

SPINE20

Recommendations to the G20 group

Indonesia - 2022



Spine Care: Work Together to Recover Stronger

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SPINE20 Proposed Recommendations to G20 Indonesia, 2022

RECOMMENDATIONS

SPINE20 calls upon G20 countries to develop action plans to provide universal access to spine care that incorporates the needs of minorities and vulnerable populations.

SPINE20 calls upon G20 countries to develop policies using the best available evidence to properly manage spine disabilities and to prolong functional healthy life expectancy in the era of an aging population.

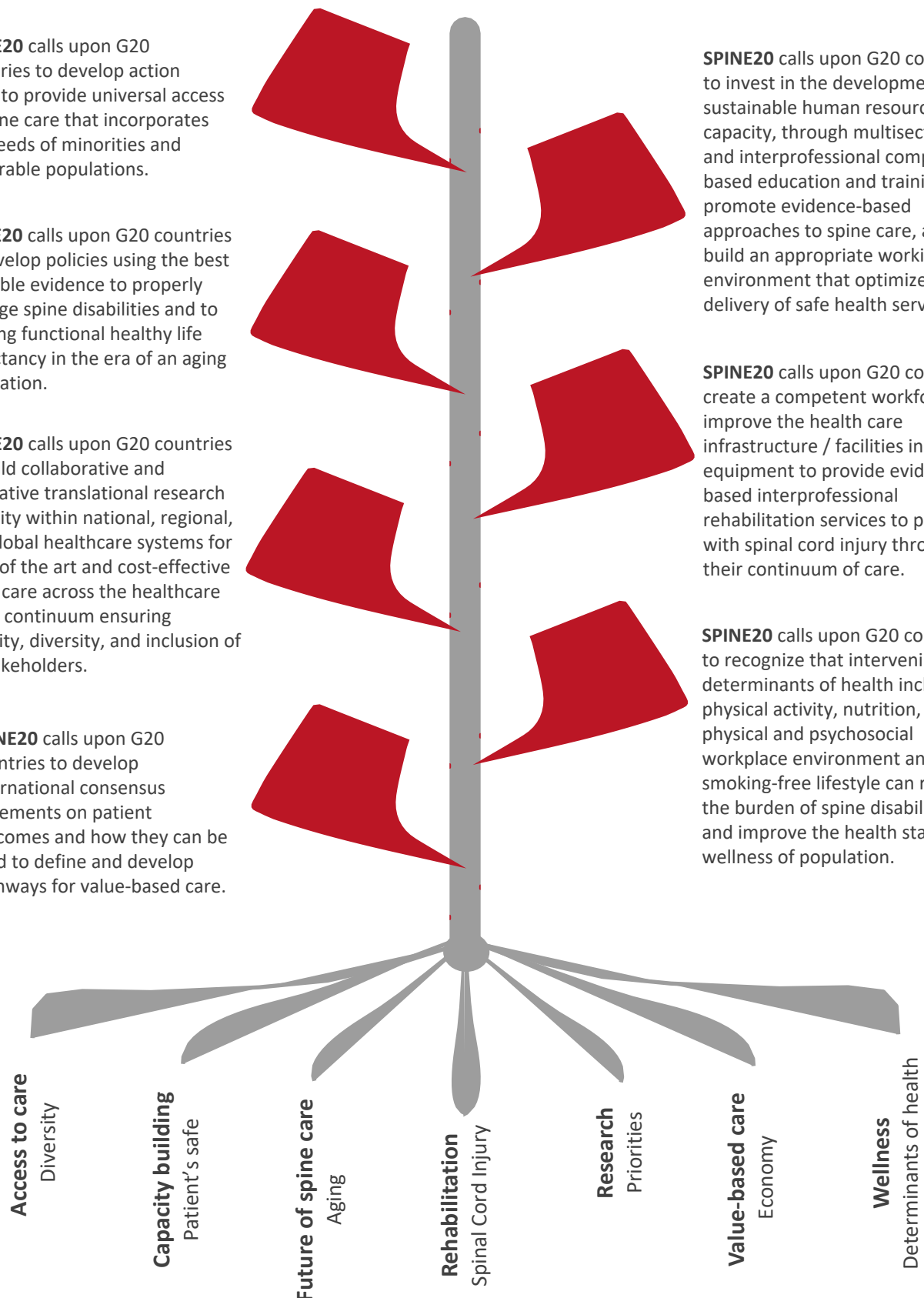
SPINE20 calls upon G20 countries to build collaborative and innovative translational research capacity within national, regional, and global healthcare systems for state of the art and cost-effective spine care across the healthcare levels continuum ensuring equality, diversity, and inclusion of all stakeholders.

SPINE20 calls upon G20 countries to develop international consensus statements on patient outcomes and how they can be used to define and develop pathways for value-based care.

SPINE20 calls upon G20 countries to invest in the development of sustainable human resource capacity, through multisectoral and interprofessional competency-based education and training to promote evidence-based approaches to spine care, and to build an appropriate working environment that optimizes the delivery of safe health services.

SPINE20 calls upon G20 countries to create a competent workforce and improve the health care infrastructure / facilities including equipment to provide evidence-based interprofessional rehabilitation services to patients with spinal cord injury throughout their continuum of care.

SPINE20 calls upon G20 countries to recognize that intervening on determinants of health including physical activity, nutrition, physical and psychosocial workplace environment and smoking-free lifestyle can reduce the burden of spine disabilities and improve the health status and wellness of population.



