



SPINE20
Recommendations to
the G20 Group

"Sustainable Spine Care for All"

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Executive Summary

Spine disorders remain a leading cause of disability worldwide, affecting over 620 million people and creating profound social and economic burdens. In response, SPINE20, a global alliance of 38 professional societies, presents its 2025 policy recommendations under the theme “Sustainable Spine Care for All”, aligned with the United Nations Sustainable Development Goals (SDGs 3, 8, 10, 17).

Main recommendation;

SPINE20 recommends G20 countries to implement sustainable evidence-based spine care models drawing on successful global programs considering particularly registries, incentivized health targets and public-private partnerships.

Focused on “Public health”;

SPINE20 recommends G20 countries to integrate spine health into public health and primary care health policies by addressing the prevention and management of both communicable and non-communicable diseases and strengthening public-private partnerships to achieve sustainable spine care.

Focused on “Occupational Health & Safety Policy”;

SPINE20 recommends that G20 countries implement evidence-informed, work-focused interventions that address employee and workplace factors early, to reduce work loss from spine disorders.

Focused on “Capacity Building”;

SPINE20 recommends that G20 countries prioritize building capacity in spinal cord injury care by adopting evidence-based models in low- and middle-income countries, in line with the WHO call to action.

Introduction

Spine disorders remain a leading cause of disability and reduced quality of life across the globe.¹⁻⁴ Despite remarkable advances in health sciences, musculoskeletal conditions—particularly low back and neck pain—continue to exert an immense burden on individuals, communities, and economies.⁵⁻⁷ Affecting over 620 million individuals globally, low back and neck pain are not only the leading causes of disability, but also significant contributors to labour market exclusion, rising healthcare expenditure, and long-term social welfare dependency.⁸⁻¹⁰ Despite their significant socioeconomic toll, spine disorders continue to be overlooked in national health policies and global development agendas. These effects are particularly pronounced in low- and middle-income countries, where access to effective spine care remains limited and unevenly distributed.^{11,12}

In response to these challenges, SPINE20 was launched in 2019 by four leading spine societies—EUROSPINE, the North American Spine Society, the German Spine Society, and the Saudi Spine Society. Since its inception, SPINE20 has grown into a global advocacy alliance, now representing 38 professional societies, across six continents (Table 1). SPINE20's mission is to provide evidence-informed policy recommendations to G20 nations, aiming to promote equitable, integrated, and sustainable spine care systems.¹³⁻¹⁷ Its advocacy aligns closely with the United Nations Sustainable Development Goals—especially SDG 3 (Good Health and Well-being), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities)—and are consistent with the World Health Organization's Rehabilitation 2030 agenda and the guidelines of the World Rehabilitation Alliance.^{18,19}

In 2025, SPINE20 convenes in South Africa, a nation of rich cultural diversity and resilience but also one facing significant public health and social equity challenges.²⁰ Spine-related disorders are a growing concern in South Africa, where disparities in access to rehabilitation, workforce reintegration, and preventive care mirror broader issues in healthcare delivery and social inclusion.^{20,21} The South African health system, like many others in the Global South, is striving to build stronger primary care networks and improve chronic disease management amid rising demands and limited resources.²²

This year's G20 summit, also hosted in South Africa, adopts the theme "Solidarity, Equality, Sustainability". In alignment with this, SPINE20 introduced the theme "**Sustainable Spine Care for All**" as its central concept of the recommendations. This theme underscores the urgent need for scalable, context-sensitive strategies that prioritize prevention, timely and accurate diagnosis, early intervention, and continuity of care—particularly in under-resourced settings. It also highlights the importance of cross-sectoral collaboration involving governments, health systems, academia, and civil society to ensure that no individual is left behind due to spinal disability.

SPINE20's 2025 recommendations reflect this dual focus, advancing both global solidarity and national resilience. By anchoring its proposals in both international frameworks such as the WHO Rehabilitation 2030 Initiative and SPINE20's own global policy framework, and the lived realities of the host country, SPINE20 delivers policy messages that are both globally relevant and locally actionable. These recommendations advocate universal access to spine care, investment in rehabilitation, workforce development, data-driven public health planning, and the promotion of research and education in spinal health.

As South Africa leads this year's G20 dialogue, SPINE20 urges all member states to recognize spinal health as a cornerstone of sustainable development and societal participation. Ensuring that all individuals—regardless of geography or income—can live and work free from preventable spinal disability is not just a healthcare imperative, but a moral and economic one. Through constructive, coordinated policy action we can build a future where sustainable spine care is truly accessible for all.

Method to make recommendations - 2024

Authors

SPINE20 'Scientific Task Force' members, from 26 international spine-related societies, coordinated and developed the recommendations. The task forces involved multidisciplinary panels including patient representatives, surgeons, rehabilitation clinicians, researchers, epidemiologists, primary care physicians, education professionals, and strategic health leaders.

Domains

The SPINE20 recommendations were built on specific domains selected by consensus. All domains were reviewed and updated by December 2024 and stratified into three groups by the SPINE20 program task forces (Environmental components, social components, economic components: Figure 1) to achieve SPINE20's main theme "*Sustainable spine care for all*".

Selection of Domains

We held an online real-time Delphi consensus meeting on January 29, 2025, to select one domain from each of the three components. Two facilitators (KT from Japan and SA from Saudi Arabia) facilitated the meeting, and 39 international, multidisciplinary experts from 28 spine societies participated in the meeting. Domains were selected using an online voting software (Microsoft Forms, Redmond, WA). A week prior to the Delphi consensus meeting, participants scored each domain (from 1 to 10) to provide an initial prioritization. In the Delphi consensus process, a maximum of four rounds of voting was allowed per group. Domains from any group that reach the 60% level of agreement within four rounds were adopted (Tables 3, 4).

The four domains making the final selections were: “Sustainability”. “Public Health”, “Occupational health and safety policy”, and “Capacity building”. “Sustainability” was designated as a central domain in recognition of the SPINE20 2025 summit theme and the urgent need for long-term, equitable solutions.

Development of recommendations

The development of the 2025 SPINE20 recommendations was led by domain-specific writing groups, each comprising three to four experts appointed by the SPINE20 Scientific Committee. The appointed writers were as follows:

- Sustainability: IV (South Africa), TB (Germany), KK (India)
- Public Health: RD (South Africa), CT (Brazil), CR (Italy)
- Occupational Health and Safety Policy: LR (UK), SA (Saudi Arabia), RY (Chile)
- Capacity Building: MC (United States), KK (Japan), BG (India), FT (South Africa)

Where appropriate, domain leads invited additional collaborators to contribute to the drafting process and provide specialized input and justification for the proposed recommendations. Each group developed preliminary outlines that were reviewed, discussed, and refined during fortnightly virtual meetings of the SPINE20 Scientific Task Force. All recommendations were formulated through a collaborative and iterative process, incorporating feedback from subject matter experts and key collaborators in each field to ensure that the final proposals are scientifically sound, contextually relevant, and policy actionable.

