Report of the sixth meeting of the WHO Strategic and Technical Advisory Group of Experts for Maternal, Newborn, Child and Adolescent Health and Nutrition

15-17 NOVEMBER 2022
# Contents

Abbreviations and acronyms ....................................................... iv

Executive summary ................................................................. v

STAGE recommendations ....................................................... v

Background .................................................................................. 1

Opening session ........................................................................... 3

Updates from previous STAGE recommendations ......................... 7

The comprehensive framework for integrated action on the prevention, diagnosis and management of anaemia: update and next steps ......................................................... 7

School health .............................................................................. 10

Maternal and child health redesign: update on well child and adolescent care visits . 12

Risk stratification ...................................................................... 15

New topics ................................................................................... 19

Maternal and newborn health innovations .................................. 19

Small or sick newborn care ......................................................... 22

Climate change and MNCAHN ................................................... 25

Closing session and next steps .................................................... 31

Partner forum ............................................................................. 31

Annexes ...................................................................................... 35

Annex 1: STAGE meeting agenda .............................................. 35

Annex 2: List of Participants ....................................................... 38

Annex 3: WHO progress report on STAGE recommendations from STAGE meetings in May 2022 and November 2021 ................................................................. 43
## Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMGF</td>
<td>Bill &amp; Melinda Gates Foundation</td>
</tr>
<tr>
<td>BMS</td>
<td>breast-milk substitutes</td>
</tr>
<tr>
<td>ENAP</td>
<td>Every Newborn Action Plan</td>
</tr>
<tr>
<td>GMP</td>
<td>Global Malaria Programme (WHO department)</td>
</tr>
<tr>
<td>IMCI</td>
<td>integrated management of childhood illness</td>
</tr>
<tr>
<td>KMC</td>
<td>kangaroo mother care</td>
</tr>
<tr>
<td>LBW</td>
<td>low birth weight</td>
</tr>
<tr>
<td>LMIC</td>
<td>low- and middle-income country</td>
</tr>
<tr>
<td>MCA</td>
<td>Maternal, Newborn, Child and Adolescent Health and Ageing (WHO department)</td>
</tr>
<tr>
<td>MNCAHN</td>
<td>maternal, newborn, child and adolescent health and nutrition</td>
</tr>
<tr>
<td>MNH</td>
<td>maternal and newborn health</td>
</tr>
<tr>
<td>MUAC</td>
<td>mid upper arm circumference</td>
</tr>
<tr>
<td>NFS</td>
<td>Nutrition and Food Safety (WHO department)</td>
</tr>
<tr>
<td>NTD</td>
<td>Control of Neglected Tropical Diseases (WHO department)</td>
</tr>
<tr>
<td>PMNCH</td>
<td>Partnership for Maternal, Newborn and Child Health</td>
</tr>
<tr>
<td>PSBI</td>
<td>possible severe bacterial infections</td>
</tr>
<tr>
<td>SRH</td>
<td>Sexual Reproductive Health and Research (WHO department)</td>
</tr>
<tr>
<td>SSNB</td>
<td>small or sick newborn</td>
</tr>
<tr>
<td>SSNC</td>
<td>small or sick newborn care</td>
</tr>
<tr>
<td>STAGE</td>
<td>Strategic and Technical Advisory Group of Experts</td>
</tr>
<tr>
<td>TPP</td>
<td>target product profile</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
Executive summary

The sixth meeting of the Strategic and Technical Advisory Group of Experts (STAGE) was held as a hybrid session on 15–17 November 2022, with 15 participants attending in person and 10 persons attending via a virtual platform. The STAGE members were joined by WHO staff at headquarters and online from regional offices, and 32 observers from partner organisations.

Following opening remarks by Dr Soumya Swaminathan, Chief Scientist, WHO, Dr Anshu Banerjee, Director, Maternal, Newborn, Child and Adolescent Health and Ageing (MCA), provided feedback on WHO activities in response to STAGE recommendations from the meetings convened in April 2022 and November 2021. Professor Caroline Homer, Chair of STAGE, welcomed everyone to the first in-person meeting of STAGE and described the way in which the sessions had been organized. The WHO Secretariat had organized subgroup meetings with the co-chairs of the two workstreams and select STAGE members. The subgroups provided inputs to the WHO technical teams for the preparation of background information and helped draft recommendations to be presented to STAGE.

The agenda included a few new topics and some detailed updates from previous sessions. The updates were provided on school health; a comprehensive framework for anaemia; child and adolescent health well-being; and the use of risk stratification for predicting child mortality. New topics for which STAGE guidance was sought included: innovations in maternal and newborn health; supporting countries who are transitioning to midwifery models of care; small and sick newborn care; and climate change from a life-course perspective. The sessions were open to partners and other observers. WHO technical teams provided detailed presentations followed by discussions first by STAGE members and then by partners and other observers. The guidance or recommendations, however, were further refined during the closed sessions for STAGE members and WHO technical teams. At the closing session, a brief discussion was held with the few partners present at the meeting who expressed their appreciation for STAGE’s contributions and expressed their continued support to WHO and STAGE to move the recommendations to actions and programmes in countries. Dr Francesco Branca, Director, Nutrition and Food Safety (NFS), Dr Femi Oladapo, Sexual Reproductive Health and Research (SRH), and Dr Anshu Banerjee, Director, MCA, thanked STAGE for their guidance and assured continued updates to STAGE on topics relevant to their departments. Professor Homer thanked everyone, especially all the STAGE members and partners for their continued support. The closed sessions of STAGE were used to refine the draft recommendations and to discuss next steps. The main recommendations of STAGE are summarized below. The full recommendations are given in the relevant sections of this report.

STAGE recommendations

**Comprehensive framework for integrated action on the prevention, diagnosis, and management of anaemia**

- Developing operational guidance to support countries in translating and integrating global recommendations at national and local community levels.
- Strengthening communications and advocacy on the burden and consequences (health-related and economic) of anaemia (at individual, family, and community level), as well as the investment required to prevent and treat anaemia.
- Collaborating with the WHO working group on devices and drugs to stimulate innovation in diagnosis of anaemia and its causes (using non invasive techniques) and treatment (e.g., delivery of iron, blood substitutes).
- Advocating for global targets on anaemia that are realistic and achievable and that cover all relevantage groups/populations at risk across the lifecourse (for example adolescent girls).
• Ensuring linkages with other initiatives within WHO—for example, school health and youth screening programmes, MNH innovations, and with other developmental efforts addressing social determinants of health; and strengthening engagement with the other relevant sectors.
• Learning more from exemplar countries that have had success in prevention and management of anaemia (e.g., Philippines).

School health and well-being

Coordinated investments in health and education bring mutually reinforcing benefits/return on investment, and directly contribute to important educational outcomes such as school attendance, retention, and academic performance. STAGE recognizes the progress made by the global community in advancing school health, and WHO’s, UNESCO’s, and UNICEF’s joint leadership in supporting this.

STAGE thus recommends:
• WHO and partners focus on enhancing accountability of educational systems in Making Every School a Health Promoting School, under the leadership of education authorities.
• WHO and partners to ensure that school health is co-created with students, parents, and teachers, is context specific, is inclusive of the whole school community and beneficial to out of school children.
• School health should also be strengthened through more investments for: creation of leadership cadres for health promotion in the education system, integration with adolescent health programmes, dissemination of lessons learned and for strengthening research.

Promoting child and adolescent health and wellbeing

Children and adolescents provide the demographic dividend for the prosperity of current and future generations. STAGE welcomes WHO’s initiative to establish policy guidance for a minimum number and content of scheduled contacts with children, adolescents, and their caregivers at critical developmental transition periods.

Recognizing the urgency to close the equity gap, the STAGE requests the Director General to support the health and wellbeing work spearheaded in the MCA department, make resources available towards its advancement, and call upon Member States and partners to lead the transformation in health systems including the human resources that is essential for healthy growth, development, and wellbeing of children and adolescents.

Risk stratification analyses to identify infants and children at high risk of mortality

STAGE recognises high rates of newborn, infant, and child mortality in some settings and the need to use new and current evidence to inform efforts to reduce mortality and improve childhood development. STAGE recommends WHO to continue work (to understand relative and absolute risks in order) to:
• Evaluate programmatic approaches to identify infants and children at high risk of mortality and impaired childhood development.
• Develop and evaluate – through clinical and implementation research - interventions to mitigate these risks and improve deployment of health system resources, including skilled personnel.
• Review and update WHO tools e.g., IMCI/ Hospital pocketbook to include differentiated care approaches based on available evidence.

Maternal and Newborn Health innovations

STAGE recommends WHO continue to focus on innovations for maternal and newborn health to accelerate progress to achieve the SDGs and focus on the following areas:
• Defining “innovations” for MNH.
• Conducting a horizon scanning/mapping of innovations.
• Convening and prioritizing innovations among stakeholders with a focus on the end-to-end process from development to implementation at scale, including involving end-users.
• Developing TPPs and normative products for maternal and newborn health.
• Including scale up and sustainability of innovations within the implementation strategy for scaling up commodities across different country contexts as part of strengthening health systems and improving quality of care in line with WHO recommendations (May 2022 STAGE recommendation).

**Small or sick newborn care**

Overall, for SSNC, both the content of care and scale up of care are needed to meet Every newborn action plan (ENAP) target 4 (80% of districts have at least one level2 (secondary) inpatient unit to care for small and sick newborns, with respiratory support including provision of continuous positive airway pressure). STAGE recommends:

- WHO to continue the acceleration of the scale up of SSNC in level 2 facilities including the integration of maternal and newborn care, zero separation, and human resourcing.

- WHO to provide presentation at a later STAGE meeting on progress toward defining and standardizing signal functions indicators for monitoring SSNC.

**The impact of climate change on MNCAHN**

Climate change represents one of the greatest challenges the world faces today. STAGE acknowledges the WHO programme on climate change and health and the recently launched Alliance for Transformative Action on Climate and Health (ATACH). While recognizing the broader health and health systems implications, STAGE focused their discussions on the mandate to advise on MNCAHN.

1. WHO to strengthen in-house collaboration to embed MNCAHN into climate change policy and actions, and vice versa, and to define and consolidate internal roles, responsibilities, and actions.

2. WHO to call upon Member States, UN agencies and partners to work together to ensure a coordinated response to the climate change and health crisis, with specific attention on actions to safeguard MNCAHN, on sharing lessons learned from country experiences and on strengthened capacity of national MNCAHN actors.

3. WHO to strengthen and coordinate research, including strengthening research capacity and synthesis of evidence and implementation experience to address climate risks for MNCAHN.

   a. WHO to identify research gaps in the evidence base for actions on climate change and MNCAHN to guide future investments in research.

   b. WHO to lead on bringing together studies and documentation to enhance the understanding of the links between climate risks and adverse MNCAHN outcomes including providing updated data on the modelled impacts of climate change on MNCAHN.

   c. WHO to identify, document and share case studies that can serve as successful examples on how to mitigate the negative effects of high ambient temperatures, adverse weather events, air pollution and other climate risks on MNCAHN including examples from disaster preparedness and response efforts. These examples should include adaptation and resilience from community settings in both rural and urban populations.

4. WHO to scale-up communication and advocacy to raise awareness on the impacts of climate change for MNCAHN among policymakers and to amplify efforts coming from youth-led organizations, recognizing their leading role as advocates in climate action.

5. WHO to establish a working group of interdisciplinary experts who can provide inputs on an action plan for integrating MNCAHN into climate change efforts and for ensuring policy and actions are developed to protect MNCAHN from the effects of climate change.
The sixth meeting of the STAGE was convened from 15 to 17 November 2022 in Geneva by WHO departments of Maternal, Newborn, Child and Adolescent Health and Ageing (MCA), Nutrition and Food Safety (NFS) and Sexual and Reproductive Health (SRH). The agenda items for the meeting were finalized in discussion with the STAGE Chair (Annex 1). During this hybrid session, 15 of the STAGE members joined the meeting in person while 10 members joined online in addition to WHO staff at headquarters and online from regional offices, and 32 observers from partner organizations (Annex 2).

The WHO Secretariat then organized various subgroup meetings across the two workstreams of STAGE: Evidence and Guidelines for Impact (EGI) and Health Systems for Impact (HSI). Each subgroup included the co-chairs of the respective workstreams and a few STAGE members who were co-opted based on their topic expertise. At these meetings, the WHO technical teams presented their concept notes and identified specific questions for STAGE. These subgroups provided detailed comments to WHO technical leads through a series of meetings to enable them to clarify their presentations to STAGE. The STAGE subgroups developed draft recommendations for two topics – maternal health innovation and climate change – and discussed some detailed guidance for the small and sick newborn care topic. In addition to the new topics, detailed updates were planned for and presented to the subgroups on school health, child and adolescent well-being, and risk stratification for predicting child mortality. A new working group was formed for anaemia and nutrition as per STAGE recommendations, and the comprehensive framework for anaemia was presented to the working group. The summary of guidance and discussion from the working group was then presented to STAGE.

