low-income

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countries for the majority of people with low back pain who do not require medical attention.¹⁸ In rural and remote regions ‘tele-rehabilitation’ blended with self-management may be an option where internet access is available.

What should be known about low back pain?

The success of a positive health approach will depend on whether relevant stakeholders share the same mission, vision and objectives and the success of strategies for knowledge transfer and exchange. Panels 2 and 3 list information that well-informed consumers, patients, clinicians and policy makers should know about low back pain and its global burden.

Policy-makers in all countries should look to local stakeholders to help decide what is best and appropriate for their individual setting. As in other fields of development, low- and middle-income countries should ensure that investment in musculoskeletal services is effective for patients and does not harm local health systems.¹⁹ Local participation and ownership, integration with existing priorities and policies, and coordination with national and regional systems and processes are crucial.

The research and evidence challenge

Funding for low back pain research is limited and uncoordinated. This particularly affects low- and middle-income countries where the effects of disabling low back pain remain under-recognised and research priorities and funding remain focused on infectious diseases. One way forward would be a global network of low back pain researchers from developed and developing countries, pooling experience and knowledge and building research capacity

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where it is needed. Reducing research waste is a priority, achievable by ensuring that research studies focus on the most important stakeholder questions, are large and rigorous enough to provide definitive answers, have the potential to significantly improve outcomes, and test interventions that can be quickly and widely implemented into practice.

Panel 4 lists major research priorities. These align with priorities previously identified by the international low back pain primary care research community.²⁰ Implementation research to determine how best to put existing knowledge and evidence to use through changes in patient and clinician behaviour and health system design is necessary in all countries. For low- and middle-income countries, priorities include identifying interventions that are optimal given the social, political, cultural and health resource context. While current evidence-based guidelines may be well suited for high-income countries and highly developed health care systems, they may need adaptation to assure feasibility and cultural appropriateness for low resource settings.

Monitoring and surveillance

An active ongoing monitoring and surveillance system is vital to evaluate the effects of new strategies on outcomes such as disability, ability to work and social participation. There is a pressing need for surveys and health care databases in different countries that use common metrics for measuring low back pain burden, use of active self-management strategies such as exercise, tests and treatments, and outcomes and costs of care. Panel 5 shows an indicator set for surveillance and monitoring. Uniform data collection would encourage benchmarking of health services within and across countries. Standardised low back pain definitions for prevalence studies have already been developed and incorporated into the

Comment [RB1]: check

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Global Alliance for Musculoskeletal Health Surveillance Taskforce survey module for musculoskeletal conditions.

Conclusion

Action is needed to address the growing burden of low back pain on many millions of people worldwide. Future social change, including ageing, urbanisation, sedentary lifestyles, and the development and promotion of new technologies, will likely exacerbate this problem. Examples of new technologies that may exacerbate the problem include the use and promotion of increasingly sensitive imaging techniques such as MRI that reveal ‘abnormalities’ that may be incorrectly inferred to be the cause of a patient’s symptoms. Better recognition of the growing burden of low back pain is crucial to stimulate new, more effective strategies of prevention and care. The impact of disabling low back pain can be

reduced through social change that supports full participation in daily life. In low- to middleincome countries, the 'paradox of low back pain' needs to be addressed. Other barriers to optimal evidence-based management range from widespread population and health professional misconceptions about the causes and prognosis of low back pain and the effectiveness of different treatments, fragmented and outdated models of care, and the widespread use of ineffective and harmful care, particularly in countries considered to be models of high quality care.

We have described actions all countries can take to reduce the impact of disabling low back pain on their populations. Strong and coordinated political action from international and national policy makers, including the World Health Organisation and research funding

12 agencies is needed. Such action could significantly reduce disability and suffering and improve the effectiveness and efficiency of care for people with low back pain throughout the world.

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Contributors

RB and MvT were part of the team that developed the original proposal for the series and RB co-ordinated the development and amendment of the paper. RB, MvT, BO, LC, AW, MS and PC all contributed to drafting and writing of this paper, and have edited it for key content. RB, LC and PC drafted and analysed the survey of the Lancet Low Back Pain Series Working Group that populated the draft version of the panels in this paper. RB, MvT, BO, LC, AW, PC participated in the authors' meeting and discussion during the drafting process. All other authors have read and provided substantive intellectual comments to the draft and approved the final version of the paper.