Publication of recommendations

The proposed recommendations and their underpinning rationale were reviewed by all partner societies before they were made available in the public domain. The recommendation statements and supporting rationales were published on the SPINE20 website (<https://spine20.net>) 14 days before the SPINE20 summit which took place on October 10-11, 2025, in Cape Town, South Africa.

Public comments were collected via the website and considered, as the recommendations were refined. These recommendations were then discussed at the SPINE20 Summit 2025, allowing participants to debate the recommendations and suggest further modifications. The recommendations were voted on at the SPINE20 summit, and only those that were approved were officially published as SPINE20 2025 Recommendations.

Recommendations

SPINE20 Recommendations to G20

Cape Town, 2025

SPINE20 recommends G20 countries to implement sustainable evidence-based spine care models drawing on successful global programs considering particularly registries, incentivized health targets and public-private partnerships.

SPINE20 recommends that G20 countries prioritize social inclusion by promoting equitable access to comprehensive spine care through collaborations with healthcare providers, policymakers, and community organizations.

SPINE20 recommends G20 countries to integrate spine health into public health and primary care health policies by addressing the prevention and management of both communicable and non-communicable diseases, and strengthening public-private partnerships to achieve sustainable spine care.

SPINE20 recommends that G20 countries prioritize building capacity in spinal cord injury care by adopting evidence-based models in low- and middle-income countries, in line with the WHO call to action.



Domain: Sustainability

Recommendation

SPINE20 recommends G20 countries to implement sustainable evidence-based spine care models drawing on successful global programs considering particularly registries, incentivized health targets and public-private partnerships.

Relevance to United Nations SDGs

Relevance to United Nations SDGs: 3) Good health and well-being; 8) Decent work and economic growth; 10) Reduced inequalities; 17) Partnerships for the Goals

Context to the focused topic:

Spine disorders are among the leading global causes of disability, with low back pain alone affecting over 620 million people and resulting in immense economic costs from absenteeism and healthcare expenditures.^{3,23} These challenges are particularly acute in countries like South Africa, where musculoskeletal disorders are rising due to ageing populations, urbanisation, and occupational risks in labour-intensive industries such as mining and agriculture.²⁴ Access to advanced spine care remains uneven, with rural provinces having inadequate rehabilitation facilities and a shortage of trained specialists.²⁵

The SPINE20 2025 initiative emphasizes the need for evidence-based and sustainable spine care systems that adapt global best practices to national realities.¹³⁻¹⁷ South Africa's ongoing efforts to strengthen primary healthcare and chronic disease management provide an opportunity to integrate spine health into broader public health strategies.²⁶ The focused domains of Public Health, Occupational Health and Safety Policy, and Capacity Building are essential pillars for achieving equitable and sustainable care models.

Problem

Spinal disorders are a leading cause of disability-adjusted life years (DALYs) in the world and also South Africa, leading to high levels of work absenteeism and welfare dependence.^{3,23} Mining, construction, and transport sectors face particularly high injury rates due to insufficient ergonomic measures.²⁷ Rehabilitation services are underdeveloped and often unaffordable, and care pathways remain fragmented between public and private providers.^{24,25} Key challenges to advancing spine health include the absence of national spine registries, which limits evidence-based policymaking and quality monitoring; economic barriers, where high out-of-pocket costs for rehabilitation and imaging deter timely access to care; and persistent workplace risks due to insufficient enforcement of occupational health standards, leading to elevated injury rates.²⁸⁻³⁰



Spine disorders are among the leading global causes of disability resulting in immense economic costs



Rehabilitation services are underdeveloped and often unaffordable, and care pathways remain fragmented between public and private providers



Furthermore, shortages in physiotherapists, occupational therapists, and other non-surgical care providers constrain service capacity. Low public awareness—characterized by misconceptions favoring prolonged rest and over-medication—further delays recovery and increases the risk of chronic conditions.³¹

Potential solutions

SPINE20 recommends an integrated approach combining prevention, early diagnosis, effective treatment, and rehabilitation.

- **National/Regional (Provincial) Spine Registries:**

Developing a national spine registry would enable outcome tracking, risk assessment, and data-driven policy decisions.²⁸⁻³⁰ Models like Sweden's Swespine and Eurospine's Spine Tango have demonstrated improved quality and cost control.³² Such registries contribute to the sustainability of spine care by promoting efficiency, transparency, and continuous improvement.

- **Zero-Cost Platforms:**

Zero-cost digital platforms, integrating free access with behaviour-driven incentives, can accelerate public engagement in spine health. South Africa's ZLTO programme, which rewards healthy behaviours with redeemable credits, provides a proven model.³³ In the spine health context, patients could earn digital tokens for completing rehabilitation exercises or participating in posture programmes, with points redeemable for essentials such as transport vouchers or mobile data to reduce economic barriers. Such platforms could also host open-access education, tele-rehabilitation services, and AI-powered screening tools, expanding reach and equity in care delivery.³⁴

- **Incentivized Health Targets:**

Governments can introduce outcome-based incentives and bundled rehabilitation payments for healthcare facilities, rewarding adherence to evidence-based guidelines and improvements in chronic back pain outcomes.^{35,36} Such incentives foster sustainable spine care by aligning quality improvement with long-term resource efficiency.

- **Public Health and Occupational Interventions:**

Nationwide awareness campaigns on lifestyle risks (obesity, inactivity) and workplace ergonomics can reduce preventable spinal injuries. Ergonomic assessments and return-to-work programmes are vital for high-risk sectors. (Further details are provided in a separate section.)

- **Capacity Building:**

Investing in the training of rehabilitation clinicians/ professionals such as physiotherapists, occupational therapists, chiropractors, community health workers and primary care physicians will ensure early, non-surgical management and create a sustainable workforce. (Further details are provided in a separate section.)



**Shortages in
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- **Public-Private Partnerships:**

Collaboration with tech companies, insurers, and employers can accelerate registry development, digital infrastructure, and research on preventive strategies.^{21,37} Such partnerships enhance the sustainability of spine care by pooling resources, fostering innovation, and ensuring long-term system resilience.

Expected outcomes:

Implementing these measures would:

- **Improve Access and Equity:** Tele-rehabilitation and reward-based platforms would bridge urban–rural divides.
- **Enhance Data-Driven Policy:** Registries would allow benchmarking and quality improvement.
- **Boost Adherence and Engagement:** Incentive-based digital platforms motivate patients to follow rehabilitation plans.
- **Reduce Disability and Costs:** Workplace reforms and early interventions would lower absenteeism and long-term care expenses.
- **Strengthen Workforce:** Expanded training and interdisciplinary education would address skill gaps.
- **Promote Innovation:** Public-private partnership and digital platforms would support scalable, cost-effective solutions.