Introduction

Changes in global demographics and lifestyle behaviors have led to a rapid increase in the number of people experiencing disability due to non-communicable diseases (NCDs).[1-3] NCDs are one of the most important and urgent threats to human health globally, with a disproportionate burden experienced by older individuals and those in low-income and middle-income countries.[4] The impacts of NCDs are far-reaching and associated with health consequences such as premature death, reduced functional ability, and impaired quality of life. Additionally, NCDs lead to social and economic ills that impact the welfare of our populations and increase the propensity for poverty.[5] Multiple barriers limit progress in addressing the burden of NCDs; these include political will, lack of evidence-based public policy, commercial forces and conflict of interest, inadequate technical and operational capacity, inadequate healthcare workforce, insufficient financing, inadequate action to address the social determinants of health, and lack of accountability.

Musculoskeletal disorders are the leading cause of disability within NCDs; 1.71 billion people across the globe are affected by the musculoskeletal disorders representing 149 million years lived with disabilities.[3] Among all musculoskeletal disorders, spine disability is the leading cause of disability with more than half a billion individuals worldwide experiencing disability due to low back pain and neck pain.[1] In fact, back and neck pain are associated with more disability than myocardial infarction, neoplasms, dementia, or stroke.[3]

Therefore, it is obvious that we need to raise awareness among the policy makers of the disabling effect of back and neck pain and its impact on the economy of the G20 nations. Specifically, of the 44 health policies submitted by Organization for Economic Co-operation and Development (OECD) member states to the World Health Organization (WHO) NCD Capacity Survey, most countries had health policies that focused on cancer, cardiovascular disease, diabetes, and respiratory conditions.[6] Meanwhile, musculoskeletal conditions were not prominently featured with only 50% of countries specifically identifying musculoskeletal health as within the scope of included policies.[6] An international agreement on the standardized management of spinal disorders, from prevention to early treatment and rehabilitation, may determine a positive economical impact of these condition on our societies, with a reduction of both direct and indirect costs, and an easier and more reliable data collection and analysis for scientific purposes.

In an effort to improve this situation, in 2019, four large spine care and research non-governmental organizations (EUROSPINE, the North American Spine Society, the German Spine Society, and the Saudi Spine Society) formed SPINE20, an advocacy group to bring global attention to spine disorders. To date (May, 2022), 17 professional societies agreed to participate in SPINE20.(Table 1) The main goal of SPINE20 is to develop evidence-based policy recommendations for the G20 governments to reduce the burden of spine disease, disability, and injuries.

The recommendations are intended to benefit individuals with spine ailments, thereby benefitting the community and ultimately the country adopting the recommendations. Countries have different needs depending on their geographical location and socioeconomic status. Our recommendations must be adapted to the cultural environment, produce a positive economic impact, and evolve over time.

Method to make recommendations - 2022

Taskforce membership

SPINE20 Scientific taskforce members and Recommendation and Publication taskforce members coordinated the development of recommendation. Both taskforces involved multi-professional panels including surgeons, physical medicine and rehabilitation physicians, researchers, epidemiologists, primary care physicians, education professionals, and management professionals.

Domains

The SPINE20 recommendations address 12 priority domains, and 15 subdomains related to spine disorders. Domains were designed to include broad themes, and whole subdomains were designed to specify the topic of domains. All domains were reviewed and updated between 17 and 31 December 2021 by the SPINE20 scientific task force which includes 32 international and multidisciplinary members (Appendix1).

Selection of Domains

We held an online Delphi consensus meeting on January 13, 2022 to select the domains.[7] Two facilitators (KT from Japan and MN from France) facilitated the meeting, and 21 scientific taskforce members participated in the consensus survey. The Delphi method was designed to select 6 domains from 12 domain candidates using an on-line voting program (Forms, Microsoft, Redmond, WA).

For the first round of voting, participants were requested to score each domain candidate from minimum 1 to maximum 10. From the subsequent rounds of voting, participants were asked to either agree or disagree with a specific domain. Agreement $\geq 75\%$ was defined as consensus and the first 6 domains that reached the consensus were selected. As a result, a total of 8 votes were conducted. "Access to care (85.7% agreement in 2nd vote)", "Value-based care (81.0% agreement in 2nd vote)", "Rehabilitation (84.2% in 5th vote)", "Research (76.2% agreement in 6th vote)", "Future of spine care (88.2% agreement in 8th vote)", and "Capacity building (82.5% agreement in 8th votes)" were selected as the main domains of the SPINE20 2022 recommendation. Each year, SPINE20 adopts one additional domain proposed by the host SPINE20. This year, the Indonesia Spine Society proposed a domain focused on "Wellness."

Development of recommendations

Each domain elected two writers who were assigned by the SPINE20 scientific task force to draft the recommendations. Writers were allowed to select one sub-domain from the list. In 2022, the recommendations were drafted by:

- Access to care: PP from Portugal and HC from India,
- Value-based care: DL from US and FK from Germany,
- Rehabilitation: WS from US and PC from Canada,
- Research: PV from Germany and HA from Saudi Arabia,
- Future of spine care: MI from Japan and CM from Brazil,
- Capacity building: SB from Saudi Arabia and AHR from Indonesia,
- Wellness: BD from Indonesia and GC from Italy.

Each pair of writers submit 3-4 candidate recommendations for each domain. The candidate recommendations were discussed and refined at the Scientific Task Force through weekly online meetings from February 24 to May 12.

Selection of recommendations

An online consensus meeting was held on May 19, 2022 using the real-time Delphi method to select the recommendations. Two facilitators (KT from Japan and MN from France) facilitated the meeting, and 37 international, multidisciplinary experts participated in the consensus meeting. Recommendations were selected using an online voting software (Forms, Microsoft, Redmond, WA). A week prior to the Delphi consensus meeting, participants scored each candidate recommendation from minimum of 1 to maximum of 10 to provide an initial prioritization by the group.

An average score of 8/10 was considered as anchor of the first scoring. Recommendations that reached a level of agreement $\geq 75\%$ were kept and moved to the next round of voting, with a maximum of 5 rounds of voting per recommendation. Recommendations that did not reach the 75% level of agreement after 5 rounds were rejected. All candidates of recommendation statements and the voting results are shown in Appendices 2 and 3.

