HEALTH CHALLENGES: QUALITY, EQUITY, ACCESS, AND PREPAREDNESS FOR EPIDEMICS AND CLIMATE CHANGE
Task Force 4 - S20 Brasil 2024
This is a Chair's summary of S20 Brasil 2024 discussions; the positions are not necessarily shared by all S20 members.

Preamble

In September 2015, at the United Nations Headquarters, representatives of 193 countries approved a global agenda to be achieved by 2030. The signatory countries recognized that to make our planet suitable for sustainable living, we urgently need to take action on the 17 Sustainable Development Goals (SDGs). Among the most important identified was eradicating poverty in all its forms and dimensions, including extreme poverty, which is the greatest global challenge and an indispensable requirement for sustainable development. Bold and transformative measures were outlined, with our governments committing to embrace them to steer the world towards a sustainable and resilient path. These actions are integrated and indivisible and must balance the three dimensions of sustainable development: social, economic, and environmental. Science and international scientific collaboration serve as key mechanisms to reach these goals. With this standpoint, under the motto "Science for Global Transformation", the S20 Academies of Sciences met in Rio de Janeiro in 2024, and focused the discussions on five themes related to the UN 2030 Agenda: (1) Artificial Intelligence; (2) Bioeconomy; (3) Energy Transition Process; (4) Health Challenges; and (5) Social Justice.

We present to the G20 governments and society, the S20 Brasil 2024 recommendations with the expectation that these will be considered by our governments and help guide the final document of the G20. We also draw attention to the fact that G20 countries should consider their demographic trends, proactively anticipating and adapting to changes in their workforce size and age distribution, as these factors will significantly impact social security, pension systems, health and welfare programs, thereby affecting economic growth and competitiveness. It is essential for the educational system to address the diverse needs of both aging and youthful populations. Grasping social and demographic trends is essential for anticipating technological requirements and driving innovation.

Introduction

With a limited timeframe to achieve the Sustainable Development Goals (SDGs), it is crucial to accelerate efforts immediately. The next few years are critical for making substantial progress. Goal 3 of the SDGs aims to ensure healthy lives and well-being for all, and target 3.8 specifically calls for countries to "achieve universal health coverage (UHC), including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all"[1]. Progress towards UHC was already stagnant before COVID-19, and the pandemic further disrupted essential services, setting back UHC efforts globally. The achievement of UHC with an emphasis on equity, community involvement, and participation holds the potential to drive improvements in various aspects of health, spanning mental health, infectious and non-communicable diseases (NCDs) management, maternal and child health and development and longevity issues in the growing ageing populations.

Goal 10 highlights reducing inequities and ensuring no one is left behind in sustainable development. This goal highlights the critical need to promote global health equity, particularly in sharing resources and technologies to prevent and manage health emergencies while fostering international solidarity. Effective communication strategies are essential for disseminating health information, countering disinformation, and conducting health campaigns.

Further, challenges that considers the various dimensions of health and social determinants, including age and socioeconomic and cultural background, their intersectional factors with each other and with systems of power and oppression, food security, housing, clean water and sanitation, proper air quality in indoor and outdoor

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[1] United Nations - Goal 3 of the Sustainable Development Goals (SDGs), Targets and Indicators
(https://sdgs.un.org/goals/goal3#targets_and_indicators).

spaces, poverty, and violence—must be addressed. Moreover, addressing the complex interactions between climate change, environmental factors, and health utilizing a One Health approach which recognizes the interdependencies between the health of people, animals, and ecosystems.

Prevention, Preparedness, Access, and Sustainability

Early Intervention: Prevention and preparedness actions empower communities to address health issues before they escalate, enabling early intervention to mitigate risks and reduce disease burden. By focusing on preventive measures such as vaccination campaigns, health education and literacy, dietary and lifestyle choices and access to primary care, populations with known vulnerabilities can be reached before illnesses spread, thereby minimizing inequities in healthcare outcomes. License to intervene in many communities cannot be taken for granted. Vaccine hesitancy, mistrust and adverse reaction towards legislated health interventions need careful explanation and expert communication to the public. Engaging the community and the political system, and with respect to cultural differences is essential to ensuring scaled adoption of evidence-based health interventions.

Equitable Access to Resources: Prioritizing prevention and preparedness ensures equitable distribution of resources and healthcare services, bridging gaps in access that often perpetuate health inequities. By investing in infrastructure, training, and outreach programs tailored to underserved communities, individuals are better equipped to adopt healthy behaviors, receive timely screenings, and access essential treatments, ultimately narrowing socioeconomic inequities in health outcomes.