By aligning these strategies with the UN Sustainable Development Goals (SDG 3, 8, 10 and 17), South Africa and other G20 countries can lead the way in developing sustainable spine care systems that reduce disability, enhance economic productivity, and ensure equitable access to care.



Domain: Public Health

Recommendation

SPINE20 recommends G20 countries to integrate spine health into public health and primary care health policies by addressing the prevention and management of both communicable and non-communicable diseases and strengthening public–private partnerships to achieve sustainable spine care.

Relevance to United Nations SDGs

Relevance to United Nations SDGs: 3) Good health and well-being; 8) Decent work and economic growth; 10) Reduced inequalities

Context to the focused topic:

South Africa has built a powerful public health platform through decades of action against HIV and tuberculosis (TB).

Within this broader public health architecture, primary care functions as the front line: ward-based outreach teams, community health workers, and Ideal Clinic standards enable reliable delivery of services, supplies, and health messages from national to community level.^{38,39} By providing first-contact, accessible, and continuous care, primary care clinics not only treat individuals but also contribute directly to population-level goals: prevention, surveillance, and early response to health threats. This function—clinical care for individuals and population health impact through scale and integration—explains why strengthening primary care is indispensable for public health progress.

The National Health Insurance (NHI) Act, assented to on 15 May 2024, positions South Africa to advance universal health coverage through stronger primary care and improved purchasing of essential services—an enabling policy environment to embed spine health indicators, rehabilitation, and prevention within standard benefits and clinic quality standards.⁴⁰⁻⁴²

At the same time, South Africa’s communicable-disease platforms remain active and effective.^{43,44} TB incidence has fallen substantially since 2015, and HIV programs continue to be expanded and adapted—demonstrating that the country can mobilize, deliver, and monitor high-priority services nationwide when policy and delivery systems are aligned.^{43,44} These proven networks are ideal “scaffolds” for integrating musculoskeletal and spine care.

Problem

Musculoskeletal and spine conditions remain under-recognized in health benefits, metrics, and clinic workflows.^{3,45} Patients commonly cycle through episodic visits and analgesics without active self-management, early rehabilitation, or clear referral triggers. Fragmented pathways lead to late presentations, unnecessary imaging, avoidable procedures, and prolonged disability.

The burden is amplified by South Africa’s risk environment: heavy manual work (mining, logistics, agriculture, construction), long-distance commuting, road traffic injuries, and constrained access to conservative care.⁴⁶ Older adults and those in the unorganized sector face additional barriers to rehabilitation and return-to-work. Without integration into primary care, spine conditions silently erode quality of life, workforce participation, and fiscal sustainability under NHI.⁴⁷

Potential solutions

1. Integrate first-line spine care into public health and primary care workflows.
 - Embed brief screening, red-flag recognition, and person-centered advice/exercise program in community and clinic visits.



Primary Care contribute directly to population-level goals: prevention, surveillance, and early response to health threats.



Musculoskeletal and spine conditions remain under-recognized in health benefits, metrics, and clinic workflows



- Provide culturally sensitive simple tools: pain/function checklists, self-management leaflets, and 4–6-week follow-up prompts focused on function, not imaging.
 - Use digital job-aids for nurses and community health workers; add spine content to Ideal Clinic checklists.
2. Establish a tiered care pathway with clear referral thresholds.
 - Community/clinic: education, reassurance, activity restoration, simple analgesia when indicated, and psychosocial support.
 - District hospital: multidisciplinary assessment, targeted imaging only for red flags or persistent deficits; access to physiotherapy, chiropractic and occupational therapy.
 - Referral center: timely surgical consults for neurological compromise, instability, malignancy, infection, or complex deformity; peri-operative rehab integrated end-to-end.
 3. Build rehabilitation into the benefits package.
 - Embed rehabilitation in primary care, aligned with WHO Rehabilitation 2030 and the Package of Interventions for Rehabilitation (PIR) for musculoskeletal conditions (e.g., activity-based recovery, trunk/hip strengthening, graded return to work).⁴⁸
 4. Strengthen workforce and task-sharing.
 - Rapid upskilling modules for nurses, clinical associates, and community health workers; mentorship hubs anchored by physiatrists / physiotherapists.
 - Use tele-supervision for rural facilities; standardize documentation to track function and return to work milestones.
 5. Launch targeted public–private partnerships.
 - With mining, transport, manufacturing, and healthcare employers: ergonomic redesign, safe-lifting program, on-site early rehab, and shared outcome reporting.
 - With digital/insurer partners: mobile self-management apps integrated into clinic workflows; incentives aligned to function and return to work, not volume of imaging.
 6. Measure what matters.
 - Add a minimal musculoskeletal indicator set to routine dashboards: proportion receiving guideline-concordant first-line care, functional improvement at 6–12 weeks, return to work rates, and time-to-surgical consult for red-flag cases.
 - Disaggregate by district, occupation, and sex/age to direct training and resources.



Without integration into primary care, spine conditions silently erode quality of life, workforce participation, and fiscal sustainability under NH



Expected outcomes:

Medium term (2–4 years)

- Reduced disability and absenteeism: fewer patients transition to chronic pain; measurable gains in pain and function; higher return to work rates in mining, logistics, and healthcare workforces.

- System efficiency under NHI: bundled musculoskeletal benefits and commissioned rehab reduce repeat visits, imaging volume, and avoidable interventions; resources are redirected to complex cases.
- Safer environments: employer and municipal policies embed ergonomics, safer manual handling, and road-injury prevention.

Long term (≥5 years)

- Sustainable, equitable spine care: a mature, integrated pathway that mirrors South Africa's communicable-disease successes—now applied to musculoskeletal disability across the life course.
- Economic resilience: preserved productivity and lower long-term costs through prevention, early activation, and targeted specialty care.
- Global relevance: a scalable model for other G20 countries to integrate spine health into primary care and public health, uniting communicable and non-communicable agendas through public-private partnerships.
- In summary, South Africa's established primary-care networks and data culture provide a ready platform to integrate spine health. Aligning benefits, workflows, skills, and partnerships can convert silent disability into measurable functional recovery—advancing universal health coverage and sustainable growth.



Aligning benefits, workflows, skills, and partnerships can convert silent disability into measurable functional recovery—advancing universal health coverage and sustainable growth.



Domain: Occupational Health & Safety Policy

Recommendation

SPINE20 recommends that G20 countries prioritize social inclusion by promoting equitable access to comprehensive spine care through collaborations with healthcare providers, policymakers, and community organizations.

Relevance to United Nations SDGs

3) Good health and well-being; 8) Decent work and economic growth; 10) Reduced inequalities; 16) Peace, justice, and strong institutions.