Publication of recommendations

Recommendation statements and rationales were published on the SPINE20 website (<https://spine20.org>) 14 days before the SPINE20 summits 2022. Public comments were invited via website and if relevant, the recommendations were modified accordingly.

Final approval of recommendations

The recommendations will be discussed in SPINE summits 2022 on August 5, 2022, allowing the Summit participants to debate the recommendations and suggest modifications.

A. Access to care | Diversity

Recommendation

SPINE20 calls upon G20 countries to develop action plans to provide universal access to spine care that incorporates the needs of minorities and vulnerable populations.

Background:

Access to care relates to the timely use of health services to achieve the best health outcomes.[8] Globally, individuals in lower socioeconomic status, women, visible minorities, people with disabilities, and other vulnerable populations are particularly disadvantaged by limited 'access to care' and suboptimal health outcomes.[9] This is mainly due to the multiple challenges related to achieving equity.[9] Non-discriminatory access to healthcare is a human right that is anchored in various international treaties.[10] Access to care is influenced by various factors including gender, race, and ethnicity, religion, and socioeconomic status.[11, 12]

Evidence-based interdisciplinary care is vital for the treatment of any spinal disorders. For example, a spinal cord injured patient requires support and assistance from not merely the spine surgeon but also physiotherapists, occupational therapists, physiatrists, social workers, psychologists, peer-counselors, orthotists, and assistive technologists.[13]

Diverse healthcare systems exist around the globe, and several of these systems are equipped to benefit patients while managing with significant financial constraints.[14] It is therefore imperative that all healthcare systems aim to provide the best services to patients to improve their health status and well-being. Hence it is crucial to customize treatment strategies that meet the challenges faced by persons with spinal ailments while dealing with economic challenges.

Problem:

Despite significant healthcare investments and research, many people with spinal disorders around the globe are unable to access evidence-based care.[9, 11, 12] Diversities and disparities among the population, including those related to ethnicity, religious and cultural backgrounds and beliefs, and socioeconomic status are contributing factors within this problem. A custom-tailored approach is hence imperative.

Potential solutions:

Promoting interdisciplinary spine care through awareness and education of the different health professionals involved is strongly



Non-discriminatory access to healthcare is a human right that is anchored in various international treaties



Despite significant healthcare investments and research, many people with spinal disorders around the globe are unable to access evidence-based care



recommended as a way to improve access to equitable and cost-effective spine care.[12] Assessment of the particularities of the population is of utmost importance to identify the best healthcare systems for their needs.[13] Promotion of education of both population and politics may valuably determine positive effects in a middle-to-long term project. A tailored approach should be implemented keeping in mind the availability of resources, religious beliefs, and ethnic sentiments.

B. Capacity building | Patient's safety

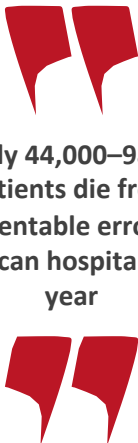
Recommendation

SPINE20 calls upon G20 countries to invest in the development of sustainable human resource capacity, through multisectoral & interprofessional competency-based education and training to promote evidence-based approaches to spine care, and to build an appropriate working environment that optimizes the delivery of safe health services.

*This statement is adopted from recommendation number 8 in the World Health Assembly 72.6 resolution.[15]

Background:

The WHO defines patient safety as “a framework of organized activities that creates cultures, processes, procedures, behaviors, technologies and environments in healthcare that consistently and sustainably lower risks, reduce the occurrence of avoidable harm, make errors less likely and reduce the impact of harm when it does occur.”[16] Patient safety did not attract global attention until the late 1990s, upon the publication of the Institute of Medicine’s landmark publication, “To Err is Human.”[17] The report estimated that nearly 44,000–98,000 patients die from preventable errors in American hospitals each year. The report concluded with important recommendations including capacity building for patient safety. “Crossing the Quality Chasm: A New Health System for the 21st Century” was another landmark publication by the Institute of Medicine in 2001.[18] The report recommended improvement in six dimensions of the healthcare system: safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity. The report dedicated a chapter for capacity building to prepare the workforce for these changes. These two reports triggered many patient safety improvement initiatives, including capacity building, in multiple countries and globally.[17, 18]



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In 2002, the World Health Assembly passed resolution WHA55.18, “Quality of care: patient safety,” which urged countries to pay the greatest possible attention to patient safety. This has led to the launch of the World Alliance for Patient Safety to facilitate the capacity building for patient safety in Member States. Multiple efforts for capacity building have been launched since then. Most notably, these include the publication of the WHO Patient Safety Curriculum Guide for Medical Schools in 2009 and the WHO Patient Safety Curriculum Guide: Multi-professional Edition in 2011, which were based on the best available evidence.[19, 20] In addition, countries have launched national initiatives for capacity building for patient safety such as the TeamSTEPPS by the Agency for Healthcare Research and Quality in the U.S., and the Patient Safety Education Program – Canada by the Canadian Patient Safety Institute to name a few.[21, 22]

Despite these capacity building and other initiatives, patient safety continues to be a global concern. Unsafe care results in over 3 million deaths each year globally.[23] It is estimated that one in ten patients is subject to an adverse event while receiving hospital care in high-income countries, while as many as 4 in 100 people die from unsafe care in the developing world.[23] Patient harm is not limited to hospital care. It is estimated that about half of the global burden of patient harm originates in primary and ambulatory care, and numbers suggest that nearly four of ten patients experience safety issues in their interaction with this setting.[24] Furthermore, unsafe care leads to increased strain on health system finances and a loss of trust in health systems.[23, 24]

Due to all of these alarming statistics, the World Health Assembly passed the WHA72.6 resolution on “Global action on patient safety” in 2019.[15] SPINE20 endorses all the resolution recommendations, and more specifically endorses recommendation number 8 which is related to capacity building for patient safety. In 2021, the WHO published the “Global Patient Safety Action Plan 2021-2030.”[25] Given the multidisciplinary nature of SPINE20 and its founding societies, it is well positioned to play a major role in promoting multidisciplinary patient safety capacity building by endorsing the WHO Global Patient Safety Action Plan 2021-2030, specifically strategic objective number five.