Long-Term Sustainability: Prevention-oriented approaches not only alleviate immediate health burdens but also contribute to long-term sustainability by reducing healthcare costs and improving overall community well-being. By fostering a culture of health literacy, promoting healthy lifestyles, and strengthening healthcare systems' capacity to respond to emerging threats, societies can build resilience against future health crises while addressing systemic factors that drive health inequities, leading to more equitable and sustainable health outcomes for all. Undoubtedly, the One Health framework contributes to creating resilient and adaptable health systems capable of facing future uncertainties.

Recommendations
- Reduce global inequity in health and promote global solidarity, especially regarding the transfer of resources and technology for health.
- Enhance preventative health care, especially in communities with known vulnerabilities, as key to reduce the risk of non-communicable diseases at affordable healthcare costs.
- Strengthen global surveillance, open science, and information sharing for early detection of health emergencies and public health events of international concern.
- Make essential medicines and diagnostic tools globally accessible for all. Support research and development of sustainable local and regional production of medicines, vaccines, and medical countermeasures by facilitating knowledge sharing and technology transfer, creating streamlined regulatory pathways, and developing efficient procurement policies, to ultimately enable equitable access worldwide and to support high-level pandemic prevention, preparedness, and response goals.
- Foster collaboration in research, development, and technology to improve diagnosis, prevention, and treatment of cancer, including those cancers caused by infections such as HPV and *H. pylori*.
- Address the challenges of antimicrobial resistance by urgent development of new antibiotics, and supporting alternative solutions including vaccines, monoclonal antibodies, and other evolving methods, while promoting a rational use of antibiotics in people and animals worldwide.
- Invest in research for low-cost treatments for communicable and non-communicable diseases.
- Develop policies to promote healthy lifestyles, including physical activity and quality nutrition, to address issues such as obesity, tobacco, alcohol, ultra-processed food and sugar-sweetened beverages.

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- Establish health campaigns for effective communication and dissemination of information and for combating disinformation.

Expand Inclusive Digital Health Services and Technological Innovations

Democratic digital health and technological transformations are crucial for supporting strong and resilient universal health systems. Big data can be a powerful tool to investigate social inequities (including access to health services), identify groups with vulnerabilities, and assess the impact of policies and programs. Health data should be accessible to trusted partners including public health academics and practitioners to ensure the right questions are asked of large data bases. Data sovereignty and security are important aspects of access and data management, respecting national legislation. Integrating molecular and epidemiological surveillance enables health systems to promptly detect and respond to the emergence, reemergence, and persistence of pathogens, as well as to antimicrobial and antiviral resistance. While the possible benefits of innovative health technologies are predominantly available in high-income countries and for more affluent groups, care should be taken to avoid technological and digital exclusion, which may widen the gap between them and low and middle-income countries. Thus, there is a need to ensure equitable access to digital health services, technologies, and innovations globally.

Recommendations
- Promote inclusive digital health transformation as crucial for supporting strong universal health systems.
- Incorporate telemedicine to expand healthcare access including to remote and hard-to-reach areas.
- Improve the collection and use of data to support globally integrated surveillance and response systems, improved health system planning, and large-scale performance evaluation methods.
- Invest in AI research for health that upholds the equity principles underpinning universal health coverage.
- Integrate data so that death and birth registries, inpatient and outpatient records, and routine examination data are interconnected, for instance, using a national ID number. By linking administrative health data with social data from various information systems (such as education, social protection, work, housing) in compliance with privacy regulations and national data protection legislation, it is possible to build extensive databases. This integration adds significant value to population health studies by providing large sample sizes.
- Promote more equitable access to well-established health technologies worldwide.

Bridging the Gap in Mental Health

Evidence indicates that around 5% of the working-age population grapples with severe mental health conditions, and an additional 15% are affected by more common mental disorders in OECD countries. The direct and indirect costs associated with mental ill-health can exceed 4% of the GDP2. Mental illness is also often associated with physical health problems resulting in poorer health outcomes, increased mortality, and higher costs for the health care system. Approximately half of adults with mental suffering developed the condition before the age of 15, emphasizing the importance of confronting adverse events in childhood and of early identification and treatment. In addition, the aging of the population impacts the health system, social services, and the general well-being of older people. Taking a life course approach that recognizes prevention and early identification can lower prevalence and the recognition of mental disorders as a chronic condition can limit disability.