Context to the focused topic:

Work loss through sickness absence and presenteeism (being at work but at reduced capacity) is increasing⁴⁹ with back pain being the leading cause⁵⁰. Little prevention research exists⁵¹, and there is no universal, superior approach to managing spine disorders. Furthermore, although evidence-based guidelines exist, they are based on trials almost exclusively from high-income countries⁵¹, largely developed without service-user involvement⁵⁰ and are inconsistently applied in practice by health care providers⁵¹. The lack of implementation delays recovery and return to work, with unnecessary imaging, polypharmacy, bed rest, specialist referrals and passive treatments^{51,52} and underuse of biopsychosocial approaches^{50,53}.



There is no universal, superior approach to managing spine disorders



Problem

Multiple factors contribute to work loss from spine disorders including the individual employee, their job role and the culture and practices within the workplace. Specific to the employee, negative beliefs about their recovery and fears associated with pain or reinjury are strong predictors of absence and prolonged symptoms^{54,55}. Co-existing poor physical health (e.g. from obesity, smoking and low fitness) correlate with worse return to work outcomes⁵⁶, along with poor perceptions of health⁵⁴, low health status^{55,56}, poor coping strategies⁵⁵, job dissatisfaction^{50,56}, stress⁵⁰, co-existing mental health conditions such as depression and anxiety, and critical family situations⁵⁶.

Rising rates of sedentary practices at work and leisure⁵⁶ (including remote working and poor ergonomics), increased workloads and stress⁵⁷ all impact recovery from spine disorders. Meanwhile, physically demanding jobs that include repetitive lifting, bending twisting and static postures have been identified as physical risk factors^{50,55,56,58} and 3-D jobs 'dirty, dangerous and demanding' are challenging in general, due to unequal representation of racial and ethnic minority workers, often working with employment uncertainty, low wages and poor or dangerous working conditions⁵⁹. Furthermore, lack of workplace autonomy, inadequate supervisor support and poor communication^{60,61} also worsen return to work outcomes.

The culture and practices within the workplace further influence outcomes. Where job insecurities exist, fear of job loss can result in presenteeism as employees attend work despite their symptoms, which can worsen their condition⁵⁷ and, in many societies, the workforce is aging and thus, more employees are living with long-term conditions and degenerative pathologies.

Potential solutions

The complexity of supporting employees with spine disorders to reduce work loss requires a multifaceted, evidence-informed approach, targeting individual, role and organizational factors. To optimize a positive outcome, early identification of symptoms is required, with fast-track access to appropriate support and care^{49,51,55}. Culturally adapted, plain language materials should be provided to support shared decision-making and provide clarity about work options and likely prognosis⁶⁰. An important component is person-centered reassurance, education about the non-dangerous nature of most spine disorders^{51,61} and self-management advice that includes advice to keep active, build strength, fitness and confidence and identify pacing strategies, is key⁵⁵. The content needs to be tailored to address the employees' beliefs, attitudes and recovery expectations⁵⁴, with a shift in focus from managing symptoms to promoting function and participation^{51,55,56,62}, based on the employees' capacity and job requirements^{55,56,62}.



The culture and practices within the workplace further influence outcomes for patients with spine disorders



Early identification of symptoms is required, with fast-track access to appropriate support and care



Encouraging modified duties and work-focused activity reduces long-term absence ^{55,57}, aligning with structured return to work plans ^{56,62}.

Guidelines recommend a stepped-care model to guide return to work, escalating care to include workplace modifications, physical therapy, or cognitive behavioral therapy if there is no improvement by 6-12 weeks ^{56,57}, considering multidisciplinary rehabilitation if barriers persist ⁵⁷. It is essential to foster co-ordination between health care providers, employers and insurers to best support the employee ^{49,63} with shared action plans across healthcare and workplace settings, addressing fear-avoidance beliefs ⁵⁵. Implementation of guidelines can be measured through audit, to identify gaps in healthcare provision or in the workplace, and training needs ⁵², for example, avoiding unnecessary imaging, polypharmacy, opioids, prolonged rest, specialist referrals and passive treatments ^{51,52}, while promoting education and supported self-management ^{50,51,57,64,65}, graduated strengthening exercises ^{50,51,55-57,64,65} and stress management ^{51,55}. Workplace modifications may include ergonomic adaptations to equipment, as well as role adjustments to reduce physical demands (lifting, twisting and manual work) ^{55-57,62}, workplace exercise programs, flexibility in hours / breaks and tasks ⁶², with options to work remotely (if appropriate). It is vital to develop open communication between employees and employers about any reasonable adjustments, with a culture of empathy and support, including follow-up reviews to discuss progress. Broader health and well-being practices for all employees can include physical activity, such as walk-and-talk meetings, stretching breaks ^{56,62}, and access to activity programs.

Expected outcomes:

SPINE20 recommends a PREMIUM approach to Occupational Health and Safety Policy:

- P = Prevent sickness absence in the workplace (occupational health and safety)
- R = Recognize symptoms of musculoskeletal disorders early
- E = Educate (including advice on self-management and keeping active at and outside of work)
- M = Modify work practices (e.g. role and break adjustments, ergonomic modifications)
- I = Implement guidelines for managing musculoskeletal disorders
- U = Unite healthcare systems, employers and employees by effective communication
- M = Monitor adherence to best practice in occupational health and safety.



It is essential to foster co-ordination between health care providers, employers and insurers to best support the employee



SPINE20 recommends a PREMIUM approach to Occupational Health and Safety Policy



Domain: Capacity Building

Recommendation

SPINE20 recommends that G20 countries prioritize building capacity in spinal cord injury care by adopting evidence-based models in low- and middle-income countries, in line with the WHO call to action.

Relevance to United Nations SDGs

3) Good health and well-being; 10) Reduced inequalities; 16) Peace, justice and strong institutions; 17) Partnerships for the goals

Context to the focused topic:

Spinal Cord Injury (SCI) presents a major global health challenge, especially in low- and middle-income countries where health systems are not adequately equipped to respond. SCI leads to substantial physical, emotional, and socioeconomic burdens for individuals, families, and communities. In sub-Saharan Africa, including South Africa, the epidemiology of SCI significantly differs from that in developed countries with the trauma-dominated profiles. While traumatic causes like motor vehicle accidents accounted for 44.6% of SCIs, non-traumatic cases are increasingly recognized with infectious spondylitis, particularly due to HIV and tuberculosis, being a leading cause ⁶⁶. The incidence of infection-related SCIs has risen, correlating with the HIV epidemic and the prevalence of tuberculosis ⁶⁷. In a cohort of patients with non-traumatic myelopathy as well, approximately 50% were HIV positive, with tuberculosis identified as the most common cause ⁶⁸. Both traumatic and non-traumatic SCI contribute to the burden ⁶⁹ and the high incidence rate of 75.6 per million in South Africa underscores the need for effective community reintegration strategies ⁷⁰.