Problem:

Despite the patient safety improvement efforts, including capacity building, over the past two decades, patient harm due to adverse events is likely to be among the 10 leading causes of death and disability worldwide.[16] The 72nd World Health Assembly resolution WHA72.6 on “Global action on patient safety” urges Member States “to recognize patient safety as a health priority in health sector policies and programs to achieve universal health coverage.”[15] Capacity building is one of the strategic objectives to achieve this goal.



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“Global action on patient safety” urges Member States “to recognize patient safety as a health priority in health sector policies and programs to achieve universal health coverage.”



Potential solutions:

Spine20 endorses the WHO Global Patient Safety Action Plan 2021-2030, and more specifically strategic objective number 5, which states “Inspire, educate, skill and protect every health worker to contribute to the design and delivery of safe care systems.”[26] The strategic objective is facilitated by 5 strategies: “5.1. Incorporate patient safety within health professional undergraduate and postgraduate education curricula and continuing professional development, with an emphasis on interprofessional learning. 5.2. Identify and establish collaborations with centers of excellence in patient safety education and training. 5.3. Ensure that patient safety core competencies are part of regulatory requirements for health professionals. 5.4. Link commitment to patient safety with appraisal systems for healthcare professionals and managers. 5.5. Design care settings, environments and practices to provide safe working conditions for all staff.”[26] SPINE20 endorses the detailed actions under each strategy assigned to governments, healthcare facilities and services, stakeholders, and WHO secretariat (WHO Global Patient Safety Action Plan 2021-2030, pp. 48-35).[26]

C. Future of spine care | Aging**Recommendation**

SPINE20 calls upon G20 countries to develop policies using the best available evidence to properly manage spine disabilities and to prolong functional healthy life expectancy in the era of an aging population.

Background:

The world is rapidly aging. The World Health Organization estimated that the number and proportion of people aged 60 years and older in the population is increasing worldwide.[27] This trend is advancing at an unprecedented pace and will accelerate in the coming several decades, particularly in developing countries. In 2050, 80% of aged people will be living in low- and middle-income countries.[27]

With prolonged life expectancy in many countries, the question whether the additional years of life gained are spent in good or poor health has become of significant social importance due to its potential policy implications, such as health-care provisions and extending retirement ages.[28]



The World Health Organization estimated that the number and proportion of people aged 60 years and older in the population is increasing worldwide



From such perspective, healthy life expectancy (HALE) and disability adjusted life-years (DALYs) are considered as critical parameters. HALE is defined as the number of years expected to be lived in good health, and DALYs quantifies the health loss due to specific diseases and injuries. HALE provides a snapshot of overall population health and DALYs is useful to quantify and rank social burdens of specific diseases.[28]

Problem:

If an increase in HALE has been halted despite prolonged life expectancy, people would suffer for more years from poor health ending up with an absolute expansion of morbidity or mortality.[1] Spinal disabilities (neck/back pain) were one of the top 5 disease entities with regards to the increase in DALYs among elderly in 369 diseases and injuries.[28]

Potential solutions:

SPINE20 calls upon G20 countries to recognize that spinal disorders are the most common source of disability in elderly population, and to develop policies using the best available evidence to properly manage spine disabilities and to prolong functional healthy life expectancy in the current aging world. Osteoporotic spinal fracture in the elderly, for an example, is a major cause of spinal disability, resulting in substantial bone-associated morbidities, spinal malalignment, increased mortality and health-care costs.[29] Scientific evidence suggests that proper screening, exercise, and medical treatment for spinal osteoporosis among the population with high-risks for fracture may decrease the incidence of fractures and social burdens including direct medical costs and the monetary impact such as caregiver time and nonmonetary costs of poor health[29-31], and comprehensive fall prevention programs to reduce fall frequency.[32] Despite the accumulation of such scientific knowledge worldwide, efficient measures on these aged-related spinal ailments are not taken in many parts of the world. Conversely, some G20 countries such as Japan, the world's fastest-aging society, started to implement these medical strategies into their policy to promote extending HALE under a sustainable healthcare system.[33] With awareness of global aging trends, all G20 countries and other developing countries should recognize the impact of the age-related spinal ailments on HALE and DALYs to maintain a sustainable healthcare system and take any immediate medical or social actions to alleviate unnecessary suffering of vulnerable populations. For the future of spine care in the current aging world, SPINE20 warns of the need to accumulate the evidence that alleviating the impact of age-related spinal ailments on HALE may contribute to maintaining a sustainable healthcare system in the future.



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D. Rehabilitation | Spinal Cord Injury

Recommendation

SPINE20 calls upon G20 countries to create a competent workforce and improve the health care infrastructure / facilities including equipment to provide evidence-based interprofessional rehabilitation services to patients with spinal cord injury throughout their continuum of care.