Moreover, epidemiological data reveal that vulnerable groups are particularly affected: intersectional factors, violence, poverty, loneliness and social exclusion play a significant role as determinants of poor mental health. Nevertheless, a large proportion of individuals lacks adequate mental health care. The pandemic has further exacerbated the burden of mental disorders and diverse impacts resulting from health crises are expected.

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[2] OECD - Focus on Health - Making Mental Health Count (https://www.oecd.org/els/health-systems/Focus-on-Health-Making-Mental-Health-Count.pdf).

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Recommendations
- Make mental health care a policy priority, particularly for socially vulnerable groups.
- Invest in prevention programs in schools and adopt evidence based psychosocial interventions focused on children and adolescents including support and preservation of family and community structures.
- Ensure appropriate measures to minimize and mitigate family and domestic violence.
- Address the use of alcohol and other drugs as a priority health issue.
- Invest in primary care - ensuring the necessary resources, time, and qualified training - and integrate mental health practitioners in primary care.
- Develop long-term support for the management of older patients.
- Reassess the treatment settings for psychiatric patients within general hospitals, where their mental health and physical needs are addressed.
- Ensure ethical technology developments, promoting coordinated care without increasing inequity.
- Scale up remote and brief protocols for preventing and treating common mental health problems.

Climate and Environmental Change, Food and Water Security, and Health Impacts
Climate and environmental change, biodiversity loss and pollution have direct and indirect impact on health and the sustainability of societies. These factors affect agricultural production, food prices, impact food security, and access to water and proper air quality. LMICs and neglected populations, who depend to a greater extent on the local environment, are affected the most. Further, climate-sensitive health risks disproportionately impact vulnerable and disadvantaged groups, including women, elderly, children, ethnic minorities, impoverished communities, migrants or displaced persons, and those with underlying health conditions[3].

Climate change exerts a profound influence on the prevalence of infectious diseases that pass between animals and humans (zoonotic diseases) and insect-transmitted viruses (arboviruses). As global temperatures rise and weather patterns become increasingly unpredictable, these changes create favorable conditions for the expansion and altered distribution of disease vectors. This expansion, in turn, increases the risk of transmission of zoonotic and arbovirus diseases, such as Lyme disease, West Nile virus, Dengue and Zika virus. In addition, climate-related alterations in habitats and migratory pattern of wild animals can result in increased human contact with animal reservoirs of disease, thereby facilitating the occurrence of spillover events. The warming climate can extend the transmission seasons for arboviruses, increasing the frequency and severity of outbreaks. The failure to acknowledge the substantial body of scientific evidence on environmental protection represents a significant risk to the present and future generations.

An understanding of the ecological dynamics of emerging virus spillover, underscores the importance of addressing cross-species transmission dynamics and land-use changes that facilitate interactions among species. It is evident that the recent pandemic has served to highlight the crucial role of scientific knowledge, particularly in the context of understanding the complex interactions between humans and other species. Furthermore, these observations underscore the necessity of clean indoor and outdoor air to prevent diseases with a significant global burden, such as tuberculosis and COVID-19. In summary, climate and environmental change, animal and human health, food and water safety and security form a critical triad that must be carefully managed to ensure a good quality of life worldwide.

Recommendations
- Integrate climate across all key Health Working Group priority areas and identify opportunities for health co-benefits in developing climate policies which expand beyond the health sector.

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[3] World Health Organization - Climate change (https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health).

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- Investigate the interplay between socio-economic factors and environmental hazards, including climate and environmental changes.
- Address climate change impacts on zoonotic diseases and arboviruses by proactive strategies in public health and environmental management, including supporting improved regional, state, and global surveillance of infectious disease.
- Optimize land use without encroaching on pristine environments.
- Take active measures to ensure food and water safety and security.
- Ban the use of mercury in gold mining.
- Ban the use of the 12 Persistent Organic Pollutants in accordance with the Stockholm Convention.
- Drastically reduce the use of plastics, replacing them with biodegradable materials.
- Plan health care and assistance to populations, especially the vulnerable ones, considering extreme conditions and environmental catastrophes, and work toward developing climate resilient health systems that support communities in preparing for climate-related crises and shocks.
- Mobilize financing to support climate and health efforts, fulfill existing commitments, enhance support to LMICs, and consider creating a central climate and health fund to align global priorities for resource allocation.

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