WHO technical leads prepared the background documents, and these were provided to STAGE members 10 days prior to the meeting. During the open sessions, WHO technical leads made presentations that included the specific questions for guidance from STAGE. The floor was then opened for discussion with STAGE members, representatives of WHO regional offices, United Nations (UN) partners and participants. The discussions focused on developing guidance or recommendations for these various topics. These were then further revised and refined during discussions at the two closed sessions of STAGE members on day one and day three.

All 25 STAGE members attending the meeting had provided their declaration of interest, which was reviewed by the WHO Secretariat. Twelve members had identified conflicts mainly related to grants received by their institutions for doing research in their area of expertise. None of the reported conflicts were perceived to have any impact on the members’ ability to join the meeting or to provide objective and impartial contribution to any of the sessions.
Dr Soumya Swaminathan, WHO Chief Scientist, in her opening remarks welcomed everyone to the first hybrid session and she reminisced about the formation of STAGE with discussions that had started in 2018. She was glad that discussion and subsequent efforts resulted in the formation of STAGE, a committee that was set up across three departments to look at cross-cutting issues and a group that has worked through the pandemic. She welcomed all members especially those in person and those attending online. She highlighted the role and importance of such cross-cutting advisory groups and thought this was a model for other advisory groups in WHO that enables interactions and exchange of ideas across different technical departments. She then highlighted the work by the Quality, Norms and Standards department in the Science Division, which is trying to make the living guidelines approach more viable and useful to countries. The process moved well and fast during COVID-19, as information was coming in rapidly and needed to be disseminated. The digital platform Magic app, now with the digital implementation guide, makes viewing of new information much easier for frontline workers and doctors. She referred to the maternal and child health digital implementation guide, which is already published. She hopes that with artificial intelligence and machine reading technologies, the process should get easier and faster in the future, so adaptation at the country level is made easy. She also mentioned the work with Google and other such search companies to ensure WHO guidelines come up quickly when people search for them. She also emphasised the need to manage misinformation equally well, which is now being done through work with YouTube, Twitter and Meta. Many of these changes were spearheaded during COVID-19. She wanted STAGE to continually provide guidance to WHO and countries on how best to implement these guidelines. She also highlighted downstream work done by Norms and Standards to evaluate the impact of these guidelines at the country level. This is difficult work, and a team is looking at how best to work with countries on this. She also mentioned the work by her Division on streamlining research done at WHO to provide uniform guidance for the priority-setting exercise done by various departments. She also alluded to the plans for making data more accessible to all through a data depository in WHO.

She was happy that STAGE was going to review climate change issues: she encouraged the WHO teams to provide very specific and concrete action points for STAGE to review and discuss and set a research agenda around the impact of climate change on women and children and communities that may be most affected by climate change. She then thanked the Chair, Professor Homer, for her leadership through the difficult years of COVID-19. She ended her remarks by saying she would come back at the closing session to get a summary of the STAGE deliberations. She welcomed the STAGE members on behalf of the Director-General and herself.

Professor Caroline Homer, STAGE Chair, thanked Dr Swaminathan for her remarks and for the support from the Science Division, and she echoed the welcome to STAGE members and partners who were attending in person and those online. She provided some guidance to members, ensuring that those online and those in person were heard and able to contribute at this meeting. She referred to the evolving crisis as Uganda struggled with Ebola virus, and to the COP27 meeting that was happening the same time as the STAGE meeting, and she hoped that the STAGE discussion on climate change planned for the next day would contribute to this important agenda. She reiterated her appreciation of STAGE members, many of whom had attended many subgroup meetings in the past month in preparation for STAGE; of WHO technical teams who had worked hard to provide the information at these sessions; and of the WHO Secretariat for organizing the sessions. She also briefed the group about her meeting with Dr Tedros, WHO Director-General, at which she had debriefed him on the previous STAGE recommendations on maternal health innovations and scale-up plans, Y-check and adolescent well-being agenda, and the detailed discussion on the midwifery topic.
She then provided a brief on the planned agenda for the three days, including a partner forum that was planned for the last day.

She then invited the Director of MCA, Dr Anshu Banerjee, to provide an update on the recommendations made by STAGE at its previous meetings.

Dr Banerjee added his appreciation at seeing many of the STAGE members in person and hoped that at the next meeting more members would join in person. He then informed the group that 27 members out of the 31 had provided their declarations of interest and 12 members reported some conflict; however, none had any conflicts that would restrict them from participating in any of the sessions. He reminded the group that, as always, the detailed progress report would be attached to the STAGE report (Annex 3). He then moved on to provide a brief update on the three recommendations from the previous meeting in May 2022: maternal health innovations scale-up for impact; adolescent health and well-being check-ups and the focus on how to use a public health approach to evaluate these well-being interventions; and supporting countries who are transitioning to midwifery models of care.

In response to the three recommendations on maternal health innovations, WHO had commenced a desk review of stakeholders and the team was working on the terms of reference for the working group, which will be constituted in early 2023. A full presentation of the maternal and newborn health innovations, pipelines of commodities and devices would be presented at this meeting. In response to recommendations on adolescent well-being check-ups, WHO was expanding the Y-check to various countries and regions. A meeting of country leads for Y-check was planned for January 2023. A systematic review of impact measures for preventive screening programmes was underway, which would help develop the conceptual framework that was recommended by STAGE. An advisory group with Partnership for Maternal, Newborn and Child Health (PMNCH) was developing an investment case around adolescent well-being, and this would be presented at the global forum for adolescents the following October.

A detailed session on a well child and well adolescent approach would be presented later this meeting.

For the transition to midwifery models of care, lessons learned from six countries would be used to develop guidance for the transition process. The focus would be on coordination and alignment between partners and donors, and the involvement of the private sector and educational institutions. A STAGE working group was being constituted to take the discussion forward and to guide the development of implementation guidance and an agenda for evaluating the midwifery models of care. The working group would focus on the midwifery profession, how midwives fit within the health system, and an enabling policy environment, which would include community and have a gender equity and human rights approach. The Midwifery Community of Practice platform was launched earlier this year, and this would link to Every Newborn Action Plan (ENAP), ending preventable maternal mortality (EPMM) and other global platforms.

Dr Banerjee then provided brief updates on recommendations from 2021: the guideline for management of possible severe bacterial infections (PSBI) would be updated next year, for which a guideline development group had been constituted. The kangaroo mother care (KMC) working group would transition into the PSBI working group.

A detailed update on the comprehensive framework for anaemia would be provided at this meeting. A STAGE working group had been formed earlier this year as recommended; it had met twice and provided inputs for the draft framework.

With regard to post-neonatal mortality, WHO had established a risk stratification working group, which was conducting data analysis of risk factors for childhood mortality and wasting. A detailed presentation on that was also planned for this meeting.
WHO had a series of papers on mitigating the impact of marketing breast-milk substitutes (BMS) to be published as a Lancet series in February 2023. A global congress with national stakeholders was planned for June 2023, at which 23 countries were expected to advance the code for legislation and enforcement. A report had been launched in collaboration with the United Nations Children's Fund (UNICEF) that focused on the development of a digital strategy to overcome the promotion of BMS by the industry.

Lessons learned from COVID-19 were being collated and would be presented in March 2023. A report on actions to mitigate the impact of COVID-19 was being finalized and would be available on the website in December 2022.

The global position paper on KMC and implementation guidance were being finalized. A detailed update on the progress made on child health redesign would be provided at this meeting.
Updates from previous STAGE recommendations

The comprehensive framework for integrated action on the prevention, diagnosis and management of anaemia: update and next steps

Background

Dr Lisa Rogers, NFS/WHO, provided a brief presentation describing the actions and plans undertaken to provide strategic, effective and implementable action to reduce anaemia, and plans to accelerate progress towards the global target on anaemia. She highlighted that the STAGE working group on anaemia, which has met twice this year (July and October), has been instrumental in moving the agenda forward. She reminded the group that this work is a joint effort by five WHO departments: Nutrition and Food Safety; Maternal, Newborn, Child and Adolescent Health and Ageing; Sexual and Reproductive Health and Research; Malaria; and Neglected Tropical Diseases. The Comprehensive framework for integrated actions on the prevention and management of anaemia aims to provide a high-level strategic view that helps translate evidence to inform multisectoral actions and strategies to reduce anaemia and to accelerate some of the progress towards the global target on anaemia (50% reduction by 2025) and the 2030 Sustainable Development Goals.

The target audience for the Comprehensive framework is Member States, particularly political and health leaders responsible for their population’s health, funding and implementation of programmes. The framework addresses five key areas: i) availability and utilization of information on the causes and risk factors of anaemia, based on quality and affordable diagnostics, for targeted action; ii) availability of quality and affordable preventive and therapeutic interventions for driving impact; iii) integration of these interventions into programmes and/or their coordination in the delivery of services, to address anaemia equitably and with the needed coverage to lead to impact; iv) presence of strong leadership and coordination for implementation and sustainability of high-quality programmes; and v) provision of further education, research and innovation that leads to acceleration in the demand for evidence-informed interventions and person-centred care with the appropriate services. The framework emphasizes the need for global, regional and national actors to work together to facilitate action at the local level. This is all underpinned by the need for monitoring and evaluating all inputs, activities, processes and outputs in order to gauge progress.

This high-level document and advocacy tool will require companion documents, such as operational guides, monitoring and evaluation frameworks, and regional and national plans. Next steps are to engage with regions, countries and partners for further input. In parallel, an Anaemia Action Alliance is being formed by WHO and UNICEF to bring together stakeholders across disciplines, sectors and regions who are committed to improving the health of populations to achieve the collective vision of a world where all women, adolescent girls and children are empowered and enabled to benefit from appropriate and timely actions for the prevention, diagnosis and management of anaemia. The Alliance will form working groups based on four priority workstreams: i) integrated research agenda to address biological, assessment and programmatic issues that constrain progress in anaemia reduction; ii) investment strategy to foster global and domestic investments, encouraging more governments, donors and philanthropic foundations to invest in anaemia research and the development and implementation of comprehensive national plans to prevent and manage anaemia; iii) national integrated anaemia actions to support countries that commit to accelerating progress on anaemia reduction by putting into practice multisectoral anaemia programmes and policies; and iv) programmatic implementation of existing recommendations on the assessment of anaemia and its risk factors, and evidence-based interventions for the prevention and management of anaemia.
High-level feedback received thus far from various advisory groups, including the STAGE working group on anaemia, was shared:

- Include a conceptual framework of anaemia etiology and address both direct causes and underlying/intermediate causes of anaemia, including family planning; water, sanitation and hygiene; education; poverty; and early marriage.
- Conduct a mapping of interventions to address anaemia and ensure recommendations included in the framework are aligned with WHO guidelines to mitigate the risk of delivering conflicting messages to countries.
- Add a theory of change and clearly articulate the problem statement. State what will be new or different about this approach, the barriers to addressing anaemia, why there hasn’t yet been sufficient progress towards the targets and build on recent learnings.

Some of the barriers identified thus far include:

1. A limited focus and coverage of the effective interventions;
2. Insufficient communication, leadership and coordination on anaemia;
3. Socioeconomic and cultural norms that limit access to healthy diets and quality care.

Strategies being proposed include:

1. Improve demand for and access to quality and timely health care, affordable and nutritious diets;
2. Improve anaemia education and communications;
3. Increase stakeholder collaboration;
4. Cultivate national and local leadership.

Two questions were posed for further reflection and discussion:

1. Are there other challenges or barriers that would be important to highlight?
2. How can we collectively better facilitate and encourage this multisectoral coordination at all levels to benefit all target groups given the multiple priorities countries face?

Discussion

The discussion started with STAGE members providing their inputs followed by WHO regional offices and then partners. Some of the STAGE members reminded the group of the insufficient progress over the last decade or two and questioned whether the target to reduce anaemia by 50% in women by 2025 is realistic. Given the challenges and barriers to anaemia reduction and the trends over the last decade, we may need to revisit the target to make it more realistic and achievable.

Another member added that these targets are specific to women of reproductive age and there are none for other age groups. Having targets specifically for age groups is particularly important and this was supported by other members too.