Background:

Spinal Cord Injury (SCI) is a significant cause of disability. Although the incidence and causes vary globally, SCI puts an important burden on healthcare systems, and the economic welfare of individuals, families, and society as a whole.[34] Many people who would benefit from rehabilitation for SCI do not have access to services because they are not available, not affordable, or because of absent or limited access to qualified healthcare providers and facilities.[35] Therefore, SCI can lead to significant 1 year mortality rates in areas of the world such as sub-Saharan Africa.[36] This is problematic because rehabilitation is considered an essential part of universal health coverage, and an important strategy for achieving the United Nations' Sustainable Development Goal of ensuring healthy lives and well-being for all.[37] The impact of this problem is magnified by the aging population as well as the lack of decrease in incidence in some areas of the world. Therefore, public health policies should aim to prevent traumatic SCI, and special attention should be given to long-term management of elderly patients with SCI in order to decrease mortality.[38]

Significant efforts are required to improve access to rehabilitation globally. The WHO defines rehabilitation as “a set of interventions to optimize functioning and reduce disability in persons with health conditions when interacting with their environment.” In many countries, including G20 nations, the rehabilitation workforce is too small or not adequately trained to meet the population's needs. This shortage of competent rehabilitation providers has led the WHO and partners to develop a Rehabilitation Competency Framework to assist nations to develop and implement competency-based education and training and regulatory standards to train rehabilitation providers.[39] Therefore, to improve the productivity and well-being of the population globally, it is crucial to prioritize access to value-based and evidence-based rehabilitation care delivered by a competent rehabilitation workforce at all levels including community, primary, secondary, and tertiary care.



SCI can lead to significant 1 year mortality rates in different areas in the world




WHO defines rehabilitation as “a set of interventions to optimize functioning and reduce disability in persons with health conditions when interacting with their environment.”



Problem:

The global burden of disability related to SCI continues to grow despite prevention efforts. One reason for this reality is that the timely access to high-quality, value-based rehabilitation is limited in most countries, including G20 nations. Violence, lack of infrastructure, risk-taking behaviors, and aging are also factors that may lead to SCI and disability.

Potential solutions:

SPINE20 calls upon G20 countries to create a competent workforce and improve the health care infrastructure / facilities including equipment to provide evidence-based multidisciplinary rehabilitation services to patients with SCI. The health, well-being, and productivity of the population will benefit from: 1. Developing a rehabilitation workforce that can deliver high quality and value-based rehabilitation for people with SCI; 2. Promoting the delivery of high quality and value-based rehabilitation for people with SCI; and 3. Facilitating easy access to high quality and value-based rehabilitation aimed at returning injured persons to a productive life. Government efforts should target the timely delivery of surgical intervention and quality rehabilitation to these individuals to achieve population prosperity. The delivery and accessibility of rehabilitation services that are supported by high-quality evidence must be prioritized. If implemented, this recommendation will promote improvements in the health, well-being, and quality of life of the population.



The delivery and accessibility of rehabilitation services that are supported by high-quality evidence must be prioritized


E. Research | Priorities**Recommendation**

SPINE20 calls upon G20 countries to build collaborative and innovative translational research capacity within national, regional, and global healthcare systems for state of the art and cost-effective spine care across the healthcare levels continuum ensuring equality, diversity, and inclusion of all stakeholders.

Problem:

Spinal pain prevalence and disability have increased markedly over the past 25 years and will likely increase further as populations age.[40] Spinal disorders should be prioritized for research funding given the huge and growing global burden. Internationally more than US \$240 billion is spent on health research each year including spine research.[41]



Spinal disorders should be prioritized for research funding given the huge and growing global burden



Here however, two problems are prevalent. First, compared to the big players in research activities, i.e., oncology, cardiovascular, and neurosciences, research priorities in spine science are ill-defined and less focused. This applies to the entire chain of research ranging from molecular/cellular aspects addressed in the experimental lab to well-designed and meaningful clinical studies. Consequently, critical mass in the different arenas of spine science must be raised and research priorities must be competitively defined in detail to convince third parties in politics and industry to shift their attention to spine science, and to invest in research in this field. Second, research in spine science lacks strategies that enhance the translation of evidence-based discoveries into a patient benefit at a global level through effective implementation processes.[41] Thus, gaps in knowledge translation and implementation for better outcomes have been already raised by the SPINE20 advocacy group in their recommendation in 2021.[42] Implementation across all levels of healthcare, considering the global and national health priorities, requires research capacity building within healthcare systems. Research capacity building is defined as “an ongoing process of empowering individuals, institutions, organizations and nations to define and prioritize problems systematically; develop and scientifically evaluate appropriate solutions; and share and apply the knowledge generated.”[42] All entities involved in research, funding, and knowledge translation, whether clinicians, researchers, consumers, grant institutions, or decision makers, need to work in partnership to be able to define the problems facing healthcare nationally and internationally to work together to research solutions for those problems.[43]

Problem:

Concerning the shortcomings of research in spine science, the main current problems are that research priorities are ill defined, the quality of research questions and their execution is lagging behind other, better established research arenas, and the methodologies applied do not always mirror the latest portfolio. The research-to-practice gap within spine care is due to a wide range of challenges: lack of trained spine clinician scientists, missing focus on key research aspects, and disparities between high income and middle- and low-income countries in relation to research funding, translation, and dissemination to name a few.[44] Barriers to knowledge translation and implementation of evidence-based practice have been reported, which could interfere with research processes that include the development phase, when research needs are identified, when the research is being conducted, as well as in the dissemination phase.[43] A deficiency has been reported regarding the awareness, knowledge, and skills not only among practitioners but also decision makers and managers on the implementation of evidence and embracing of research driven practice.[45]



Gaps in knowledge translation and implementation for better outcomes have been already raised by the SPINE20 advocacy group in 2021 recommendations



Deficiencies has been reported in the awareness, knowledge, and skills among spine practitioners, decision makers and managers on the implementation of evidence and embracing of research driven practice



In addition, assessing the cost-effectiveness of implementing evidence-based technologies and innovations is not always conducted on the health system level.[44]

Potential solutions:

SPINE20 calls upon G20 countries to build collaborative research capacity within national, regional, and global healthcare systems for cost-effective spine care across all healthcare levels (preventative care, primary care, secondary care, and tertiary care) ensuring equality, diversity, and inclusion for all stakeholders. The WHO resolution for developing national institutional capacity for evidence-informed policy-making for health is a testimony of the need for research capacity building on national, regional, and global levels.[46] This resolution recognized and emphasized the critical role of evidence-informed policy-making for health in achieving health-related Sustainable Development Goals and the necessity of evidence-informed policy-making for all countries to ensure that resources result in the best possible health outcomes. This applies to all health conditions and healthcare systems in the global community.