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Declarations of Interest

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(Dutch Social Security Agency, Institute GAK) and charities linked to professional body membership (Dutch Foundation of Occupational Medicine). Prof Anema and his research team received a grant from Pfizer to write a report on depression and anxiety disorders based on a secondary analysis of data collected with funding from government research agencies. His travel expenses have been covered when he has been an invited speaker at conferences and he has received honoraria for talks and reviewing grants. Prof Anema was an invited co-opted member of the guideline development group for the Dutch Occupational Medicine guideline for low back pain and the Dutch national Insurance Medicine protocol for lumbosacral syndrome. He is President of the Work Disability Prevention and Integration Committee of the International Commission on Occupational Health (ICOH). He has published multiple papers on low back pain, some of which may be referenced in the series. He is editor of the International Handbook of Work Disability which is referenced in the series. Prof Anema is stockholder and senior consultant of Evalua Netherlands Ltd. His chair in Insurance Medicine is paid by the Dutch Social Security Agency. Rachele Buchbinder is chief investigator or associate investigator on multiple previous and current research grants from government research agencies from Australia (eg, NHMRC, ARC), and overseas (eg, ZonMW in the Netherlands and PCORI in the USA). Her research has also received funding from philanthropy (eg, Arthritis Australia) and government agencies (eg, NSW WorkCover). She has been funded by research fellowships from NHMRC since

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Dan Cherkin is chief investigator, or co-investigator on multiple previous and current research grants from government-related research agencies in the USA (eg, NIH and PCORI). His travel expenses have been covered when he has been an invited speaker at conferences and he has received honoraria for talks, reviewing grants and theses (no honoraria or travel expenses from pharmaceutical or device companies). Dr. Cherkin has published multiple papers on low back pain some of which may be referenced in the series.

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Stephen P. Cohen is Principal Investigator for multiple clinical trials evaluating interventions for low back pain funded by the U.S. Department of Defense (Congressionally Mandated Research Programs). He serves on the Advisory Boards of a company that make radiofrequency equipment (Halyard) and another one working with the U.S. Food and Drug Administration (FDA) to design a steroid approved for epidural injection (Semnur). He was the lead speaker on the effectiveness of epidural steroid injections at the FDA-convened panel on the procedure following the fungal meningitis outbreak. He serves on several
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National Institutes of Health task forces, including one for pain education and another for research priorities for chronic pain. He is a member of the American Society of Regional Anesthesia and Pain Medicine (ASRA) Board of Directors. He was a “stakeholder” for ASRA and the Dept. of Defense for the recent U.S. Drug Enforcement guidelines on opioids for chronic pain. He has published numerous studies on low back pain, some of which are referenced in this series.

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Manuela Ferreira holds a Sydney Medical Foundation Fellowship/Sydney Medical School and is chief investigator, or co-investigator on multiple previous and current research grants from government research agencies in Australia (NHMRC) and Brazil (eg, CAPES/CNPQ), philanthropy (eg, Arthritis Australia), industry (eg, Medibank Research Fund) and institutional research funds (eg, International Research and Research Training Fund/The University of Melbourne). Her travel expenses have been covered when she has been invited speaker at conferences and she has received honoraria for talks, reviewing grants and theses. She has published multiple papers on low back pain some of which may be cited in this series.

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Mark Schoene receives the majority of his funding from the publishing company Wolters Kluwer for writing/editing an international newsletter on spine/back pain research (*The BackLetter*). He authors all the articles and shares editorial control with the executive editor (a researcher, academic spine surgeon, and Chairman, Dept of Orthopaedics at Georgetown University Medical Center). Neither has any conflicts of interest with drug or device companies. MS has co-authored several editorials for journals owned by publishers (*The Spine Journal*, *Spine*—owned respectively by Elsevier and Wolters Kluwer). The editorials concerned the inadequacy of the evidence base for regulated surgical devices or drugs/biologics. He received nothing of value for those editorials. The remainder of his funding comes from the non-profit Sports Health and Safety Institute at the University of Washington for research, writing, and editing in the concussion area. He was previously a paid consultant for the non-profit Informed Medical Decisions Foundation in Boston, involved in the preparation of Decision Aids and Shared Decision Making materials. He occasionally receives travel funding from professional societies to take part in symposia sponsored by those societies. MS has been an unpaid editorial board member and Consumer Representative at the Cochrane Collaboration Back and Neck Group since 1999.