Another member emphasized the need for supporting countries to translate such guidelines into operational guidance to be used locally by health care workers. Local guidance should be simple, integrated, consolidated into maternal, newborn, child and adolescent health (MNCAH) guidelines and services. Others echoed the same and urged that this cannot be business as usual: there needs to be a stronger emphasis on countries to understand the extent of prevalence of anaemia and the impact of not taking action. This could be a powerful advocacy tool as to why they must take action to address morbidity, mortality and other consequences that are far more interrelated and intersectoral.

In other words, adding the burden argument that includes the economic burden and using the human capital approach may be useful. It is also very important in attracting global attention to show the human face of the problem. Members also suggested increasing linkages with the group working on devices and drugs for maternal and newborn health, as there is an urgent need for new devices that can be simpler to use for detecting anaemia. New ways of providing iron and folic acid to women are also needed. It was suggested to also link with Y-check adolescent groups to ensure there are strategies for screening young people.
Members also highlighted the need for a strong monitoring and evaluation component; however, they suggested that WHO could provide a tool that can be used to audit the structure, process and outcomes, to inform whether their actions are beneficial and have the expected impact. Another member highlighted the importance of differences in the use of capillary blood versus venous blood in the diagnosis of anaemia. In India, transition to the use of venous blood may result in a dramatic decline in the prevalence of anaemia, which is purely methodological. Concern was expressed in the over-prescription of iron and folic acid supplementation, especially when there are dietary changes in the community, as excessive intakes of iron can be harmful. Guidance on mandatory fortification is required.

A STAGE member raised the issue of causes of anaemia and the major focus on iron deficiency, although dietary iron deficiency itself may be a minor contributor to anaemia in some settings. It was suggested to focus on broader nutrition and other causes of anaemia, as low haemoglobin is a manifestation of an underlying cause. Another member also raised the issue of blood shortage and the need for blood substitutes, a major cause of death among children with severe malaria and for mothers with postpartum haemorrhage.

A member also raised the intersectionality of anaemia, which is closely linked with agriculture and animal health, and suggested it may be useful to link with One Health in countries that have this programme. Another member added to this by bringing in the importance of social determinants and linking with development efforts around social determinants; others added the need for involving sectors other than health in all discussions related to anaemia.

The group expressed the need to better understand the economic investments required for the prevention and treatment of anaemia and suggested the need to look at newer technology that may reduce the costs of diagnosing anaemia, and new prediction capabilities around maternal and newborn outcomes. This is a space where some of that technology could be applied. One member suggested that we use lessons learned from the two countries highlighted in the working draft (the Philippines and Guatemala) to achieve the target.

Professor Homer summarized the discussion and suggested we look at big issues around targets, translation and integration at country level, as well as the return on investment and economic arguments. In addition, comments about innovations, social determinants of health, and engaging with other sectors are important areas to keep in mind as we move this framework ahead.

Dr Rogers provided some clarification and information about the anaemia targets that are being addressed by another group in WHO. She shared that the Anaemia Action Alliance has an investment working group that will review investment issues and that WHO is working on new and updated guidance on the assessment of haemoglobin concentrations for the diagnosis of anaemia.

**Based on the discussions in this session and in the closed session, the following conclusions and guidance from STAGE were made:**

The Comprehensive framework on anaemia aims to provide concrete actions for the reduction of anaemia, while creating a shared understanding of the multiple underlying causes and risk factors of anaemia and building commitment from leaders to address anaemia through a multisectoral approach.

STAGE appreciated the progress WHO has made in developing the Comprehensive framework and suggested:

- Developing operational guidance to support countries in translating and integrating global recommendations at national and local community levels.
- Strengthening communications and advocacy on the burden and consequences (health-related and economic) of anaemia (at individual, family, and community level), as well as the investment required to prevent and treat anaemia.
- Collaborating with the WHO working group on devices and drugs to stimulate innovation in diagnosis of anaemia and its causes (using non invasive techniques) and treatment (e.g., delivery of iron, blood substitutes).
• Advocating for global targets on anaemia that are realistic and achievable and that cover all relevant age groups/populations at risk across the lifetime (for example adolescent girls).

• Ensuring linkages with other initiatives within WHO—for example, school health and youth screening programmes, MNH innovations, and with other developmental efforts addressing social determinants of health; and strengthening engagement with the other relevant sectors.

• Learning more from exemplar countries that have had success in prevention and management of anaemia (e.g., Philippines).

School health

Background

Dr Valentina Baltag, MCA/WHO, provided a brief update of the work done for the health promoting schools in collaboration with the United Nations Educational, Scientific and Cultural Organization (UNESCO). This was first presented to STAGE in April 2021 as part of the child health redesign work done. She then highlighted the previous recommendations from STAGE that focused on the promotion of health promoting schools across countries as a cost-effective intervention to improve children’s well-being. The initiative will re-establish, improve, and scale up food and education systems post pandemic. In addition to improving and restoring national and sustainable school meal programmes in 150 countries, there is a 10-year strategy plan, together with partners, to provide evidence on the effectiveness of these programmes on learning, social and physical outcomes of children. This will then be used to improve the case for investment in school health and nutrition programmes.

Dr Yongfeng Liu from UNESCO then provided its perspective and highlighted the changes in the UNESCO education strategy, which now includes health. The previous strategy included two priority outcomes on sexuality education and an inclusive and a safe learning environment. The revised UNESCO strategy reflects and supports the expectations and work of Member States and partners on school health. It focuses on resilient school health systems, including priority areas of work, such as health promoting schools, promoting healthy eating and drinking practices, and addressing infectious diseases and health emergencies, including COVID-19. He also emphasized the need for school health and nutrition programmes to be comprehensive, responsive to the context and sustained by policy and financial commitment. The first product of this partnership between WHO and UNESCO in this area is a global report on the State of School Health and Nutrition, which will be published very soon.

Dr Baltag then provided examples of regional uptake of this guidance: in the WHO South-East Asia Region there was a committee resolution (including ministers of health and education) on school health programmes and health promoting schools; the WHO Western Pacific Region also called for more attention and investment in school health; and through the Buenos Aires Declaration, ministries of education of Latin America came together and reiterated the importance of a healthy and well learner for good educational outcomes. The WHO team works closely with the African Region and Eastern Mediterranean Region Member States in promoting the guidance and in building capacity of our regional colleagues and country teams. In addition, the technical team also works with early adopter countries like Botswana, Paraguay, Kenya, and North Macedonia. She also mentioned that the team (WHO, UNESCO and UNICEF) is working on developing a global monitoring system for school health.

She also provided an update on the recommendation to expand Y-check to more countries: the team is mapping countries that have similar research or programmatic interventions as the Y-check. She requested STAGE guidance on:

• how to better support countries to ensure that school health programmes are sustained by policy and financial commitments;

• what the best strategies are for acting on STAGE’s previous recommendation, namely that health and well-being become measures of the performance of national education systems and core considerations in education; and

• what is the best use of WHO research capacity in contributing to the research agenda around school health.
Discussion

STAGE commended WHO and UNESCO for the strong collaboration in advancing school health globally and in every country. Some of the members suggested that adolescents’ and students’ involvement in programme design and implementation is crucial. It is important to get inputs from students on what they think a good school health programme is, and these programmes need to be codesigned with youth. Currently, no government has a proper Youth Advisory Committee. Others added that school health programmes should be linked/be part of broader adolescent health programmes, while a few members highlighted the role of parents in these programmes and how they are taken into confidence in various country contexts. One option may be to liaise with parents’ associations. A few members reiterated the need for collaboration between health, education and other sectors including local administration and social support programmes. Another member suggested that there must be focus on younger adolescents, as there is a big potential return from investing in this relatively neglected age group; however, this would require engagement with health facilities and social programmes.

Another important aspect is the need for evidence-based interventions and identification of the optimal mix of interventions based on country context. To improve compliance and increase accountability, one member enquired about any experiences of certifying schools as health promoting schools. He suggested using a reward-based system to encourage adherence to and improvement of school health policies, for example, provision of badges to the best performing schools. Unless school systems are given prominence in the health agenda, there will be no accountability for school health. Another member suggested using indicators related to students’ nutrition as indicators to measure the performance of education systems in relation to students’ well-being.

In terms of promoting this agenda, more efforts should be made so national decisions, guidelines and tools are disseminated to schools. Members also suggested using the Global Partnership for Education, which is a forum of donors and partners, and that connecting with this group to advance the work in some countries may be useful. There was discussion on the need to use lessons from COVID-19 and school closures. Members suggested that we leverage on the prominence school health has had during COVID-19 to strengthen school health programmes. To advocate for more investment in school health, one member suggested the use of a life-course dividend argument.

One member highlighted the need and the importance of teachers’ well-being, which is often overlooked, and its link with students’ outcomes, and recommended that this could be an important research agenda. One member provided the example from India, which has a good school health programme: recently the Ministry of Health developed 11 modules on health promoting schools, and these are being implemented by the Ministry of Education and Ministry of Health.

The WHO regional office staff suggested that diversity and context is important and school health programmes will mean different things in different countries, and these differences must be considered when promoting this programme.

Dr Baltag thanked all members for their guidance and based on these discussions and further discussions during the closed session, the STAGE guidance for the school health programme is summarized below.
STAGE recommendations

Coordinated investments in health and education bring mutually reinforcing benefits/return on investment, and directly contribute to important educational outcomes such as school attendance, retention, and academic performance. These coordinated investments in health and education also bring together and positively contribute to many health agendas including mental health, nutrition, environmental health, SRH, NCD prevention, and helps preventing early pregnancy, early marriage and keep pregnant and parenting adolescents in schools, among others. There is strong evidence that inclusive, safe, and healthy learning environments free from violence and discrimination for all children and adolescents can be created and sustained through health promoting education systems. STAGE recognizes the progress made by the global community in advancing school health, and WHO’s, UNESCO’s, and UNICEF’s joint leadership in supporting this.

STAGE thus recommends:

- WHO and partners focus on enhancing accountability of educational systems in Making Every School a Health Promoting School, under the leadership of education authorities.
- WHO and partners to ensure that school health is co-created with students, parents, and teachers, is context specific, is inclusive of the whole school community and beneficial to out of school children.
- School health should also be strengthened through more investment for: creation of leadership cadres for health promotion in the education system, integration with adolescent health programmes, dissemination of lessons learned and for strengthening research.

Maternal and child health redesign: update on well child and adolescent care visits

Background

Dr Wilson Were, MCA/WHO, provided a summary of progress on the child health redesign and presented the rationale for well care for children and adolescents. He outlined the proposed minimum schedule, sequencing and content of the visit. He also shared brief examples of priority themes for each of the age groups proposed.

The well care programme proposes scheduled visits (a minimum of 16 contacts) with a skilled provider in health facilities, home visits, and school health services for all children, adolescents and their caregivers. The programme would be supported by broader enabling policies and through other delivery mechanisms such as digital and multimedia communication. The expected actions during a health and well-being visit include enquiry about parent, child/adolescent and family concerns; psychosocial and environmental assessment pertaining to social determinants; growth and developmental monitoring; relevant checks and screening and brief interventions; and anticipatory guidance with follow-up and extra support.

The actions and tasks for each scheduled visit will be based on the context and will be guided by age and stage of development. The priority of each visit is to elicit and address parent, child and health provider concerns. The guidance is organized according to age groups as follows: pregnancy, newborn, infancy (1–11 months), young children (1–4 years), older children (5–9 years) and adolescence (10–19 years).
MCA requested STAGE guidance on:

- whether the rationale for the well child and adolescent care approach is well articulated;
- whether the proposed minimum schedule for well child and adolescent care contacts is appropriate;
- whether the proposed sequencing and content of contacts are logical and appropriate;
- whether it is clear how these contacts are an entry point for identifying and serving those with greater needs; and
- what the implications are of adopting this approach in health and other systems in low and medium resourced settings.

**Discussion**

STAGE members endorsed the proposed scope of work and noted that child and adolescent health and well-being programmes are much needed and build on the history of growth monitoring and vaccination visits. The approach was found to be holistic, and while the proposed programme was thought to be ambitious and aspirational, members unanimously agreed that it is ‘must-do’ and critical for optimal human capital development.

They proposed that programmes should have a strong focus on well-being, as the preventive element would be more likely to generate parental and community buy-in, and also on support for families in bringing up children and adolescents. Highlighted topics included sleep, mental health and violence. Milestones and indicators for the age groups of 5–9 and 10–19 years would be needed to identify risk factors for these age groups.