Problem

The emergence of spinal tuberculosis as a significant cause of SCI and myelopathy highlights the need for ongoing surveillance and targeted interventions in this demographic ⁶⁷. Conversely, while infectious causes are prominent in South Africa, the global trend still shows trauma as the primary cause of SCIs in developed nations, emphasizing the need for tailored prevention strategies in different contexts. Delayed diagnosis, inappropriate surgical indications and limited access to specialized rehabilitation services exacerbate the problem. Furthermore, social determinants of health, such as income inequality and rural location, significantly impact SCI outcomes in low- and middle-income countries ⁶⁹. Despite policy emphasis on comprehensive rehabilitation, community reintegration remains inadequate ⁷⁰. Challenges include inaccessible environments, transportation issues, and negative societal attitudes ⁷⁰.



In sub-Saharan Africa, including South Africa, the epidemiology of SCI significantly differs from that in developed countries with the trauma-dominated profiles



The emergence of spinal tuberculosis as a significant cause of SCI and myelopathy

Potential solutions:

To address the growing burden of infection-related SCI in Africa, especially from HIV and tuberculosis, a multifaceted strategy is essential. This includes scaling successful African models, building a specialized and decentralized workforce, integrating diagnostic tools into primary care, and aligning interventions with global health goals⁷¹⁻⁷³ like WHO's Rehabilitation Initiative 2030¹⁹. Lack of context-specific protocols is a barrier. A 2023 protocol review highlights plans to establish standardized SCI/TB guidelines tailored for African health systems, addressing infrastructure and economic constraints.⁷⁴

A strengthened capacity-building initiative for SCI care, aligned with WHO's Rehabilitation 2030 goals, will yield transformative outcomes for health systems in South Africa and comparable low- and middle-income countries contexts. Integrating the ISCoS Standards Toolkit into national rehabilitation frameworks will enable the operationalization of high-quality, context-sensitive care practices and help bridge critical resource and knowledge gaps in SCI rehabilitation⁷⁵. This toolkit, developed to complement WHO frameworks, standardizes SCI care pathways and supports evidence-informed decision-making—especially vital in resource-limited settings.

By emphasizing the training and deployment of physical medicine and rehabilitation specialists, national health systems will build multidisciplinary teams equipped to address the complex biopsychosocial needs of SCI patients. Research underscores the role of physical medicine and rehabilitation in improving long-term functional outcomes, supporting community reintegration, and optimizing health system efficiency.^{75,76} Investment in physical medicine and rehabilitation training is also key to ensuring sustained implementation of SCI-specific clinical standards and aligning national curricula with global benchmarks. Evidence from recent work demonstrates how integration of clinical research, practice, and implementation tools—such as the ISCoS Toolkit—has advanced SCI care in diverse settings through improved monitoring, patient-centered indicators, and quality assurance systems.⁷⁵ These measures enhance outcome tracking and resource allocation, and promote health equity. This harmonization with the Rehabilitation 2030 vision ensures that capacity building is not only clinically sound but systemically scalable and sustainable.

Expected Outcomes:

The expected impact includes improved early diagnosis and timely referral, increased access to specialized rehabilitation services, and enhanced quality of life for persons living with SCI. Furthermore, investment in rehabilitation professionals will reduce secondary complications, hospital readmissions, and economic losses due to long-term disability.



By emphasizing the training and deployment of physical medicine and rehabilitation specialists, national health systems will build multidisciplinary teams equipped to address the complex biopsychosocial needs of SCI patients



These outcomes support the Sustainable Development Goals by fostering inclusion, reducing inequality, and strengthening resilient health systems.

When effectively implemented, these efforts can significantly improve diagnosis rates, care access, rehabilitation outcomes, and overall health system resilience. Improving rehabilitation services is crucial for enhancing individual well-being and economic contribution.⁷¹

Conclusion

Spine disorders are a major cause of disability worldwide, requiring urgent, coordinated strategies to ensure equitable and sustainable care. SPINE20's 2025 recommendations—focused on Sustainability, Public Health, Occupational Health and Safety Policy, and Capacity Building—offer evidence-based solutions including national/regional spine registries, integrated primary care with hospital services, workplace interventions, and workforce development. Public–private partnerships, digital innovations, and context-specific policies can close access gaps, improve outcomes, and boost economic productivity. By embedding spine health in public health agendas, investing in rehabilitation capacity, and applying sustainable models tailored to national contexts, G20 countries can reduce disability, enhance workforce participation, and promote inclusive growth. Aligning with the United Nations Sustainable Development Goals (SDG 3, 8, 10, and 17), these actions position spinal health as a foundation for well-being, equity, and economic resilience. Through collective commitment, sustainable spine care for all can become a reality.

Table 1. Societies participating in SPINE20 (2025)

Category	Society Name	Country
Patient Entity	African Chiropractic Association	South Africa
Patient Entity	AMAR SEVA SANGAM	India
Academic Entity	Asociacion Mexicana de Cirujanos de Columna	Mexico
Academic Entity	Association of Spine Surgeons of India (ASSI)	India
Academic Entity	Australian Physiotherapy Association	Australia
Academic Entity	Brazilian Spine Society (BSS)	Brazil
Academic Entity	CHANDIGARH SPINAL REHAB	India
Academic Entity	Chilean Spine Society and Spine Committee of Chilean Orthopaedic and Traumatology Society SCHOT	Chile
Academic Entity	EUROSPINE	Switzerland, UK, Canada, Portugal and Germany
Academic Entity	German Spine Society (DWG)	Germany
Academic Entity	Hellenic Spine Society	Greece
Academic Entity	INDIAN ASSOCIATION OF PHYSICAL MEDICINE AND REHABILITATION	India
Patient Entity	Indian Head Injury Foundation	India
Academic Entity	Indonesia Spine Society	Indonesia
Academic Entity	Italian Spine Society (SICV&GIS)	Italy
Patient Entity	Japanese Association for Patients with Spinal Ligament Ossification	Japan
Academic Entity	Japanese Society for Spine Surgery and Related Research	Japan
Patient Entity	Nina Foundation	India
Academic Entity	North America Spine Society (NASS)	United States
Commercial Entity - Education Focused	NSPINE	Germany
Academic Entity	Renè Perdriolle Academy for Scoliosis Study	Italy
Academic Entity	Saudi Association of Neurological Surgery	Saudi Arabia
Academic Entity	Saudi Spine Society (SSS)	Saudi Arabia
Academic Entity	SOCIEDAD IBEROLATINOAMERICANA DE COLUMNA - SILACO	Uruguay
Academic Entity	Society of Indian Physiotherapists	India
Academic Entity	Society of Spine Surgeons of Pakistan	Pakistan
Academic Entity	South African Spine Society	South Africa
Academic Entity	Spinal Cord Society	India

Table 1. Societies participating in SPINE20 (2025)

Category	Society Name	Country
Academic Entity	Spine Society of Belgium (SSBe)	Belgium
Academic Entity	Spine Society Delhi Chapter	India
Patient Entity	THE ABILITY PEOPLE	India
Patient Entity	The Association of People with Disability (APD)	India
Patient Entity	The Chiropractic Association of South Africa	South Africa
Academic Entity	The Indonesian Association of Physical Medicine and Rehabilitation	Indonesia
Patient Entity	The Spinal Cord Injury Association	India
Patient Entity	THE SPINAL FOUNDATION	India
Academic Entity	World Federation of Chiropractic	Canada
Patient Entity	World Spine Care	United States