For all the reasons mentioned, it is critical for countries to adapt and/or adopt strategies for building collaborative research capacity in relation to spine care. Actions recommended by WHO for all countries across all domains within their healthcare system include regulating and managing conflicts of interest in policy-making, critical appraisal of knowledge products and evidence synthesis reports, accessing sources of research evidence for health, and improving health reports.[46] A generic framework for the purpose of building collaborative research capacity for spine care is critical. G20 countries are well-equipped to develop such generic framework that could be adapted according to specific national needs. The framework should cover the six pillars of evidence-informed policy making, which are: national surveys, ad hoc studies, monitoring and evaluation, knowledge translation, health technology assessment, guideline development and adaptation, and routine data and health information systems.[44]

The framework should also incorporate and take into consideration regulatory environment, governance and organizational structures; leadership and management buy-in; systems, tools, resources and time; and attributes of individual clinicians.[47]

SPINE20 urges health ministries all over the world to act and collaborate in building such research capacity building framework for the ultimate benefit of people with spine ailments or those who are at risk of developing spine conditions. A global effort is urgently needed to overcome the burden of spine ailments that is putting increasing demands on healthcare systems.



It is critical for countries to adapt and/or adopt strategies for building collaborative research capacity in relation to spine care



F. Value-based care | Economy

Recommendation

SPINE20 calls upon G20 countries to develop international consensus statements on patient outcomes and how they can be used to define and develop pathways for value-based care.

Background:

Value in healthcare is defined as health outcomes achieved (quality of care) per dollar spent to achieve those outcomes (cost of care). The WHO and the OECD both estimate that around 30% of resources spent on healthcare are wasted on avoidable complications, unnecessary treatments, or administrative inefficiencies.[48, 49] Due to this, traditional healthcare models that emphasized volume of services over quality and patient health gain are now being adjusted. Reimbursement for healthcare services is shifting from reimbursing solely based on the service provided to a model that links outcomes to cost which then determines value; hence value-based care is needed.

The numerator (outcomes) are condition-specific results that matter most to patients, such as functional recovery and quality of life, while the denominator (cost) applies to the total spending for the full care cycle.[50] With value-based care, patient outcomes are at center of the healthcare process (patient centricity).[51] The goal of value-based care is to improve patient outcomes through quality-based care while at the same time aligning and optimizing factors such as healthcare personnel, hospital resources, healthcare innovation, information technology, and administrative inefficiencies. Measuring value should incorporate all services or activities that together determine success in meeting the patient needs.[52] These needs are determined by the patient's medical condition, defined as an interrelated set of medical circumstances that are best addressed in an integrated way.[53] When studying patient outcomes and evaluating the true value of care, we need to analyze and measure the outcomes and health gains that patients perceive as most important and relevant in their daily lives. This may differ from what healthcare providers, hospital systems, or our technology partners deem most important and relevant.

This patient-centric perception of value aligns more with the definition of health as reported by the World Health Organization in which health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.[54] Costs, like outcomes, should also be measured with patient centricity.



Traditional healthcare models that emphasized volume of services over quality and patient health gain are now being adjusted.



Outcomes and costs must be measured for full care cycles to compare treatment options and inform patients about their treatment choices. Only then will patients be able to choose the pathway that is most applicable to them and their own individual situation. Measuring the total costs over the entirety of a patient's care cycle, and weighing them against outcomes will enable true operational cost reduction, through steps such as elimination of low-value services, reallocation of spending among types of services, provision of services in appropriate settings, better use of healthcare capacity, and shortening of care cycle time.[43] With knowledge of the outcomes and costs (value-basis) of different components of patient care, those paying for the care (e.g., governments, insurers, or patients) can make more informed decisions about allocating funding for patient care. Maximizing patient-preferred outcomes in relation to costs needs to be one of the central goals of our healthcare systems today. Patient-preferred outcomes need to be used to define and develop pathways for care. If the value basis of such care increases, not only patients as the primary stakeholders, but payers, healthcare providers, healthcare systems, and suppliers can all benefit, while at the same time the economic sustainability of the healthcare system increases.

Problem:

Spinal disorders are a significant contributor to the global burden of disease. There is currently significant waste and inefficiency in the treatment of spinal disorders. Currently, outcomes are not clearly defined, and treatment is often not patient-centered.

Potential solutions:

SPINE20 calls upon G20 countries to develop international consensus statements on patient outcomes and how they can be used to define and develop pathways for value-based care. Spine disease-specific outcomes need to be clearly defined and used to develop standardized sets of pathways for value-based care. These outcomes should be relevant and patient-centered, and their measurement developed in concert with physicians and healthcare providers. The data generated can then be used to develop standardized sets of pathways for value-based care of spinal disorders. Payors of care can then allocate funds and resources in the most cost-effective manner to reduce the spinal disorder contribution to the Global Burden of Disease...



There is currently significant waste and inefficiency in the treatment of spinal disorders



Spine disease-specific outcomes need to be clearly defined and used to develop standardized sets of pathways for value-based care.



G. Wellness | Determinants of health

Recommendation

SPINE20 calls upon G20 countries to recognize that intervening on determinants of health including physical activity, nutrition, physical and psychosocial workplace environment and smoking-free lifestyle can reduce the burden of spine disabilities and improve the health status and wellness of population.