There was a general sense that WHO should identify a stepwise approach over a realistic period of time with information on how each country can start based on the maturity level of their health systems and multisectoral programming, noting that progressive realization of implementation would be driven by each country’s needs, resources and political will. Because implementation would be complex, it was recommended that evidence be generated on how to implement in different contexts. WHO outputs should answer what, how, where and who will deliver services. Several members highlighted the need for developing an investment case to support advocacy for implementation and buy-in, using the age demographic dividend for human capital development. Implementation would require the involvement and buy-in of other sectors, particularly education and social welfare, for effective delivery and scale-up.

Some of the issues raised that need to be considered are grouped into the following thematic areas.

**Human resources for health**

Members noted that many countries are going through a health care worker crisis. As part of orientation and planning, it will be important to identify the service providers and how countries will find the staff to implement the programme. To deliver the proposed services a new cadre of health workers including child health specialists might be needed. Proposals were made to incorporate content into undergraduate and postgraduate nurse training, recognizing that tasks of such screening and monitoring are complex and beyond most undergraduate nurse training programmes. On-the-job training through clinical practice or up-skilling should be promoted. There were concerns about how long a visit would take and what would be the priority actions when health care workers do not have a lot of time. Therefore, priority themes should be defined for each age group, to be addressed even when consultation time is short.

**Inequity**

Members asked how marginalized children and adolescents would be reached, especially those out of school and those who have no access to health facilities. Deliberate outreach and use of alternative platforms to encourage enrolment of marginalized and vulnerable children may be required. There should also be provision for supporting pregnant adolescent girls and adolescents who are parents.
**Country and community engagement**

Creating demand among parents and communities will be very important. In low- and middle-income countries (LMICs), where access to health service and schooling (particularly retention in higher education) can be challenging, there is a need to have community engagement. Similarly, members noted that it was not clear how this links across other sectors – what the roles and responsibilities are for local communities, local and higher-level governments. For example, in many rapidly growing urban settings, there was no place for a child to play safely outdoors; there is poor environmental sanitation or other pollution that is a risk to children; or children are subjected to violence. Country engagement is needed to understand feasibility, approach and adoption of this programme. There is also a need to outline the roles of local communities and highlight whether there are task-shifting opportunities with proper referral for those needing care.

**Health system issues**

Considerations should be given to data sharing between different sectors and stakeholders, for example, in schools, health services and social services. Referral pathways must be identified. Screening and monitoring create demand for further evaluation and management of identified health or development concerns. Social concerns identified should also have clear referral pathways. Innovations using digital platforms were proposed, such as pre-visit assessment and screening, to increase efficiency and optimize consultation time, and engaging group or faith-based platforms for certain aspects of (spiritual) care.

**Summary**

STAGE recognizes that the health and well-being of children and adolescents are crucial, and it supports country operationalization of programmes to promote health and well-being. This may be aspirational and ambitious but is a ‘must do’. It calls for a redesign of the health systems that are currently disease oriented to include a strong focus on well-being through multisectoral coordination between health, education and social sectors. STAGE members expressed an interest in helping develop an investment case and advocate for countries to redesign their health systems to implement well-being programmes. STAGE members identified next steps.

**Next steps/considerations**

- Engage in country consultation to discuss feasibility and learn about delivery models.
- Develop operational guidance following feasibility studies and articulate the role of primary health care services and the importance of multisectoral engagement and services for vulnerable families, children and adolescents.
- Stimulate implementation research to generate evidence for effective delivery of well-being services, addressing the continuum of care and specific age groups.
- Ensure consistency in terminology and consistent links with ongoing work areas, such as implementation of the Nurturing Care Framework, the Global Accelerated Actions for the Health of Adolescents, and the adolescent well-being framework.
- Progressively enhance the package of resources to be used for in-service, preservice and postgraduate capacity development of service providers.
Based on the inputs during the open and closed sessions, the following STAGE guidance was formulated.

Children and adolescents provide the demographic dividend for the prosperity of current and future generations. Threats to suboptimal development in the first two decades of life can lead to high levels of inequity and loss of human capital, with detrimental implications for health, cognitive development, and productivity in adulthood and for healthy ageing. The STAGE welcomes WHO’s initiative to establish policy guidance for a minimum number and content of scheduled contacts with children, adolescents, and their caregivers at critical developmental transition periods. Countries may decide to add additional contacts. This will enable health services in collaboration with other services, especially in education and social sectors, to identify and care for families and children and adolescents who are at risk of sub-optimal health and development. This will require changes in health systems including the need to evaluate human resource capacity as well as the cost-effectiveness of these interventions. The initiative provides a platform for multiple programmatic areas to work together, within the health and other sectors.

Recognizing the urgency to close the equity gap, the STAGE requests the Director General to support the health and wellbeing work spearheaded in the MCA department, make resources available towards its advancement, and call upon Member States and partners to lead the transformation in health systems including the human resources that is essential for healthy growth, development, and wellbeing of children and adolescents.

Risk stratification

Background

Dr Nigel Rollins, MCA/WHO, provided a summary of work that started last year primarily to identify children who were at high risk of mortality. Although anthropometric deficits with comorbidities, and disability combined with social and environmental factors are well known or accepted risks, prior analyses have often been restricted to one geographic area and one risk area, typically anthropometry, and presented the relative risks and not the absolute risk of mortality. In high income settings there are clinical algorithms that are entirely risk based; however, they haven’t really percolated beyond that.

The objective was to estimate both the individual and the cumulative effects of the main clinical and social environmental risks on the survival and development of children. The work is planned in two phases, and this presentation provided some preliminary results from phase one, which is to identify the predictors of infant and child mortality. The vision is to then do the same regarding impaired child development. The technical work is being led by Professor Tor Strand and team (Dr Catherine Schwinger and Ms Siri Kaldenbach) from the University of Bergen, Norway.

Various methods including traditional meta-analyses and machine learning were considered; however, the team settled on individual, pooled analyses. The data sets chosen included longitudinal data on the mortality, age, sex and weight of children aged under 60 months from LMICs with a good description of the study population. The team analysed 28 data sets pulled from 13 observational cohorts spread between Africa and South Asia and one from Central America. Interventions are treated as an effect modifier within the analyses (seven were randomized controlled trials with nutrition interventions). The sample size is 66 000 children with 500 000 observations, about 2500 deaths, and there is an equal balance of girls and boys in the data sets. In addition to mortality, anthropometry and birthweight, 40% of the children had data on gestational age (from last menstrual period, scans, or a combination of these). There were maternal characteristics, as well as some of the household and other characteristics that were
used in the primary analyses. Some of the studies were nutrition interventions, and some of them were morbidity interventions.

Some analyses are restricted only to those who started healthy, and some were anthropometrically selected populations. The analysis looked at the impact of moderate underweight and severe underweight; moderate underweight would be a weight for age between minus two and minus three standard deviations. The analysis (hazard ratios not absolute risks) was disaggregated by age groups. Moderate underweight does predict mortality and for severe it is clearly a higher relationship. When the sick population is excluded, the actual effect within the general population is quite striking. Weight for age seems like an excellent predictor across the age groups.

In children within weight for age greater than minus two (without any underweight), there is a relationship, and it accounts for about 0.6% of the mortality. If moderate underweight, then it is 1.5%, which increases to an absolute mortality risk of 5% for severe underweight. These are preliminary results, but it tells quite a striking story. But the effect almost disappears within only the anthropometrically selected population. In the general population (children who developed wasting over time), the associated mortality for weight for height, weight for length is similar to the simple weight for age. Another commonly used indicator, mid upper arm circumference (MUAC), shows very equivalent predictive ability. So MUAC certainly captures about 80% of the children who are likely to die.

It is interesting to note that combining a low weight for age child with some morbidity, the mortality risk increases. Conversely, a normal weight for age with one to two morbidity conditions may have a very low mortality risk, in which case the need to admit those children can be minimized/avoided. Another interesting finding this data set shows is an 80% reduction in mortality with any breastfeeding in children with preterm birth.

Dr Rollins then presented some information from Childhood Acute Illness and Nutrition (CHAIN) data sets that looked at mortality in young children according to anthropometric status – moderate and severe wasting - among children who were admitted to hospital. The continued mortality over a period of time is depicted and it shows that about half the mortality occurs post discharge. Health workers were consistently unable to predict which children were at risk of dying and most of that mortality was in the first 30 days post discharge. Therefore, it may be useful if infants or children at high risk of mortality can be identified using the type of data that are routinely captured in integrated management of childhood illness (IMCI). This would help identify those at risk and minimize the length of hospital stay (may be discharged after 24 hours) for those at less risk. This would lead to better deployment of both human and financial resources. Another area for discussion is that the interventions to reduce mortality may not have anything to do with the actual risk identifier itself. So, it may not be a nutrition intervention. It may be something about the comorbidity that is associated with higher mortality because of underlying and longer-term undernutrition.

The next steps include completing the analyses to generate the absolute risks. Then the team will have a meeting with programme implementers, like UNICEF, United States Agency for International Development (USAID) and Save the Children, and funders to really identify the implications for programmes. We may also include variables like vaccination status, which could be a very important flag of vulnerability within a family, within a health sector, or within a health system. From a programmatic side, the team would explore options to revise the IMCI Pocket Book and use risk estimates to refine guidance and improve clinical tools. The team would also look at post-discharge guidance for mothers, with more frequent scheduled visits back to the hospital, and study the risks for impaired early childhood development and do the same type of pooled analysis, but for child development.

Dr Rollins requested STAGE guidance on the analysis approach and suggestions on the plans to use the findings, programmatically. He also clarified that, although one of the STAGE members (during subgroup meetings) had made a suggestion about studying household clustering, this data set may not have the required variables to facilitate that.
Discussion

The members generally agreed that this analysis was extremely important and useful. Some members wanted clarity in definitions, groups to use, long-term outcomes, types of models (explanatory or predictive), and the next steps if we identify an association between growth parameters and mortality. Additionally, the group suggested looking at causal pathways.

Specifically, the issue of variation in follow-up time and heterogeneity of data sets was raised. Also, the issue of identifying best anthropometric cut-offs to identify the risk of mortality that may be heterogenous across settings.

One member suggested that more clarity is needed on the question and what are we predicting. She suggested that we simplify the terminology to preterm, term, small for gestational age (SGA). Low birth weight (LBW) is a construct that has long been measured as a predictor of early mortality, but it is very simplistic and has not served the purpose. She also suggested that focusing on causal pathways may be better as that would inform the risks better. Programmatic risks also need to be examined. She encouraged the team to look at gestational age.

Another member highlighted the importance of data on mortality in relation to signs. IMCI was developed based on the need for hospitalization/ higher level care, not mortality, but Aetiology of Neonatal Infection in South Asia (ANISA) and African Neonatal Sepsis Trial (AFRINEST) data can link with hospitalization. Cox regression was used for ANISA data to predict mortality, and hypothermia was found to be very important, especially after the first week, especially in young infants. This analysis needs to carefully review the relationship between growth and mortality, as the evidence is weak that growth trajectories are associated with mortality. In this longitudinal data one can look at this question.

Others while finding the results fascinating, with a simpler parameter of weight for age (WFA), also urged caution in using growth monitoring parameters as there has never been evidence that they work. The primary purpose of WFA is not to predict mortality. What would be the next step? The major weakness of growth monitoring has been that there is no next step. What platforms do we have to detect this and then to implement interventions? This could be part of the rethinking on how to use these data.

Another member provided some details on the Alliance for Maternal and New-born Health Improvement (AMANHI) data set, which showed there are several phenotypes – preterm SGA, Term SGA, Term AGA (appropriate for gestational age) etc. – there is a gradient of mortality with such phenotypes. In this analysis one needs to look at whether this is a difference in hazards or risks by geography. Prematurity rates are much higher in South Asia than most of Africa. When we focus on prematurity it is important to have a reliable gestational age. In Southeast Asia last menstrual period (LMP) is not a good criterion for assessing gestational age. With regard to the CHAIN data set, one needs to look at the cause of death analysis. Trajectory analysis is also a good idea – that is, how are the babies doing over the period of follow-up.

A higher risk is also seen in those taken care of in the hospital – in both ANISA and AFRINEST data sets. This was also seen years ago in the trials – among babies who were taken to hospital, mortality risk post hospitalization was higher – is this a bias? It would be useful to review this issue in this dataset. Another member highlighted some of the biases in deaths post discharge – for example, in Uganda when parents realize that the child will not survive, they take the child home to avoid costs of care and paying for carrying a dead body home. It may be important to understand why children are dying after care, and he wanted to know if that is possible in this data set.