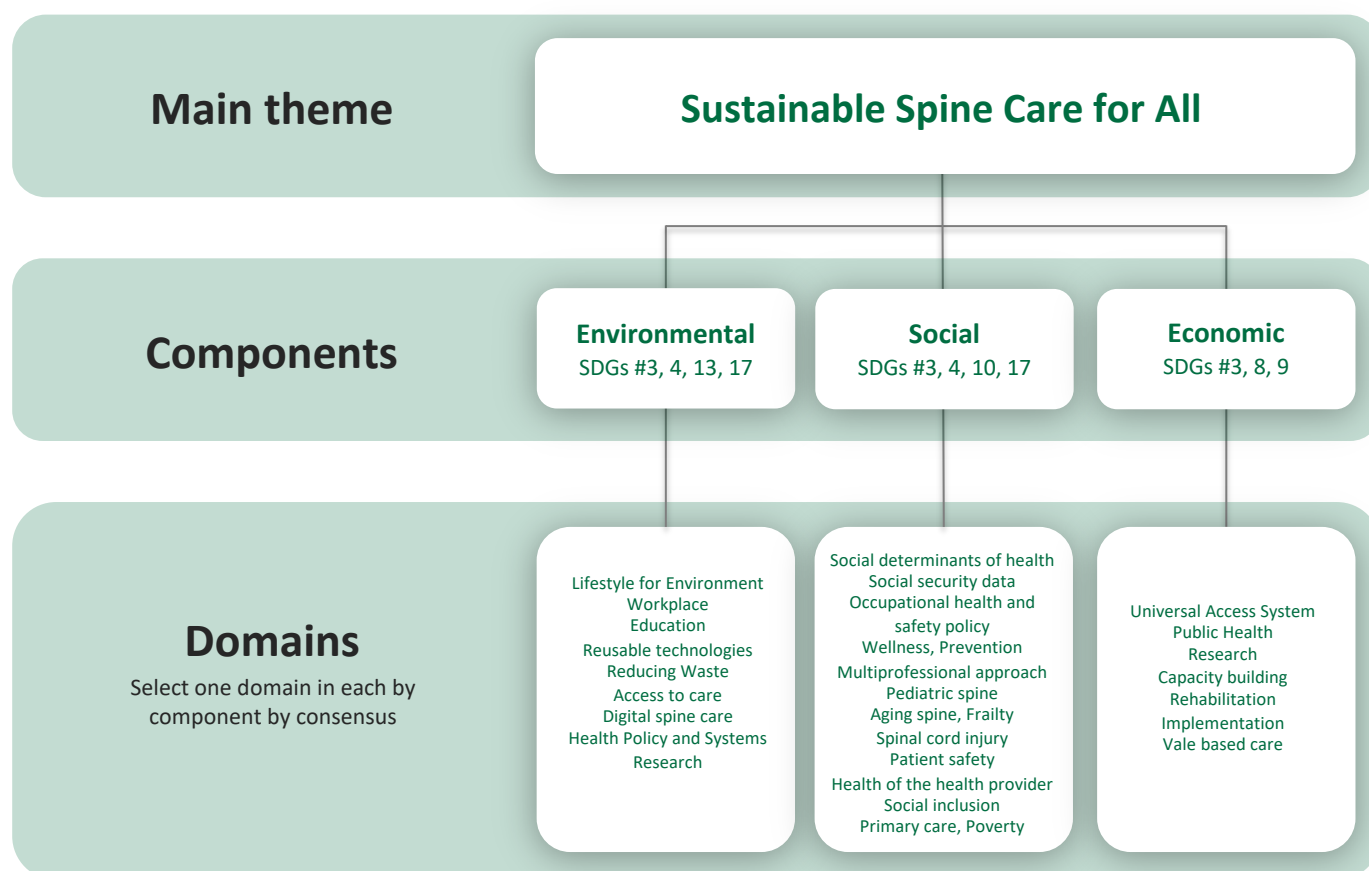
Figure 1: Components of domains

Table 2. Results of pre-scoring

Components	Domains with average point (min:0, max:10)
Environmental	Education: 7.97, Public Health: 7.90, Access to care: 7.65 Workplace: 7.26, Avoiding futile treatment: 7.23, Reducing waste: 7.10, Health Policy and Systems Research: 7.03, Reusable technologies: 6.84, Digital spine care: 6.16
Social	Multiprofessional approach: 8.35, Occupational health and safety policy: 7.39, Prevention: 7.39, Aging spine: 7.23 Primary care: 7.19, Patient safety: 6.90, Social determinants of health: 6.77, Frailty: 6.52, Poverty: 6.52, Social inclusion: 6.19, Spinal cord injury: 6.03, Wellness: 6.00, Pediatric spine: 5.71, Social security data: 5.42
Economic	Rehabilitation: 8.03, Research: 7.74, Capacity building: 7.55, Implementation: 7.52, Value based care: 7.48, Health of the health provider: 7.23

Table 3. Results of Delphi consensus voting

	1 st vote	2 nd vote	3 rd vote	4 th vote
Environmental component				
Education	31%	48%	40%	28%
Public Health	54%	53%	60%	72%
Access to care	15%			
Social component				
Multiprofessional approach	46%	52%	40%	32%
Occupational health and safety policy	35%	48%	60%	68%
Prevention	19%			
Economic component				
Rehabilitation	42%	52%	44%	36%
Research	23%			
Capacity building	35%	48%	56%	64%

References:

1. Diseases GBD, Injuries C. Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet* 2020;396:1204-22.
2. Cieza A, Causey K, Kamenov K, et al. Global estimates of the need for rehabilitation based on the Global Burden of Disease study 2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet* 2021;396:2006-17.
3. Collaborators GBDLBP. 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.
4. Hoy D, Bain C, Williams G, et al. A systematic review of the global prevalence of low back pain. *Arthritis Rheum* 2012;64:2028-37.
5. Initiative USBaJ. THE HIDDEN IMPACT of Musculoskeletal Disorders on AMERICANS], 2021. Available at: [hrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.boneandjointburden.org/docs/BMUS%20mpact%20of%20MSK%20on%20Americans%20booklet_4th%20Edition%20%282018%29.pdf](https://www.boneandjointburden.org/docs/BMUS%20mpact%20of%20MSK%20on%20Americans%20booklet_4th%20Edition%20%282018%29.pdf). Accessed May, 2024.
6. Yong RJ, Mullins PM, Bhattacharyya N. Prevalence of chronic pain among adults in the United States. *Pain* 2022;163:e328-e32.
7. World Health Organization: Low back pain]. Available at: <https://www.who.int/news-room/fact-sheets/detail/low-back-pain>. Accessed May, 2024.
8. Chou R. Low Back Pain. *Ann Intern Med* 2021;174:ITC113-ITC28.
9. Maher C, Underwood M, Buchbinder R. Non-specific low back pain. *Lancet* 2017;389:736-47.
10. Roux CH, Guillemin F, Boini S, et al. Impact of musculoskeletal disorders on quality of life: an inception cohort study. *Ann Rheum Dis* 2005;64:606-11.
11. Fatoye F, Gebrye T, Mbada CE, et al. Clinical and economic burden of low back pain in low- and middle-income countries: a systematic review. *BMJ Open* 2023;13:e064119.
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.
13. AlEissa SI, Tamai K, Konbaz F, et al. SPINE20 A global advocacy group promoting evidence-based spine care of value. *Eur Spine J* 2021;30:2091-101.
14. Costanzo G, Misaggi B, Ricciardi L, et al. SPINE20 recommendations 2021: spine care for people's health and prosperity. *Eur Spine J* 2022.
15. Darwono B, Tamai K, Cote P, et al. SPINE20 recommendations 2022: spine care-working together to recover stronger. *Eur Spine J* 2022.
16. Chhabra HS, Tamai K, Alsebayel H, et al. SPINE20 recommendations 2023: One Earth, one family, one future WITHOUT spine DISABILITY. *Brain Spine* 2023;3:102688.
17. Menezes CM, Tucci C, Tamai K, et al. SPINE20 Recommendations 2024 -Spinal Disability: Social Inclusion as a Key to Prevention and Management. *Global Spine J* 2025;15:8-20.
18. WHO releases guidelines on chronic low back pain]. Available at: <https://www.who.int/news/item/07-12-2023-who-releases-guidelines-on-chronic-low-back-pain>. Accessed July, 2024.
19. World Rehabilitation Alliance]. Available at: <https://www.who.int/initiatives/world-rehabilitation-alliance>. Accessed July, 2024.
20. Louw QA, Conradie T, Xuma-Soyizwapi N, et al. Rehabilitation Capacity in South Africa-A Situational Analysis. *Int J Environ Res Public Health* 2023;20.
21. Mazibuko SM, Govender P, Nadasan T. Stakeholders' views on public-private partnerships for rehabilitation services in South Africa ahead of National Health Insurance. *S Afr Fam Pract* (2004) 2025;67:e1-e10.

References:

22. Rayne S, Burger S, Straten SV, et al. Setting the research and implementation agenda for equitable access to surgical care in South Africa. *BMJ Glob Health* 2017;2:e000170.
23. Wu A, March L, Zheng X, et al. Global low back pain prevalence and years lived with disability from 1990 to 2017: estimates from the Global Burden of Disease Study 2017. *Ann Transl Med* 2020;8:299.
24. Fay M, Black M. Risk factors for low back pain amongst adults in Nigeria and South Africa: a systematic review. *BMC Musculoskelet Disord* 2024;25:968.
25. Mazibuko S, Nadasan T, Govender P. South African medical rehabilitation services delivery: a mixed method exploring the views of stakeholders on availability, accessibility, quality, affordability, equity, effectiveness, and efficiency. *Pan Afr Med J* 2024;48:159.
26. Ernstzen DV, Parker R, Ras T, et al. Clinical recommendations for chronic musculoskeletal pain in South African primary health care. *Afr J Prim Health Care Fam Med* 2023;15:e1-e12.
27. Okello A, Wafula ST, Sekimpi DK, et al. Prevalence and predictors of work-related musculoskeletal disorders among workers of a gold mine in south Kivu, Democratic Republic of Congo. *BMC Musculoskelet Disord* 2020;21:797.
28. van Hooff ML, Jacobs WC, Willems PC, et al. Evidence and practice in spine registries. *Acta Orthop* 2015;86:534-44.
29. Pascucci S, Langella F, Franzo M, et al. National spine surgery registries' characteristics and aims: globally accepted standards have yet to be met. Results of a scoping review and a complementary survey. *J Orthop Traumatol* 2023;24:49.
30. Ranjbar Hameghavandi MH, Khodadoust E, Hassan Zadeh Tabatabaei MS, et al. Challenges in traumatic spinal cord injury care in developing countries - a scoping review. *Front Public Health* 2024;12:1377513.
31. de Witt P, Bruce M, Botha M, et al. Early Career South African Occupational Therapists' Perceptions of Person-Environment Fit in Work-Life Areas That Influence Work Stress. *Occup Ther Int* 2024;2024:3189429.
32. Stromqvist B, Fritzell P, Hagg O, et al. Swespine: the Swedish spine register : the 2012 report. *Eur Spine J* 2013;22:953-74.
33. United Nations Development Programme], 2025. Available at: https://www.undp.org/africa/stories/south-africa-online-rewards-power-safe-healthy-actions-fight-against-covid-19?utm_source=chatgpt.com. Accessed August, 2025.
34. Abernethy A, Adams L, Barrett M, et al. The Promise of Digital Health: Then, Now, and the Future. *NAM Perspect* 2022;2022.
35. de Bruin SR, Baan CA, Struijs JN. Pay-for-performance in disease management: a systematic review of the literature. *BMC Health Serv Res* 2011;11:272.
36. Einav L, Lee S, Levin J. The impact of financial incentives on health and health care: Evidence from a large wellness program. *Health Econ* 2019;28:261-79.
37. Kula N, Fryatt RJ. Public-private interactions on health in South Africa: opportunities for scaling up. *Health Policy Plan* 2014;29:560-9.
38. Policy Framework and Strategy for Ward Based Primary Healthcare Outreach Teams]. Available at: https://www.health.gov.za/wp-content/uploads/2020/11/policy-wbphcot-4-april-2018_final-copy.pdf?utm_source=chatgpt.com. Accessed August, 2025.
39. What is an Ideal Clinic?], 2025. Available at: https://www.idealhealthfacility.org.za/?utm_source=chatgpt.com. Accessed August, 2025.
40. National Health Insurance], 2025. Available at: https://www.health.gov.za/nhi/?utm_source=chatgpt.com. Accessed August, 2025.
41. NATIONAL HEALTH INSURANCE ACT 20 OF 2023], 2023. Available at: https://www.saflii.org/za/legis/consol_act/nhia20o2023261.pdf?utm_source=chatgpt.com. Accessed August, 2025.