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Panel 1: Call for actions for meeting the political, public health, health care and research challenges to preventing disabling low back pain

Actions to meet the political challenge of a lack of recognition of the impact and burden of back pain by international and national policy makers

- Call on the World Health Organisation to put disabling low back pain on the target list for all nations and increase attention on

(i) the burden it causes (ii) the need to avoid excessively medical solutions and (iii) the need to integrate low back pain into all chronic disease initiatives

- Call on international and national political, medical and social policy leaders to adequately fund public health strategies

focused on preventing low back pain from interfering with life, ensuring inclusion of disadvantaged and culturally diverse populations

- Call on national and international funding agencies to make low back pain research a global health priority in recognition of its

impact on people's lives in low-, middle-, and high-income countries

Actions to meet the public health challenge of preventing the onset and persistence of the disability associated with low back

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pain

- Change the priorities:

- Prioritise low back pain, together with other musculoskeletal conditions, as a public health problem
- Develop and implement positive strategies for primary prevention of disabling low back pain that are integrated with

strategies for preventing other chronic conditions (physical activity, maintenance of healthy weight, mental health)

- Develop and implement strategies to address modifiable risk factors for disabling low back pain at all levels (society,

workplace, health professionals, individuals)

- Change systems and change practice

- Integrate back pain care with public health initiatives providing credible advice that people who develop low back pain

should stay active and remain working and people with low back pain should be supported in early return to work

- Develop and implement strategies to ensure early identification and adequate education of low back pain patients at

risk for persistence and disability

- Promote a healthy lifestyle and address common comorbidities, in patients with persistent low back pain.

Tackle social

determinants of disability. Incentivise work through change and adaptation of the workplace and the job, and change

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worker disability policies which do not improve/promote/support return to work

- Consider provision of financial incentives to resume appropriate work without risk of loss of benefits for people who

are off work due to low back pain

- Promote active multidisciplinary rehabilitation to support return-to-work

Actions to meet the health care challenge of continued emphasis on a biomedical and fragmented model of care

- Change culture

- Develop interventions to address misconceptions about low back pain among health professionals, patients, the media

and the general public

- Promote 'living well' with low back pain: person-centred care focusing on self-management and healthy lifestyles as a

means of restoring and maintaining function and optimising participation

- Investigate the effectiveness and place of traditional practices for reducing low back pain disability in low- and middle-income

countries

- Change clinician behaviour

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- Invest in implementation research to address evidence-practice gaps across all relevant health care providers

- Identify and implement effective behaviour change and training interventions to improve and integrate care

- Deliver a workforce fit-for-purpose which includes targeted training of health care professionals and others with the

right competencies and resolve to deliver evidence-based care

- Build consensus across clinical disciplines, patient groups and journal editors for shared guidelines of care that are

straightforward and non-denominational

- Change systems

- Develop clear care pathways, referral, funding and information technology systems to enable people to see the right

person for delivery of the right treatment at the right time, while precluding use of alternative inappropriate pathways

- Develop consistent evidence-based clinical care standards and key indicators integrated across healthcare systems and

settings

- Develop and implement cost-effective strategies that provide access to effective care in low- and middle-income

countries for all

- Tackle vested interests

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- Government, insurers and commissioners should consider tackling conflicts of interest through regulation and

contracts, including not paying for inappropriate tests and for unnecessary, ineffective and harmful treatments

- Existing and new tests and procedures for low back pain should be regulated in the same way as drugs; there should

be evidence that they are safe, effective and cost-effective before they get reimbursed within public health care

systems

- Introduce incentives for effective and efficient care and disincentives for continued use of ineffective and potentially

harmful approaches

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Panel 2: What should well-informed consumers, patients and clinicians know about low back pain?

- Bed rest can delay recovery from back pain

- Early return to normal activity and work speeds recovery

- Pain does not always equal injury, especially long-term pain

- It isn't necessary to be pain-free to have a healthy, productive life; usually it is best to

continue or resume activity before the pain is gone

- For those who find it difficult to resume activity, there are people and programmes of care in health centres and workplaces to help
- Only a small number of people will have an identifiable cause for their back pain that calls for use of a specific treatment
- Many people should be encouraged to self-manage—and avoid unnecessary engagement with health care, including diagnosis and treatment
- Because the experience of pain has effects on both body and mind, treatments targeted at both have greater potential for reducing pain and disability than medical care alone

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Panel 3: What should well-informed policy-makers know about low back pain?