A few members opined that, while the immediate causes of mortality are important, it is equally important to understand the social context. For example, in Guatemala two thirds of children are stunted because indigenous communities have been displaced and these communities experience discrimination and poor access to food. In the recommendations it is important to consider discrimination and social context. Others added the importance of adding socio-economic vulnerabilities in the risk stratification.
Another member added that morbidity and economic costs for families are important. The programmatic and household-level impact of the recommendations on more monitoring, more frequent visits, linking with nutrition counselling etc. should be considered.

Dr Rollins provided some responses:

- The models are not expected to be explanatory, only predictive.
- For some of these analyses, the team are not aiming to adjust the basis of the research – there has been lots of discussion on this. The agreement was to look at absolute risk.
- This model unfortunately cannot review socio-economic factors, as these variables are not available in all data sets. The core criteria were birthweight and age. The same age disaggregation and comorbidities have not been available until now.
- The question of what to do with this is not the role of the analysis team. The programme team will also be involved. We need to think through how we can use these data to improve IMCI and hospital care and decision-making.

**STAGE guidance**

STAGE recognises high rates of newborn, infant, and child mortality in some settings and the need to use new and current evidence to inform efforts to reduce mortality and improve childhood development. STAGE recommends continued work (to understand relative and absolute risks in order) to:

- Evaluate programmatic approaches to identify infants and children at high risk of mortality and impaired childhood development.
- Develop and evaluate – through clinical and implementation research - interventions to mitigate these risks and improve deployment of health system resources, including skilled personnel.
- Review and update WHO tools e.g., IMCI/Hospital pocketbook to include differentiated care approaches based on available evidence.
New topics

Maternal and newborn health innovations

Background

Dr Allisyn Moran, MCA/WHO, thanked her collaborators in the department (newborn health team), in the maternal health team in SRH, in the Burnett Institute and in the Concept Foundation. She also thanked the STAGE subgroup members who provided inputs on the presentation and especially on the questions for STAGE.

As discussed during the presentations on maternal health innovations to STAGE in May 2022, the focus remains on reducing maternal, foetal, and newborn mortality and morbidity. The eco-social determinants, family and individual behaviours remain important factors, while health systems are pivotal. For this presentation and discussion, the focus would be on innovations that could strengthen the health system through the building blocks of medicines, medical devices and diagnostics (all referred to as commodities), a continuation of the discussion from the last meeting. As part of WHO’s response to previous STAGE recommendations, scoping reviews of a list of commodities and other guidelines have started, and the working group will be formed in early 2023.

WHO has already recommended a variety of commodities in its guidelines; however, uptake and implementation have been slow, and this has been highlighted by the United Nations Commission on Life-Saving Commodities for Women and Children with special attention on regulations, market failure, and supply and demand challenges.

Innovation is a priority for WHO and every year there is a compendium of new innovations published. However, there are limited innovations for maternal and newborn health (medicines, diagnostics and devices). Challenges include ethical, legal, funding and market barriers, and the fact that most of the medicines are repurposed from other areas and are often suboptimal for maternal and newborn conditions. The perception of low return on investment for maternal health innovation remains a big challenge. In addition, lack of regulatory support, high costs of trial, insurance, and systematic exclusion of pregnant women from clinical trials all hinder innovations in this area. Dr Moran provided some specific examples: magnesium sulphate use is hindered by provider confidence, health systems capabilities, and lack of knowledge; challenges around skilled health personnel who can administer the injectable uterotonics and cold chain issues hinder the use of oxytocin for the prevention of postpartum haemorrhage. A review of medicines in the pipeline for fetal distress, postpartum haemorrhage, intrauterine growth restriction, pre-eclampsia, eclampsia and preterm labour and birth showed that of the 444 (active and inactive) products in the pipeline, most were repurposed from other areas and are in various stages of development. Most are in preclinical trials or phase 1 trials: very few in phase 3 or 4. Exclusion of pregnant women and breastfeeding mothers from most trials makes the availability of effective medicines for prevention and treatment of conditions affecting them very difficult. COVID-19 vaccines brought this issue to the forefront again, as women of reproductive age were excluded from many of the trials. This is an important issue, and we need clarity on how to handle this exclusion.

On the newborn side, similar horizon scanning of innovations – biomedical, digital health, health systems and delivery models – is underway, with special focus on the time gap between starting an innovation and its implementation, and how many reach the implementation phase. The team plans to identify 20–30 innovations that are ready for scale-up and to meet with an expert group to identify the final list ready for scale-up. Regarding children’s medicine, there was a WHA resolution of affordable medicine for children in 2016, and this really promoted innovation and access to quality, and efficacious and affordable medicines for children.
Dr Moran then moved on to provide some more information on the research and development cycle at WHO, which starts off with review of the global health landscape to identify gaps, then priority-setting focusing on the different target product profiles (TPPs) that may be developed to encourage research and development within a specific area. This is followed by guidance on evidence generation and helping to coordinate scientific advice, and then moving to regulation policy and prequalification. The last two steps involve implementation research followed by population access. The goal is to accelerate this cyclical process, so timelines are reduced for product development. One specific role that WHO could take on is the development of TPPs. These describe the minimum and the optimistic characteristics of a novel therapeutic agent and what is required to meet the end-user needs, and these are very helpful to encourage research and development within specific areas. Some TPPs in process that may move into clinical trial include drugs to prevent pre-eclampsia and to prevent spontaneous preterm birth; for ultrasound; and aerosol surfactant therapy.

Dr Moran requested specific guidance from STAGE around understanding the role of WHO in analysing the current research and development pipeline, starting with horizon mapping to identify gaps in research prioritization; coordinating research and implementation research; synthesizing evidence and developing guidelines; and coordinating with pharmaceutical companies through legal agreements to promote and provide access. Once a product is formulated, it is important to work with countries to ensure it is included in essential medicine and diagnostic lists. Another important role is advocacy, especially for the inclusion of pregnant women in trials. It is important to understand the comparative advantage of WHO in this research and development process.

Discussion
STAGE members appreciated the presentation and the continued discussion from the previous meeting on this important topic of innovations for maternal and newborn health. One of the STAGE members highlighted the issue of the risk of catastrophic injury to a baby during pregnancy, and he provided the example of a case where injury was linked to an H1N1 vaccine given to the mother. Such cases prevent the pharma companies from wanting to take any risk that affects the availability of products for pregnant women and newborn. Another member highlighted that it is just not pregnant women, but women of reproductive age generally who are excluded from trials if they are not on long-term contraceptives. Fear of adverse events is a serious concern for both the industry and insurance companies, as payouts are very large. One option may be to not allow an extra penalty for insurance companies, so as to ensure that studies include pregnant women or women of reproductive age. For COVAX trials, WHO advocated the inclusion of women, and this was done.

A few members enquired about the links between WHO and the Grand Challenges, and WHO’s role in evaluating these innovations at a later stage when they can be scaled up and disseminated into guidelines and in countries. Also, if WHO is playing a strong role in identifying research priorities, members wanted to know if these are shared with the grand challenges team to inform future calls. Another member opined that WHO is the best placed agency to identify gaps for research prioritization.

Another member informed the group that, although a large proportion of research grants are being spent on newborn and preterm birth, almost all of it is for basic sciences and half of it is in the United States of America (USA); however, none of it goes to stillbirths. WHO, however, can make a case through the TPPs and can influence this spending, especially making sure the product development happens in LMICs and not in high-income countries.
Members also highlighted the important normative role of WHO in the guideline development process, as the recommendations from WHO are of great value to all developing countries. WHO’s more recent focus on implementation as part of its mandate is very welcome and very useful to countries.

Another member suggested that WHO should be part of all the steps, from gap analysis, to design of research projects, to developing guidance, to implementation research. Early involvement of WHO could prevent many delays in this process. One of the members provided the example of vaccine development in India, where academia and industry is working together. WHO can play an important role in this so-called match making, since many of the innovations will have to be contextual. Involving the industry may improve scale-up of innovations.

One of the members highlighted an important area of training and maintenance and how to ensure the health system is geared for accepting, adapting and scaling up the innovation and whether there are sufficient checks and balances to monitor the scale-up. Another member added that viewing LMICs as mere consumers of innovation needs to stop. Most health facilities across LMICs would have a large amount of non-functional, expensive equipment. Therefore, it is important that researchers from these countries are part of the development process and are trained in the appropriate use and maintenance of equipment. He also highlighted the issue of lack of authorities to approve new technology in many of the African countries, which leads to significant delays in scale-up.

Another member emphasized the need for WHO to ensure that the process of innovation includes a good understanding of the problem in each context and ensuring effective use of the products when scaled up, else we will have new products that are not used or do not work as planned. Another member also emphasized the need to understand the difference between efficacy and effectiveness and to incorporate that during scale-up discussions. WHO regional office staff also reiterated the need to ensure innovations are developed with inputs from the countries and are suited to the context. One of the partners highlighted the need to ensure existing products, like oxytocin and heat stable carbetocin, are implemented by countries. Some guidance from WHO on these existing products and how they fit within bundles of care in a country context would be useful. She also emphasized the need for simulation-based training and highlighted the need for midwives.

Other STAGE members also agreed with the need for a transformative role of WHO in dialogues with countries and industries, so that challenges related to scale-up and implementation are addressed. A few others also suggested bringing investors like the Global Financing Facility for Women, Children and Adolescents (GFF) into the discussion, so these are part of the investment case. It may be useful to review some innovations developed during COVID-19 to understand whether some of them are suitable for scale-up.

The WHO team clarified that the timeline taken from innovation to end product and implementation is very long and provided an example of a product for postpartum haemorrhage. The process started in 2013, and in 2022, WHO is supporting implementation, and only eight countries have registered the product with their regulatory bodies. WHO needs to think innovatively about the cycle and how to fast-track some of these processes. Mostly innovators do not think of implementation aspects. A forum to bring together innovators, researchers and implementers to think through processes holistically at the very start of this cycle may be useful. Other WHO team members also suggested the need to look within countries to identify innovations that are being used locally. Scaling up these innovations would be much easier, as they are already tested within the country context. Also, innovations are not restricted to products: it could be in the delivery process, or financial innovations, or digital. WHO has two major comparative advantages: one is its normative function, with guidelines and the TPPs; the other is its country platforms. WHO has about 130 country offices, and the social capital it has with domestic governments should be utilized so the most mature innovations – when ready – should be taken to the countries through partners and multilaterals and the WHO country platforms used for scale-up.
Based on the discussion at this open session and the closed session later, the STAGE guidance is summarized below.

**STAGE guidance**

There are currently limited innovations for maternal and newborn health (medicines, diagnostics, and devices as well as innovations around service provision), primarily due to challenges around commercial investments, barriers on the regulatory side, and scaling up. However, innovations are a priority for WHO and it has a specific role in the development of target product profiles (TPPs), describing the minimum and optimistic characteristics of novel therapeutic agents specifically focused on requirements to meet the end-user needs. Given these, STAGE recommends that WHO continue to focus on innovations for maternal and newborn health to accelerate progress to achieve the SDGs and focus on the following areas:

- Defining “innovations” for MNH.
- Conducting a horizon scanning/mapping of innovations.
- Convening and prioritizing innovations among stakeholders with a focus on the end-to-end process from development to implementation at scale, including involving end-user;
- Developing TPPs and normative products for maternal and newborn health
- Including scale up and sustainability of innovations within the implementation strategy for scaling up commodities across different country contexts as part of strengthening health systems and improving quality of care in line with WHO recommendations (May 2022 STAGE recommendation).

**Small or sick newborn care**

**Background**

Dr Rajesh Mehta, MCA/WHO, started the session by briefly describing vulnerable newborn. These include small babies who are preterm and/or have low birthweight, and newborn with complications who require additional care for survival. Within a life-course continuum, focusing on the care of small or sick newborn (SSNBs) has the potential impact of saving about 3 million lives, of which about a half will be in Africa. Newborn care in hospitals contributes to 750,000 lives saved a year. The Every Newborn Action Plan (ENAP) includes a coverage target for SSNBs: for 80% of districts to have at least one level 2 small or sick newborn care (SSNC) unit with respiratory support through continuous positive airway pressure (CPAP). Assisting countries to scale up level 2 SSNCs is of priority to WHO, being the next accelerator for newborn mortality reduction. The session focused on the roadmap and building blocks required to assist countries in scaling up level 2 care for SSNC.

Dr Karen Edmond, MCA/WHO, requested STAGE to provide guidance on what is required to scale up level 2 facilities for SSNC, in terms of both content of care and scale-up of care. She highlighted the links with the WHO quality of care framework and the newborn care guidelines like the WHO guidelines on the maternal and newborn care for a positive postnatal experience, several others that are in the pipeline, and the proposed, new WHO recommendations on follow-up care of the small and sick newborn.