Background:

The WHO defines “health” as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.[54] Wellness is the state or condition of being in good physical and mental “health” that plays a crucial role in human quality of life. Common spine disorders such as back pain and neck pain are a leading cause of disability that negatively impacts the wellness of the population.[3] For example, back pain affects more than 80% of the population at some point during their lifetime; the disease could negatively impact on many patient’s wellness including not only physical but also mental aspects.[55] Additionally, back pain is the main cause of work absenteeism in many countries which can cause major social and economic loss to individuals.[56, 57] Therefore, SPINE20 believes that preventing disability related to spine disorders is fundamental, and calls on G20 leaders to recognize that back and neck pain are leading causes of years lived with disability which requires strategies to prevent its development by intervening determinants of health.[58]



Problem:

Spine disorders are not life-threatening, which may lead to an underestimation of its burden and impact on wellness by political leaders.[59]

Potential solutions:

Determinants of health are non-medical factors that influence health outcomes.[60, 61] They are the conditions in which people are born, grow, work, live, and age, and the wider set of systems shaping the conditions of daily life including economic policies, development agendas, social norms, social policies, and political systems.[60] In terms of spinal disorders, several determinants of health factors are known to impact the experience of disability. For example, physical activity, exercise, and a smoking-free lifestyle help individuals maintain the optimal functioning.[62-64]

Dissemination strategy

The WHO Global Patient Safety Action Plan 2021-2030 listed four categories of partners that need to work collaboratively to implement the strategies (Table 2).[25] SPINE20 echoes these categories as a dissemination strategy of our recommendations to include, 1. Governments: Ministries of health and their executive agencies at both national and subnational levels, legislative institutions, other concerned ministries, and regulatory bodies; 2. Healthcare facilities and services: All healthcare facilities ranging from primary health centers to large teaching hospitals, irrespective of ownership and scope of services; 3. Other stakeholders: Nongovernmental organizations, patients and patient organizations, professional bodies and scientific associations and societies, academic and research institutions and civil society; and 4. The WHO Secretariat. WHO officials at all levels – country offices, regional offices, and headquarters.

Limitations

The primary limitation of our project is related to the use of expert opinions as the primary source of information to select domains and develop recommendations. Future SPINE20 efforts to develop recommendations should be based on a prioritization consultation with all policymakers and the public. Furthermore, the content of future recommendations should be informed by valid scientific evidence through the conduct of systematic reviews. Finally, patient advocates, primary care providers and rehabilitation professional organizations are underrepresented in SPINE20. Therefore, the development of future recommendations should include a broader representation of public members, patients, and healthcare providers.

Conclusions

SPINE 20 is an international coalition that was created to bring global attention to the burden of disability caused by spinal disorders. Our advocacy efforts focus on developing public policy recommendations to improve the health, welfare and wellness of all who suffer from spinal pain and disability. We propose that focusing on facilitating access to systems that prioritize value-based care delivered by a competent healthcare workforce will contribute to reducing disability and improve the productivity of the G20 nations.

Table 1. Societies participating in SPINE20 (July 2022)

Society	Nations
Australian Physiotherapy Association	Australia
Asociación Mexicana de Cirujanos de Columna	Mexico
Association of Spine Surgeons of India	India
Brazilian Spine Society	Brazil
EUROSPINE	International
German Spine Society	Germany
Hellenic spine society	Greece
Indonesia Spine Society	Indonesia
Italian Spine Society (SICV&GIS)	Italy
Japanese Society for Spine Surgery and Related Research	Japan
North America Spine Society	United States
Saudi Association of Neurological Surgery	Saudi Arabia
Saudi Spine Society	Saudi Arabia
SOCIEDAD IBEROLATINOAMERICANA DE COLUMNA (SILACO)	International
Society of Spine Surgeons of Pakistan	Pakistan
World Spine Care	International

Table 2. Dissemination strategy target

1. Governments: Ministries of health and their executive agencies at both national and subnational levels, legislative institutions, other concerned ministries, and regulatory bodies.	
1.1	National and subnational governments
1.2	Parliament and subnational legislative bodies
1.3	Ministries of health
1.4	National and subnational specialized agencies and adjunct bodies, for example, national patient safety and quality institutes, centers or agencies, including planning agencies, scheme implementation bodies, public health institutions, and occupational health agencies
1.5	Other ministries directly or indirectly involved in health, including ministries of education, finance, labor and social affairs, consumer affairs, justice and territorial administration
1.6	National and subnational regulatory bodies, including standard setting, licensing and accreditation agencies, and healthcare safety investigative bodies
2. Healthcare facilities and services: All healthcare facilities ranging from primary health centers to large teaching hospitals, irrespective of ownership and scope of services.	
2.1	Tertiary and secondary care facilities and healthcare organizations
2.2	Primary care facilities and service providers
2.3	Long-term care facilities and service providers
2.4	Palliative care service providers
2.5	Mental health facilities and service providers
2.6	Pre-hospital care service providers
2.7	Specialized clinics and diagnostic service providers
2.8	Substance use disorder facilities and dementia care facilities
2.9	Outreach healthcare service providers
2.10	Community-based and home-based healthcare service providers
2.11	Subnational and district health service management teams

3. Other stakeholders: Nongovernmental organizations, patients and patient organizations, professional bodies and scientific associations and societies, academic and research institutions and civil society organizations.