References:

42. WHO South Africa Welcomes Signing of National Health Insurance Bill into Law], 2024. Available at: https://www.afro.who.int/countries/south-africa/news/who-south-africa-welcomes-signing-national-health-insurance-bill-law?utm_source=chatgpt.com. Accessed August, 2025.
43. 1.1 TB incidence]. Available at: https://www.who.int/teams/global-programme-on-tuberculosis-and-lung-health/tb-reports/global-tuberculosis-report-2023/tb-disease-burden/1-1-tb-incidence?utm_source=chatgpt.com. Accessed August, 2025.
44. South Africa], 2025. Available at: <https://open.unaids.org/countries/south-africa>. Accessed August, 2025.
45. Collaborators GBDOMD. Global, regional, and national burden of other musculoskeletal disorders, 1990-2020, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021. *Lancet Rheumatol* 2023;5:e670-e82.
46. Morris LD, Daniels KJ, Ganguli B, et al. An update on the prevalence of low back pain in Africa: a systematic review and meta-analyses. *BMC Musculoskelet Disord* 2018;19:196.
47. WHO: Rehabilitation]. Available at: https://www.who.int/health-topics/rehabilitation/integrating-rehabilitation-into-health-systems?utm_source=chatgpt.com#tab=tab_1. Accessed August, 2025.
48. WHO: Rehabilitation 2030 initiative]. Available at: https://www.who.int/initiatives/rehabilitation-2030?utm_source=chatgpt.com. Accessed August, 2025.
49. Gabbay M, Taylor L, Sheppard L, et al. NICE guidance on long-term sickness and incapacity. *Br J Gen Pract* 2011;61:e118-24.
50. Chetty L. A Critical Review of Low Back Pain Guidelines. *Workplace Health Saf* 2017;65:388-94.
51. Foster NE, Anema JR, Cherkin D, et al. Prevention and treatment of low back pain: evidence, challenges, and promising directions. *Lancet* 2018;391:2368-83.
52. Owens JD, Hegmann KT, Thiese MS, et al. Impacts of Adherence to Evidence-Based Medicine Guidelines for the Management of Acute Low Back Pain on Costs of Worker's Compensation Claims. *J Occup Environ Med* 2019;61:445-52.
53. Ryyanen K, Oura P, Simula AS, et al. Effectiveness of training in guideline-oriented biopsychosocial management of low-back pain in occupational health services - a cluster randomized controlled trial. *Scand J Work Environ Health* 2021;47:367-76.
54. Rashid M, Kristofferzon ML, Nilsson A, et al. Factors associated with return to work among people on work absence due to long-term neck or back pain: a narrative systematic review. *BMJ Open* 2017;7:e014939.
55. Becker BA, Childress MA. Nonspecific Low Back Pain and Return To Work. *Am Fam Physician* 2019;100:697-703.
56. Lurati AR. Management of Acute Lumbar Injuries in the Workplace. *Orthop Nurs* 2016;35:152-8.
57. Luites JWH, Kuijer P, Hulshof CTJ, et al. The Dutch Multidisciplinary Occupational Health Guideline to Enhance Work Participation Among Low Back Pain and Lumbosacral Radicular Syndrome Patients. *J Occup Rehabil* 2022;32:337-52.
58. Rosenberg NR, Petersen SB, Begtrup LM, et al. Early Occupational Intervention for People with Low Back Pain in Physically Demanding Jobs: 1-year Follow-up Results of the Randomized Controlled GOBACK Trial. *Spine (Phila Pa 1976)* 2021;46:347-55.
59. Quandt SA, Arcury-Quandt AE, Lawlor EJ, et al. 3-D jobs and health disparities: The health implications of Latino chicken catchers' working conditions. *Am J Ind Med* 2013;56:206-15.
60. Amundsen PA, Engedahl M, Burton K, et al. Translation and cultural adaptation of evidence-informed leaflets on the work-health interface: a pragmatic approach to cultural adaptation. *Prim Health Care Res Dev* 2024;25:e42.
61. Slaughter AL, Frith K, O'Keefe L, et al. Promoting Best Practices for Managing Acute Low Back Pain in an Occupational Environment. *Workplace Health Saf* 2015;63:408-14; quiz 15.
62. Reneman MF, Coenen P, Kuijer P, et al. Tensions of Low-Back Pain and Lifting; Bridging Clinical Low-Back Pain and Occupational Lifting Guidelines. *J Occup Rehabil* 2024;34:473-80.

References:

63. Hellman T, Jensen I, Bergstrom G, et al. Returning to work - a long-term process reaching beyond the time frames of multimodal non-specific back pain rehabilitation. *Disabil Rehabil* 2015;37:499-505.
64. Meroni R, Piscitelli D, Ravasio C, et al. Evidence for managing chronic low back pain in primary care: a review of recommendations from high-quality clinical practice guidelines. *Disabil Rehabil* 2021;43:1029-43.
65. Haldeman S, Johnson CD, Chou R, et al. The Global Spine Care Initiative: care pathway for people with spine-related concerns. *Eur Spine J* 2018;27:901-14.
66. Sothmann J, Stander J, Kruger N, et al. Epidemiology of acute spinal cord injuries in the Groote Schuur Hospital Acute Spinal Cord Injury (GSH ASCI) Unit, Cape Town, South Africa, over the past 11 years. *S Afr Med J* 2015;105:835-9.
67. Marais S, Roos I, Mitha A, et al. Spinal Tuberculosis: Clinicoradiological Findings in 274 Patients. *Clin Infect Dis* 2018;67:89-98.
68. Modi G, Ranchhod J, Hari K, et al. Non-traumatic myelopathy at the Chris Hani Baragwanath Hospital, South Africa--the influence of HIV. *QJM* 2011;104:697-703.
69. Covell MM, Naik A, Shaffer A, et al. Social Determinants of Health Impact Spinal Cord Injury Outcomes in Low- and Middle-Income Countries: A Meta-Epidemiological Study. *Neurosurgery* 2023.
70. Nizeyimana E, Louw Q, Joseph C. A Community Reintegration Model for Persons With Traumatic Spinal Cord Injury in South Africa: Process and Outcomes. *Adv Rehabil Sci Pract* 2025;14:27536351251326797.
71. Morris LD, Grimmer KA, Twizeyemariya A, et al. Health system challenges affecting rehabilitation services in South Africa. *Disabil Rehabil* 2021;43:877-83.
72. Burns AS, O'Connell C. The challenge of spinal cord injury care in the developing world. *J Spinal Cord Med* 2012;35:3-8.
73. Saito S, Howard AA, Reid MJ, et al. TB diagnostic capacity in sub-Saharan African HIV care settings. *J Acquir Immune Defic Syndr* 2012;61:216-20.
74. Oladeji EO, Enemuoh TN, Anthony-Awi TA, et al. Disparities in the Clinical Profile of Spinal Tuberculosis in Africa: A Scoping Review of Management and Outcome. *World Neurosurg* 2024;192:77-90.
75. Middleton JM, Sharwood LN, Cameron P, et al. Right care, right time, right place: improving outcomes for people with spinal cord injury through early access to intervention and improved access to specialised care: study protocol. *BMC Health Serv Res* 2014;14:600.
76. Stucki G, Bickenbach J, Melvin J. Strengthening Rehabilitation in Health Systems Worldwide by Integrating Information on Functioning in National Health Information Systems. *Am J Phys Med Rehabil* 2017;96:677-81.

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