She then informed the group that the new WHO recommendations for care of preterm and low birthweight infants are ready to be released officially on 17 November 2022. This guideline includes 25 recommendations: 11 new, 14 updated. The overall schema of the guideline was introduced, including KMC, probiotics, feeding, micronutrients and emollients.
For the content of care, clinical practice guidance, hospital protocols, pocketbooks, chartbooks, and digitalization at global, regional and country levels will be updated soon with incorporation of the recent and new guidelines and recommendations. With regard to competency-building, a SSNB modular course is being developed with a focus on level 2 care in the ENAP framework and will integrate the new guidelines. Efforts are constantly made to update content as per the latest WHO documents.

Regarding indicators and monitoring of care, the aim is to monitor coverage of complications and extra care. The ENAP measurement improvement roadmap has been in place since 2014 and numerators and denominators have been developed for testing. In addition, a review by the MONITOR advisory group was done in July and the recommendations for the four core coverage indicators for newborn with complications at birth were updated. The Emergency Obstetric and Newborn Care (EmONC) signal functions are also being updated.

For scale-up of care of small or sick newborn, a global consultation was convened by WHO and UNICEF in December 2021 to enable sharing of country experiences for level 2 care in district settings and to develop consensus on key elements for scale-up that could be used by other countries. India, Bangladesh, Sierra Leone and Rwanda have achieved some level of scale-up. The consultation identified the facilitation factors and challenges in scaling up in district settings and 10 core components for implementation at scale:

1. Vision, political commitment, leadership, and a national plan
2. Financing – adequacy and sustainability
3. Human resources – availability and capacity (training)
4. Infrastructure and design
5. Equipment and commodities – procurement and maintenance
6. Robust data system and effective use of data for quality improvement
7. Functional care network including referral system (to and from referral facility)
8. Linkage of small or sick newborn care with quality maternal care (antenatal, intrapartum, postnatal) at all levels
9. Family and community involvement
10. Post-discharge follow-up system – at the facility and at home.

The importance of the mother–baby dyad and community to facility referral was emphasised as well as zero-separation of mothers and newborn at all times. There has been much work in progress since the global consultation, including regional and country consultations to be organized next year. A related publication is also underway, and an implementation guide contextualizing level 2 care within the continuum of maternal–newborn care at district level is being developed. There is a grant to conduct a systematic review of SSNC and define norms for organizing level 2 care in district settings in LMICs. Broadly, the aim is to convert standards and guidelines to evidence-based practice by providing implementation guidance for scale-up and an SSNC course for health care teams. It is aimed to complete this work by end 2023.
Discussion

STAGE members endorsed the plans and agreed that guidelines, tools, implementation guidance and indicators for monitoring for SSNC are all needed. STAGE also suggested supporting the translation of the global recommendations to the country level after the first phase of developing the guidance is complete. STAGE members suggested defining the terminology clearly and consistently throughout WHO documents (for example, defining level 2 care and level 2 unit/facility, using the term "small or sick newborn").

WHO regional colleagues endorsed the importance of the quality of care. STAGE members considered that training for human resources, both nurses and midwives, is important, as are nurse–newborn ratios in newborn care units. In terms of SSNC monitoring, STAGE members considered that it was important to think how we are integrating the SSNC indicators into the district health information system. It was also mentioned that “less is more” in collecting data based on experiences in Malawi, and important to not bombard the system with too many indicators.

STAGE members emphasized the importance of managing intrapartum complications, encephalopathy, and neurodevelopmental care right from birth, the emerging problem of birth defects/congenital conditions, the need for quality follow-up care, and integration with maternal care. Members agreed with the plan of having a multifaceted approach that includes all 10 components of care mentioned during the presentation. The importance of training to maintain and strengthen human resource competencies was highlighted. In some countries, nurses and even specialists do not have the relevant competencies and there are not enough midwives and nurses, highlighting the need for a multidisciplinary team for an optimum model of care. Another member suggested having a specialized cadre of nurses who are trained in care for SSNBs. STAGE members also suggested that intrapartum care, integrated KMC and zero separation should be highlighted.

The WHO team clarified there are ongoing efforts to integrate ENAP indicators into the routine data collection system and there is a bigger effort to strengthen routine data collection, data analysis and data validation at the country level.

Based on the discussion at this open session and the closed session later, the STAGE guidance is summarized below.

STAGE guidance

Overall, for SSNC, both the content of care and scale up of care are needed to meet Every newborn action plan (ENAP) target 4 (80% of districts have at least one level 2 (secondary) inpatient unit to care for small and sick newborns, with respiratory support including provision of continuous positive airway pressure). The ENAP definition of level 2 newborn care should be used for WHO scale up work moving forward. The ENAP target uses the specific term ‘district’: WHO considers that the district target should include population denominators, and this will be included moving forward. Level 2 facilities should provide: thermal care; comfort and pain management; kangaroo mother care; assisted feeding for optimal nutrition (cup feeding and nasogastric feeding); safe administration of oxygen; prevention of apnea; detection and management of neonatal infection; detection and management of hypoglycemia, jaundice, anaemia and neonatal encephalopathy; seizure management; safe administration of intravenous fluids; detection and referral management of birth defects; and transition to intensive care: continuous positive airway pressure; exchange transfusion; detection and management of necrotizing enterocolitis (NEC); specialized follow-up of infants at high risk (including preterm). WHO is also currently defining ‘norms’ for workforce including the ratio of clinicians per SSNB. This work will be completed by the end of 2023. WHO is currently working on an implementation guide for scaling up SSNC. This work will be presented to STAGE after completion.

• WHO to continue the acceleration of the scale up of SSNC in level 2 facilities including the integration of maternal and newborn care, zero separation, and human resourcing.

• WHO to provide presentation at a later STAGE meeting on progress toward defining and standardizing signal functions indicators for monitoring SSNC.
Climate change and MNCAHN

Background

Ms Anayda (Annie) Portela, MCA/WHO, provided an outline for the session “Climate change: maternal, newborn, child and adolescent health and life course perspective” with a detailed session agenda.

The first presentation, titled “Health and climate change” by Ms Elena Villalobos Prats, CCH/WHO, provided an overview of the ongoing work of the WHO Climate Change and Health Unit (CCH). CCH has three main streams of work: understanding and addressing the overall range of health impacts from climate change; strengthening the climate resilience and environmental sustainability of health systems; and promoting the health co-benefits of climate change mitigation in other sectors. Climate change cuts across a broad range of health outcomes; therefore, coordinating internally with different climate-sensitive health programmes to identify ways to integrate climate change in their own approaches and to define specific priority risks is essential.

The second presentation, titled “Climate change and maternal, newborn, child and adolescent health and the health of older persons” by Dr Bernadette Daelmans, MCA/WHO, provided a summary of the findings from three WHO-commissioned scoping reviews on climate change and maternal and newborn health (MNH), child and adolescent health (CAH) and the health of older persons, three populations considered particularly vulnerable to climate risks. The presentation outlined various adverse MNH outcomes associated with climate change, such as pre-eclampsia, stillbirths, preterm births and low birthweight. The impacts on CAH include increased infant mortality, respiratory diseases, gastrointestinal diseases, malnutrition, and detrimental effects on mental health, learning and household family functioning. The impacts on older persons include increased mortality and morbidity due to various conditions, declining cognitive function and malnutrition. Various gaps emerged from the three reviews, from challenges in estimating the impact and scale of the associations, to a lack of studies from LMICs and inconsistencies with regard to definitions and measurement of exposures and outcomes.

Dr Edda Wiemann, MCA/WHO consultant affiliated with the Technical University of Munich (Germany) and the University of Cape Town (South Africa), the third speaker, shared a presentation titled “The impact of climate change across the life course”. This presentation provided a brief overview of the initial thinking on the impacts of climate change across the life course, an important aspect in light of the fact that future generations worldwide will experience more frequent climate extremes than current and past generations, with increasing and accumulating impacts on health. An initial draft framework on the impacts of climate change across the life course was presented to STAGE members. The framework, intended as a tool to help visualize the different risks to climate extremes across key stages of life, highlights the importance of differential vulnerabilities across the life course.

The fourth presentation, by Ms Marjolein Smit-Mwanamwenge, NFS/WHO, focused on the work currently underway in the Nutrition and Food Security (NFS) department. Exposure to climate extremes can lead to food insecurity and malnutrition through various pathways, for example, by reducing food availability through the impact on agriculture. At the same time, the food we choose to consume contributes to climate change, as up to one third of all greenhouse gas emissions come from global food production. Transforming food systems is a key strategy to minimize the impact of climate change and deliver health and sustainable diets for all. Leveraging current global attention on transforming food systems is necessary to ensure nutrition is considered in the global climate change discourse and that the health sector is prepared to include nutrition in their plans to address climate change.
The fifth presentation by STAGE member, Dr Zulfiqar Bhutta, SickKids Centre for Global Child Health, Toronto (Canada), titled “Climate change and global health: a rapid scoping review of reviews” focused on the initial findings of a scoping review of reviews, commissioned by the Scientific Advisory Committee – Global Health, to identify existing evidence on the population health effects of climate change in LMICs as well as on strategies for addressing these effects. Various information gaps emerged, particularly in regard to responses to climate change, with most of the responses being of institutional type with little evidence on behavioural/cultural responses, ecosystem-based responses, and technological/infrastructural responses. Little evidence was found on MNH and nutrition, in terms of adaptation and mitigation.

The sixth presentation, titled “National programmes on climate change and health: a framework” by Professor Matthew Chersich, University of Witwatersrand, Johannesburg (South Africa), presented a framework for reducing the impacts of heat on health and designing national programmes, through the lens of heat impacts on health. The lack of climate funding towards the health sector was discussed, as well as the lack of representation of Global South scholars in research initiatives on climate change. The presentation closed with a call to WHO to move beyond its role in supporting reductions in impacts of climate change and to actively include measures to control and monitor carbon emissions, as done with other harmful substances.

The seventh intervention, by Dr Michel Brun, United Nations Population Fund (UNFPA), highlighted the areas of work in its 2022–2025 Strategic Plan dedicated to addressing climate change threats. UNFPA has generated a series of evidence-based products and youth-targeted training modules on climate change and sexual and reproductive health and rights, and has actively supported advocacy and sensitization work in collaboration with WHO, Geneva University and the London School of Hygiene and Tropical Medicine.

The eighth and final intervention, by Mr Abheet Solomon, UNICEF, illustrated some of the recent work of UNICEF on climate change and child health, particularly with regard to developing climate-responsive primary health care. UNICEF is working on a global e-learning course on children’s environmental health, in collaboration with WHO, which will be launched in 2023, together with the Global Collaborative on Healthy Environments for Healthy Children, in collaboration with WHO, a strategic platform bringing together governments, private sector, civil societies and youth, with a focus on communication and advocacy as well as knowledge management.

Two questions were presented to STAGE for their guidance:

1. What is needed to build the case for MNCAH in policy climate change dialogues and coordination mechanisms, ensure adequate funding allocation and influence the direction of investments that will be necessary to scale up protective action for MNCAHN against climate risks?

2. What are the recommendations to guide WHO in moving forward in terms of supporting research, evidence and actions at policy, service, community and household levels, supporting national and subnational dialogues, and strengthening measurement and advocacy to address MNCAHN needs in climate responses?
Discussion

STAGE members were appreciative of this effort to start the conversation on this important topic and acknowledged the broad agreement on the impacts of climate change on MNCAHN as well as on the need to insert MNCAHN into the global climate response architecture and identify priority actions at country level. A few members suggested that climate change should be recoined as climate disaster.

Various members noted that building the case for MNCAH within policy climate dialogues is essential and urgent. About the framework on the life course, members highlighted how the impacts of climate change start from the womb and accumulate, therefore focusing solely on risks during each key life stage might not tell the full story. Although childhood exposures are important, exposure to severe conditions in adulthood is equally dangerous. A few years back, in Karachi, 2000 people died within 48 hours due to extreme heat, and half of them were adults.

There was wide agreement on the fact that links between climate change and nutrition are quite relevant for MNCAH and should not be overlooked. There is also a lack of income and food insecurity because of decreased income and socio-economic status. Climate change has multifaceted and severe effects on nutritional outcomes; therefore, it is essential to generate a common agenda for both and ensure healthy and sustainable diets remain at the centre of the dialogue, particularly regarding MNCAH. The world regions that are currently most impacted by climate change are greatly suffering because of the impacts on agriculture and should be supported. It would be useful to bring together nutrition, diets and food security concerns, so that we have a more holistic view of what the impacts are on nutrition, through diet and through health.