3.1	Intergovernmental organizations, for example, European Commission, OECD
3.2	International and national nongovernmental organizations
3.3	International development organizations
3.4	International and independent standard setting bodies and accreditation agencies
3.5	International and national professional bodies and scientific associations and societies
3.6	Universities, academic institutions, educational centres and other international and national training and capacity-building institutions
3.7	Research institutions
3.8	International and national consortiums and associations of health service providers
3.9	Trade unions and other labor organizations representing health workers
3.10	International and national civil society organizations, including patient organizations
3.11	Community groups and organizations
3.12	Media, including print, electronic and social media
3.13	United Nations and other multilateral organizations
3.14	Development partners, donors and funding agencies
3.15	Pharmaceutical and medical devices industry
3.16	Healthcare information technology industry
3.17	Private sector entities, including commercial businesses (industry) and health service provider organizations
3.18	Health insurance and maintenance organizations

4. WHO Secretariat. WHO at all levels – country offices, regional offices and headquarters

4.1	WHO at all levels – country offices, regional offices, and headquarters
4.2	WHO geographically dispersed offices

Appendix 1. Domain and subdomain candidates in SPINE20 2022

Domain candidates	Sub-domain candidates
Access to care	Spine trauma
Capacity building	Psychology
Diversity	Basic science
Economy of spine care	Treatment options
Future of spine care	Aging
Implementation	Pediatric
Patient safety	Spinal cord injury
Prevention	Low back pain
Rehabilitation	Surgery
Research	Education
Spinal disability	Wellness
Value-based care	Woman's health
	Labor health
	Evidence-based care
	Other topics

Appendix 2. All candidates of recommendation statements

Domain Subdomain	Candidate statements
Access to care Diversity	A. SPINE20 recommends implementing action plans to provide universal access to spine care, coping with the challenges posed by ethnic minorities and other diverse populations. B. SPINE20 recommends devoting resources to education of healthcare professionals to promote consistent interprofessional spine care. C. SPINE20 recommends an in-depth reflection on healthcare systems to implement the model capable of guaranteeing the best spine care to the population.
Value-based care Economy	A. Spine20 calls on the G20 to advocate for the international development of a standardized, accurate method by which the value of spine care can be clearly defined. B. Spine20 calls on the G20 to advocate for the development of an international registry for patient data collection. This data collection will be used to define how we can best provide cost effective, patient-centered, and outcome-based spine care uniformly across the globe. C. Spine20 calls on the G20 to develop international consensus statements regarding patient care outcomes that will lead to pathways for value-based care.
Rehabilitation Spinal cord injury	A. Improve the infrastructure, including healthcare facilities and equipment, to provide evidence-based rehabilitation services to patients with SCI. B. Invest in rehabilitation research to develop an evidentiary basis for the managements of patients those with SCI. C. Develop vocational training programs specific to individuals with SCI to optimize their participation in the workforce.
Research Priorities	A. SPINE20 calls upon G20 countries to facilitate and promote regenerative medicine and translational research in relation to spinal and spinal cord ailments. B. SPINE20 calls upon G20 countries to build capacity for evidence-based practice, knowledge translation and dissemination to advance spine care pathways across all healthcare levels (preventative care, primary care, secondary care, and tertiary care). C. SPINE20 calls upon G20 countries to provide funding opportunities for collaborative research between high income and low/middle income countries towards advancement of spine care in those countries.
Future of spine care Aging	A. SPINE20 calls upon G20 countries to recognize the increasing burden of spinal disabilities in the elderly to maintain the sustainable healthcare system in the current global aging. B. SPINE20 calls upon G20 countries to recognize spinal disabilities as most prevalent but preventable by social or medical efforts to prolong healthy life expectancy for all human beings. C. SPINE20 calls upon G20 countries to recognize the strength of national or international registries of spinal diseases for future planning of medical care system in each society.

Capacity building Patient Safety	A. SPINE20 calls upon G20 countries to promote safety culture by providing training to all health professionals, addressing human factors, and building leadership and management capacity and efficient multidisciplinary teams. B. SPINE20 calls upon G20 countries to build sustainable human resource capacity, through multisectoral and interprofessional competency-based education and training to promote a multidisciplinary approach, and to build an appropriate working environment that optimizes the delivery of safe health services. C. SPINE20 calls upon G20 countries to put in place systems for the engagement and empowerment of patients' families and communities in the delivery of safer healthcare. D. SPINE20 calls upon G20 countries to promote safe spine care through public engagement, patient empowerment, and capacity building of healthcare teams and institutions.
Wellness Quality of life	A. Spine20 calls upon G20 countries to recognize the spinal disabilities as a global and most prevalent burden, in fifth place between the Non-Transmissible Diseases for Wellness impairments. B. Spine20 calls upon G20 countries to consider that life habits (obesity, lack of physical activity, inadequate ergonomics of workplaces) considerably increase incidence and severity of the spine illness. C. Spine20 calls upon G20 countries to promote social and medical endeavors to prevent spine disabilities and prolong wellness and healthy life expectancy of human beings.

Appendix 3. All candidates of recommendation statements

Domain Subdomain	Voting results
Access to care Diversity	Vote1: A 89.5%, B 5.3%, C 5.3%
Value-based care Economy	Vote1: A 21.1%, B 42.1%, C 36.8%
	Vote2: A 11.1%, B 50.0%, C 38.9%
	Vote3: A 0.0%, B 53.8%, C 46.2%
	Vote4: A 0.0%, B 25.0%, C 75.0%
Rehabilitation Spinal cord injury	Vote1: A 84.2%, B 10.6%, C 5.3%
Research Priorities	Vote1: A 5.3%, B 73.7%, C 21.1%
	Vote2: A 0.0%, B 94.4%, C 5.6%
Future of spine care Aging	Vote1: A 36.8%, B 57.9%, C 5.3%
	Vote2: A 22.2%, B 66.7%, C 11.1%
	Vote3: A 7.1%, B 92.9%, C 0.0%
Capacity building Patient Safety	Vote1: A 10.5%, B 84.2%, C 0%, D 5.3%
Wellness Quality of life	Vote1: A 21.1%, B 57.9%, C 21.1%
	Vote2: A 16.7%, B 77.8%, C 5.6%

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