- Back pain and related disability are exorbitantly expensive problems that are difficult to solve; they haven't received adequate attention from policy makers
- Governments can play a key role in resolving some aspects of low back pain related problems by altering policies that incentivise work absence, inactivity and work disability, and that support ineffective care
- Ineffective, low-value care should be eliminated
- Increased investment in implementation research could uncover why evidence is not being taken up in practice and identify and test strategies to ensure rapid uptake of evidence into clinical care
- Investment in promoting a healthy lifestyle will reduce low back pain disability and costs
- Research that leads to improved management and prevention of low back pain across low-, middle- and high-income countries is an urgent priority
- To identify optimal approaches for the majority of the world's population, there is a need to test suitably considered strategies for the local context in low- and middleincome societies

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Panel 4: Major evidence gaps about low back pain and how to address them

Evidence gap Addressing the gap

Population burden

- Low back pain in older age groups
- Low back pain in low- and middle-income countries
- Population surveys and registries
- Combine datasets for new knowledge without additional cost
- Develop informed perspective on low back pain impact in low and middle income countries

Population monitoring

- Lack of standard low back pain definition
- Lack of universal patientrelevant outcome measures in
- Agree on and apply a standard definition and new 'back health' measure for inclusion in national surveys and health care databases that can be compared across countries.
- Develop indicators and population surveillance to monitor impact of population strategies

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routine health care

- Health care use (e.g. opioids, imaging)
- Occupational data

Identification of effective and cost-effective treatments for low back pain

- Mechanisms and phenotypes of persistent disabling low back

pain to drive new interventions

- Paucity of highly effective and cost-effective interventions for low back pain
- Lack of trials of complex interventions and including complex and older patients
- Commission research on these topics
 - Pathophysiology and prognosis of different low back pain phenotypes including trajectories of low back pain from childhood through the life course
 - Mechanisms of persistent low back pain
 - Development of theories to guide research integrating pain mechanisms, patient perceptions and behaviours, and social determinants of persistent low back pain
- Realignment of the research agenda to restrict and focus research funding to 40
- Need for new technologies to deliver interventions and to collect patient data important questions that will change practice and/or improve patient-relevant outcomes
- Align and combine research questions, priorities and funding, with other health conditions to avoid duplication, increase efficiency, and improve the low back pain share of research funding; fund more innovations that exist entirely outside of health care
- Investigate innovative approaches that combine primary care with occupational rehabilitation and multidisciplinary interventions, such as placing musculoskeletal therapists as the gatekeepers for all care of low back pain patients and providing systems-level support to ensure safe and successful implementation
- Improve the evidence base for individualised and stratified care for people with low back pain
- Develop or improve the evidence base for effective prevention of low back pain
- Develop the evidence base for effective management of low back pain in older 41

adults and children

Implementation of evidence into practice

- Paucity of knowledge about how best to improve the uptake of low back pain evidence into practice
- Realignment of the research agenda to restrict and focus research funding to investigate better strategies for implementing what is already known into practice
- Fund evidence syntheses and policy research
- Develop or improve the evidence base for effective prevention of low back pain, dysfunction of prolonged disability due to low back pain, and seeking of ineffective care
- Develop the evidence base for effective management of low back pain outside of health care

Identification of effective and cost-effective population-based strategies to reduce low back pain burden

- Gap in research on how to shift • Develop and test strategies designed to address popular misconceptions about low

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cultural beliefs about common low back pain

- Lack of integrated research programme into prevention of long-term disabling conditions
- Lack of trials investigating population-level social and psychological interventions to prevent disability
- How to avoid mistakes of high-income countries in low- and middle-income countries back pain
- Realign the research agenda to focus research funding on important questions that will tackle the rising prevalence and burden of disabling low back pain
- Develop or improve the evidence base for low back pain population-based social strategies to reduce disability
- Develop or improve the evidence base for promotion of wellbeing despite chronic low back pain
- Determine an agenda for research as a priority in low and middle income countries
- Foster links between low-, middle- and high-income countries among policy-makers and researchers to allow all countries to benefit from the successes and failures of attempts to tackle the burden of low back pain in different settings

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Panel 5: Indicators that could be used globally for surveillance and monitoring to determine whether or not this call to action is yielding positive results

- Number of people with disabling low back pain and their characteristics
- Number of people unable to do activities of daily living because of low back pain
- Number of people not working (whether paid or unpaid) because of chronic low back pain
- Number of people unable to participate in usual sport and leisure activities because of chronic low back pain
- Number and characteristics of people with low back pain who don't have any of the above problems
- Health care utilization among people with chronic low back pain
 - Number of people undergoing imaging for acute and persisting low back pain and the imaging that they receive
 - Number of people with chronic low back pain prescribed/taking opioid medication and the duration of use
 - Number of people undergoing spinal injections, the indications for these injections, and the injections that they receive
 - Number of people undergoing spinal surgery and other invasive interventions, the indications for these interventions, and the specific interventions that they receive
- Regular national surveys to determine whether there is a change in population knowledge and behaviour over time