Capacity-building was also mentioned. Climate change can be an overwhelming topic, and many feel unprepared to address it properly and lack the knowledge and tools for action. Locally led capacity-building among health workers, implementers and policymakers is an essential first step to start effectively tackling these issues in the health sector and ensuring advocacy at the local level. One member reflected on the need to shift from a reactive position in relation to climate change risks to a more proactive position within the health system and health care. The health care sector is responsible for about 4.4% of all carbon emissions, 50% of which is from the supply chain and the remainder from patients and patient care. Therefore, adaptation of health systems and supply chains needs to proceed hand in hand with mitigation. Another member responded that while the efforts to ensure carbon neutral health facilities are important and many investments from LMICs have been requested to this end, there is also a need to allocate funds to protect countries from acute events, such as the floods that have affected Pakistan in 2022, costing them over US$40 billion (12% of their GDP).

Various members suggested the importance of bringing together the efforts of WHO, UNICEF and UNFPA within a common platform to avoid duplications and overlapping initiatives and to multiply the reach, thus generating greater momentum and attracting investments. A common voice could help shape a common research agenda and address the gaps in the evidence, identify promising interventions and demonstrations, and ultimately design and scale up programmes.

Two members reflected on a couple of perspectives that appeared to be missing from the presentations. The first perspective relates to traditional knowledge and practices that address climate events and come directly from communities; the second perspective is related to applying a human rights-based approach, which should always be an integral part of any climate change adaptation or mitigation measure. There was wide consensus among STAGE members with regard to the need for WHO to leverage its global and political influence to push forward climate action. The political mismatch between climate risks and concrete global action is widening and there is little time to act. The representative from CCH agreed on the need for action and the urgency surrounding the topic of climate and health; nevertheless, health can also represent an opportunity to steer climate action and help reach global agreements.
Further, various platforms are in place, such as the Alliance for Transformative Action on Climate and Health (ATACH), an initiative co-convened by the United Kingdom of Great Britain and Northern Ireland and Egypt, with the aim to support countries to make and deliver on commitments for climate resilience and health sector decarbonization.

Another member suggested that WHO should push for creation of a Health fund that should be funded by oil and gas companies, so they can pay for the problems they are causing. In other words, the cost of the impact of climate change – the cost of action and of inaction – needs to be estimated to make an economic argument. The role of other sectors and how changes within those are impacting health should be considered while doing health impact assessments of climate change.

While the knowledge about the effects of climate change is overwhelming, the lack of knowledge of what to do is threatening our existence. So political intervention is absolutely needed, and the real focus should be on what needs to be done and what interventions are required to mitigate the impacts of climate disaster. Last year extreme weather events cost the world about a quarter of a trillion US dollars, while fossil fuel companies are making just under a trillion dollars in profit this year. A sense of urgency needs to be created so action is triggered.

Dr Banerjee thanked all session presenters and STAGE members for their contribution and wrapped up the session with a final reflection on what each of us is willing to change or sacrifice in our lives for the greater good of planetary health, particularly in relation to climate justice.

Following the main open session, a closed session with the participation of STAGE members was held to refine the draft recommendations. During the closed session, members reiterated the need to create urgency to act and focus on impact and the need for additional resources.

**STAGE recommendations**

Climate change represents one of the greatest challenges the world faces today. STAGE acknowledges the WHO programme on climate change and health and the recently launched Alliance for Transformative Action on Climate and Health (ATACH) which aims to support countries implementing their commitments to climate resilient and low carbon sustainable health systems. WHO should continue to emphasize the immense health impact of climate change and influence the trajectory of the climate crisis, including advocating for putting measures (economic and social) into place to control and monitor carbon emissions as done with other harmful substances, which has important impact on MNCAHN, as well as support the transformation towards renewable energy solutions.

A growing body of knowledge links climate change to adverse MNCAHN outcomes. While recognizing the broader health and health systems implications, STAGE focused their discussions on the mandate to advise on MNCAHN.

STAGE suggests that WHO adopt the following actions:

1. WHO to strengthen in-house collaboration to embed MNCAHN into climate change policy and actions, and vice versa, and to define and consolidate internal roles, responsibilities and actions.
2. WHO to call upon Member States, UN agencies and partners to work together to ensure a coordinated response to the climate change and health crisis, with specific attention on actions to safeguard MNCAHN, on sharing lessons learned from country experiences and on strengthened capacity of national MNCAHN actors.

---

1 Evidence-based approaches, drawing on experience with the control of harmful substances in MNCH+N, could include taxation to discourage use and cover health externalities, warning labels of products that have high emission levels, labelling of estimated emissions of different products, and behaviour change interventions targeting individuals to reduce their fossil fuel use.
3. WHO to strengthen and coordinate research, including strengthening research capacity and synthesis of evidence and implementation experience to address climate risks for MNCAHN.
   a. WHO to identify research gaps in the evidence base for actions on climate change and MNCAHN to guide future investments in research.
   b. WHO to lead on bringing together studies and documentation to enhance the understanding of the links between climate risks and adverse MNCAHN outcomes including providing updated data on the modelled impacts of climate change on MNCAH.
   c. WHO to identify, document and share case studies that can serve as successful examples on how to mitigate the negative effects of high ambient temperatures, adverse weather events, air pollution and other climate risks on MNCH+N including examples from disaster preparedness and response efforts. These examples should include adaptation and resilience from community settings in both rural and urban populations.

4. WHO to scale-up communication and advocacy to raise awareness on the impacts of climate change for MNCAH+N among policymakers and to amplify efforts coming from youth-led organizations, recognizing their leading role as advocates in climate action.

5. WHO to establish a working group of interdisciplinary experts who can provide inputs on an action plan for integrating MNCAH+N into climate change efforts and for ensuring policy and actions are developed to protect MNCAH+N from the effects of climate change
Closing session and next steps

Partner forum

The closing session included some comments from partners (the partner forum planned for day 3 was shifted to the closing session). Dr Homer requested Dr Nancy Bolan from USAID who was present in person and others from USAID who were available online to provide some reflections on the deliberations of STAGE during this meeting and to also comment on how USAID would like to take these recommendations forward.

Dr Bolan thanked all the presenters and STAGE members for the interesting discussions, which have helped improve their understanding of WHO’s work in various areas, and said they looked forward to seeing the recommendations. They were appreciative of the efforts to influence and coordinate global efforts. The USAID team highlighted the climate change session and wanted WHO to take the leadership position based on the health data and join with UN teams and world leaders to make very strong political statements. The team also found the emphasis related to maternal and newborn innovations in service delivery and local ownership very interesting. Ms Robyn Churchill, USAID/Maternal Health Lead, added that WHO has a real opportunity to bring innovations into practice on the ground and also to influence the creation of a platform for all future innovations. She also emphasized the need to think strategically and build evidence for the best staffing practices as we develop specialization of nursing or midwives and really think about staffing patterns and other best practices.

The small and sick newborn care is of interest to USAID, and they support the testing of the level 2 model of care along with the 10 core elements that were discussed. They are working on developing an operational guide, and they look forward to continuing to collaborate with WHO and UNICEF on pushing that forward. The emphasis on system strengthening, and especially on human resources and commodities and health information systems, with apt attention to essential newborn care and level 1 care, are important. Dr Patricia Jodrey, USAID, Child Health Team Lead, added her appreciation for the work done on child health and well-being and the risk stratification work. Her team is very interested in keeping abreast with the advances in these two projects.

Ms Mandy Forrester, International Confederation of Midwives (ICM), was appreciative of the opportunity to be part of the discussions and was using the opportunity to better understand the role for ICM, how they can contribute, whom they can align with, and how to do more collaborative work. She hoped to use the living guideline approach for their work in prevention of anaemia with pregnant women, and with the families as well, and for pregnancy among young adolescents. ICM are trying to understand their role in the climate change agenda, so the session on this was very useful to her to think about ways that ICM can contribute to these discussions.

Dr Alison Morgan from the Global Financing Facility for Women, Children and Adolescents (GFF), who was attending in person, provided some insights on its mandate, which is to accelerate progress in women and children’s health and nutrition, especially in the care of the small or sick newborn, nutrition, interventions and innovation. So nearly every session at this meeting was relevant. She thanked WHO and STAGE for their inputs and said GFF looks forward to supporting countries to implement the STAGE recommendations in the countries where they work.
Summary of sessions

For the closing session, Dr Soumya Swaminathan joined, and the technical teams provided a brief summary of the STAGE discussions and the guidance from STAGE.

Dr Valentina Baltag, MCA, summarized the main learnings from the discussion on school health, which included the need for adolescents’ and students’ involvement in the design and implementation of school health programmes, along with parents’ involvement. Members also suggested that the interventions and programmes should be evidence based with ways to measure their effectiveness built into the programmes. Also, there was a suggestion to consider including health and well-being, including nutritional status, as indicators for performance for education systems.

Dr Larry Grummer-Strawn, NFS, summarized the guidance received for the comprehensive framework on anaemia (presented by Dr Lisa Rogers), which included the need to relook at targets on anaemia, particularly whether the targets are really realistic, and are only for women, and the need to include targets for children. There was also guidance on the need for clear operational guidance and discussion about the burden, the significant consequences and the need to consider innovative approaches.

Dr Allisyn Moran spoke on the guidance received for maternal and newborn health innovations, which included discussion on WHO’s comparative advantage and unique role; this is an important area to continue to focus on, especially the TPPs. STAGE members also advised WHO to consider not just medicines, devices and diagnostics but also service delivery innovations, focusing on what has the most ability for impact or for effectiveness at the ground level, and really ensuring that end users are engaged in those processes from the outset.

The summary on guidance received for small or sick newborn care was presented by Dr Karen Edmond. She highlighted the STAGE consensus to accelerate the facility-based level 2 care for small or sick newborns. There were insightful comments about content of care, particularly focusing on quality of care right from the time of birth through follow-up care and post-discharge care, along with ensuring integration with maternal care and zero separation, keeping the mother and baby together, and the infrastructure requirements that are needed in level 2 facilities. There was a recommendation to further define and standardize indicators for monitoring, which could be discussed at a subsequent meeting.

Dr Wilson Were provided a summary of the STAGE discussion and guidance for programming for well child and well-being. STAGE members were very supportive of this agenda and termed it a must-do item. Members provided some insights into the need for new and trained human resources and the need for redesign of the health system to shift the focus from illness to well-being. They also suggested that this be linked across the school health services and other programmes that are already dealing with children and young adults. There was also a suggestion to explore innovative ways of delivering some of the interventions.

Ms Annie Portela then summarized the STAGE inputs into the climate change session, which included the recommendation for collaboration within WHO and also with UNICEF, UNFPA and other partners to form a global platform to advocate for health impacts on climate change. STAGE members urged the team to highlight the urgency of the matter and focus on both the impact of climate change on MNCAHN and the actions required to mitigate the impact.

Dr Nigel Rollins then provided the brief takeaway from the STAGE inputs on the risk stratification session: STAGE endorsed the analysis that showed links between weight for age as an indicator and child mortality. However, it was clear that the findings, interpretation and finally its application are separate and need to be discussed with different stakeholders.

Dr Soumya Swaminathan thanked WHO team for the summaries and STAGE for their guidance and recommendations, as these constitute important feedback from STAGE, and WHO will benefit from them as they are translated to actions in countries. Dr Anshu Banerjee thanked Dr Swaminathan for her time and support, especially since this would be her last meeting with STAGE as the Chief Scientist of WHO. He and Professor Homer wished her well in her new endeavours in India.
Closing remarks

Professor Homer invited the directors of the three departments to provide their closing remarks. Dr Femi Oladapo provided the remarks on behalf of Dr Pascale Allotey, Director of SRH, who was away at the planning meeting in Thailand. Dr Oladapo thanked the STAGE members especially those who travelled for the first hybrid meeting to Geneva, and to those who joined online and provided their inputs despite the time differences and inconveniences caused. He was especially grateful for the guidance on the maternal and newborn health innovations and for focusing WHO’s role on the pathway to innovation. The other area in which the STAGE guidance would be very useful is climate change given the breadth of the topic, and it would be important to get more focused on areas where WHO has comparative advantage. He said the department will be looking forward to strengthening partnerships and collaborations with STAGE to see how we can move things forward in that direction.

Dr Francesco Branca, Director NFS, also conveyed his pleasure at being able to see many of the STAGE members in person. He was thankful for STAGE inputs and acknowledged the discussion and the contribution of STAGE to some of the topics. He highlighted the role of risk stratification for the work on the wasting guidelines and for the implementation of the global action plan on wasting. He was thankful for the other important contributions on anaemia. This global attention on anaemia is new, and he hopes this will now move the anaemia agenda forward, which has been stagnating for so long. The focus has been the women and, with STAGE inputs, the team will also include children. He also referred to STAGE inputs on breastfeeding, which, he mentioned, is the only indicator which has made some serious progress, and that is a sign that targets actually are useful. He hoped that STAGE will continue to focus on various important issues and provide the required guidance to WHO. He mentioned that there are new estimates of low birthweight, and country consultations are ongoing. This again is an area where not very much has happened, particularly in South Asia. One child in five or one child in four is born with low birthweight, which is absolutely unacceptable, and perhaps STAGE could consider reviewing this topic. The other area is probably obesity, which is also very relevant. WHO is developing guidelines on the management of obesity in children, with discussion on targets, so STAGE could review those too.

Dr Anshu Banerjee, Director MCA, thanked Professor Caroline Homer and all STAGE members and expressed his pleasure at having this first in-person meetings after three years. He was highly appreciative of the quality of the dialogue that went on in the room, which he thought was much different than during the previous online meetings. He added that this provided an opportunity to go into a bit more depth in the presentations, and the ensuing discussions were rich and useful. He stated that the advantages of an in-person meeting are huge, despite the issues and impact on climate change.

He thanked the Bill & Melinda Gates Foundation for supporting STAGE, which made this meeting possible. He then highlighted the various STAGE inputs, which focused on system redesign and the need to move away from just disease and illness to well-being. He thought that linked very much to the nutrition agenda that Dr Branca had just highlighted. However, the mortality agenda is something that still needs to be addressed.

Professor Homer then thanked everyone for their inputs and joined others in expressing her pleasure to see many of the members and the WHO team in person. She thanked the WHO technical teams, WHO Secretariat and the administrative staff that helped organize the meetings and for the travel arrangements.
Annexes

Annex 1: STAGE meeting agenda

Meeting of the Strategic and Technical Advisory Group of Experts (STAGE) on Maternal, Newborn, Child, and Adolescent Health and Nutrition (MNCAHN)

15–17 November 2022, Salle T, WHO, Geneva
Agenda (Hybrid Meeting)

Day 1: 15 November 2022 (all time in CET)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Duration</th>
<th>Purpose (Chair/Lead)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00</td>
<td>Opening Remarks</td>
<td>30 min</td>
<td>Welcome and Update (Chair STAGE)</td>
</tr>
<tr>
<td></td>
<td>Soumya Swaminathan, Chief Scientist, WHO (5 min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caroline Homer, Chair STAGE (5 min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Update and Follow-up of STAGE recommendations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anshu Banerjee, Director MCA (10 min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>The comprehensive framework for integrated action on the prevention,</td>
<td>45 min</td>
<td>Information and Discussion</td>
</tr>
<tr>
<td></td>
<td><strong>diagnosis and management of anaemia: Update and Next Steps</strong></td>
<td></td>
<td>(Chair STAGE)</td>
</tr>
<tr>
<td></td>
<td>Lisa Rogers, NFS/WHO (15 min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:15</td>
<td>Coffee break</td>
<td>30 min</td>
<td>Information and Discussion</td>
</tr>
<tr>
<td>11:45</td>
<td>School Health update</td>
<td>45 min</td>
<td>(Chair STAGE)</td>
</tr>
<tr>
<td></td>
<td>Valentina Baltag MCA/WHO (15 min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:30</td>
<td>Lunch break</td>
<td>1 hr 30 min</td>
<td>Decision and Decision-making</td>
</tr>
<tr>
<td>14:00</td>
<td>Maternal and Newborn Health Innovations</td>
<td>1 hr 30 min</td>
<td>(Chair STAGE)</td>
</tr>
<tr>
<td></td>
<td>Allisyn Moran MCA/WHO, Loannis Gallos, SRH/WHO (15 min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td>Tea/Coffee break</td>
<td>30 min</td>
<td>Information and Discussion</td>
</tr>
<tr>
<td>16:00</td>
<td>Small and Sick Newborn Care</td>
<td>1 hr 30 min</td>
<td>(Chair STAGE)</td>
</tr>
<tr>
<td></td>
<td>Rajesh Mehta and Karen Edmond, MCA/WHO (15 min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:30</td>
<td>Wrap-up for open session</td>
<td>5 min</td>
<td>Wrap up</td>
</tr>
<tr>
<td></td>
<td>Caroline Homer, Chair STAGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:45</td>
<td>STAGE Closed session</td>
<td>45 min</td>
<td>Decision making</td>
</tr>
<tr>
<td></td>
<td>Refining Recommendations: STAGE members</td>
<td></td>
<td>(Chair STAGE)</td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
<td>Duration</td>
<td>Purpose (Chair/Lead)</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------------------------------------------------</td>
<td>-----------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>10:15</td>
<td>Maternal and child health redesign: Update on well child and adolescent care visits</td>
<td>1 hr 30 min</td>
<td>Information and Discussion (Chair STAGE)</td>
</tr>
<tr>
<td></td>
<td>Wilson Were, MCA/WHO (15min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch break</td>
<td>1 hr</td>
<td></td>
</tr>
<tr>
<td>13:00</td>
<td>Climate Change: Maternal, Newborn, Child and Adolescent Health and Life-Course Perspective</td>
<td>2 hrs 30 min</td>
<td>Discussion and Decision making (Chair STAGE)</td>
</tr>
<tr>
<td></td>
<td>Annie Portela, MCA/WHO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bernadette Daelmans, MCA/WHO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td>Tea/Coffee break</td>
<td>30 min</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>Risk Stratification: Update</td>
<td>1 hr</td>
<td>Information and Discussion (Chair STAGE)</td>
</tr>
<tr>
<td></td>
<td>Nigel Rollins, MCA/WHO (15 min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td>Wrap up STAGE meeting and Closing remarks</td>
<td>10 min</td>
<td>Closing session</td>
</tr>
<tr>
<td></td>
<td>Caroline Homer, Chair STAGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pascale Allotey, Director, SRH/WHO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Francesco Branca, Director, NFS/WHO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anshu Banerjee, Director MCA/WHO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:20</td>
<td>STAGE Closed session</td>
<td>1 hr</td>
<td>Decision making (Chair STAGE)</td>
</tr>
<tr>
<td></td>
<td>Refining Recommendations and Next steps: STAGE members</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Day 3: 17 November 2022

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Duration</th>
<th>Purpose (Chair/Lead)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00</td>
<td>Partner Forum</td>
<td>2 hrs</td>
<td>Discussion (Chair STAGE)</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch break</td>
<td>1 hr</td>
<td></td>
</tr>
</tbody>
</table>

**MCA:** Maternal, Newborn, Child and Adolescent health and Ageing  
**SRH:** Sexual and Reproductive Health and Research  
**NFS:** Nutrition and Food Safety
Annex 2: List of Participants

STAGE Members

Professor Caroline Homer, Co-Program Director, Maternal and Child Health and Working Group Head; NHMRC Principal Research Fellow, Burnet Institute, Melbourne, Australia, Chair STAGE

Dr Kokila Agarwal, Program Director, USAID Maternal Child Survival Program, Jhpiego, Washington DC, United States of America

Professor Fadia Al Buhairan, Health Sector Transformation Program, Interim Chief Medical Officer, Al Dara Hospital and Medical Center, Riyadh, Saudi Arabia

Dr Narendra Kumar Arora, Executive Director, INCLEN Trust International, New Delhi, India

Sir Sabaratnam Arulkumaran, Professor Emeritus in Obstetrics and Gynaecology, St George’s University of London, London, United Kingdom

Dr Zulfiqar Bhutta, Robert Harding Chair in Global Child Health & Policy; Co-Director, SickKids Centre for Global Child Health; Professor, Departments of Paediatrics, Nutritional Sciences and Public Health, University of Toronto, Toronto, Canada (Online)

Dr Arachu Castro, Samuel Z. Stone Chair of Public Health in Latin America, Department of Global Community Health and Behavioral Sciences, Tulane School of Public Health and Tropical Medicine, New Orleans (GA), United States of America

Dr Mariam Eva Claeson, Department of Global Health, Karolinska Institute, Stockholm

Dr Blami Dao, Technical Director, Western and Central Africa, Jhpiego, Ouagadougou, Burkina Faso (online)

Dr Gary Darmstadt, Associate Dean for Maternal and Child Health; Professor and Co-Director of Global Pediatric Research, Department of Pediatrics, Stanford University School of Medicine, Stanford (CA), United States of America

Dr Trevor Duke, Professor, Centre for International Child Health, University of Melbourne, Melbourne, Australia (Online)

Professor Mike English, Theme Leader, Health Systems Research; Head Health Services Unit, KEMRI-Wellcome Trust (KWTRP, Kenya); Professor, International Child Health, Oxford Global Health Systems Group Leader, University of Oxford, United Kingdom (Online)

Professor Rashida Ferrand, Professor of International Health, London School of Hygiene and Tropical Medicine; Wellcome Trust Senior Fellow in Clinical Science, London, United Kingdom (Online)

Dr Alma Crumm Golden, Executive Director, Global Development Lab, United States Agency for International Development, Washington DC, United States of America (now retired) (Online)

Dr Fyezah Jehan, Associate Professor and Chair, Department of Paediatrics and Child Health, Aga Khan University, Karachi, Pakistan

Dr Caroline Kabiru, Associate and Senior Technical Advisor, Evidence to End FGM/C Program, Population Council, African Population and Health Research Center, Nairobi, Kenya (Online)

Professor Joy Lawn, Professor of Maternal, Reproductive and Child Health Epidemiology, London School of Hygiene and Tropical Medicine, London, United Kingdom

Dr Michael Merson, Wolfgang Joklik Professor of Global Health, Duke Global Health Institute, Duke University, Durham (NC), United States of America (Online)
Dr Marie Ruel, Director, Poverty, Health, and Nutrition Division, International Food Policy Research Institute, Washington, DC, United States of America (Online)

Professor Jane Sandall, Professor of Social Science and Women’s Health, Department of Women and Children’s Health, School of Life Course Science, Faculty of Life Sciences and Medicine, King’s College, London, United Kingdom

Dr Harshpal Singh Sachdev, Senior Consultant, Paediatrics and Clinical Epidemiology, Sitaram Bhartia Institute of Science and Research, New Delhi, India (Online)

Professor Mark Tomlinson, Professor, Institute for Life Course Health Research, Department of Global Health, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Dr Peter Waiswa, Associate Professor, Makerere University School of Public Health, Kampala, Republic of Uganda.

Dr Dilys Walker, Director, Global Maternal Newborn Child Health Research Group, Institute for Global Health Sciences, University of California, San Francisco (CA), United States of America

Dr Stanley Zlotkin, Munk School of Global Affairs and Public Policy, University of Toronto; Chief, Global Child Health, The Hospital for Sick Children, Toronto, Canada

**World Health Organization (WHO) Headquarters and Regions (online or in-person)**

Dr Soumya Swaminathan, Chief Scientist, WHO

Dr Valentina Baltag, Scientist, Unit Head Adolescent and Young Adult Health, MCA, Geneva

Dr Prerna Banati, Scientist, Adolescent and Young Adult Health, MCA, Geneva

Dr Anshu Banerjee, Director, Maternal, Newborn, Child and Adolescent Health & Ageing, Geneva

Dr Jaden Bendabenda, Technical Officer, Food and Nutrition Action in Health Systems, NFS, Geneva

Dr Mercedes Bonet, Medical Officer, Maternal and Perinatal Health, SRH, Geneva

Dr Francesco Branca, Director, Nutrition and Food Safety, Geneva

Dr Nina Chad, Consultant, Food and Nutrition Action in Health Systems, NFS, Geneva

Dr Venkatraman Chandra-Mouli, Scientist, Adressing needs of Vulnerable Populations, SRH, Geneva

Dr Doris Chou, Medical Officer, Maternal and Perinatal Health, SRH, Geneva

Dr Francesca Conway, Consultant, Maternal Health, MCA, Geneva

Dr Bernadette Daelmans, Unit Head, Child Health and Development, MCA, Geneva

Dr Ayesha De Costa, Scientist, Newborn Health, MCA, Geneva

Dr Kirrily de Polnay, Technical Officer, Food and Nutrition Action in Health Systems, NFS, Geneva

Dr Theresa Diaz, Unit Head, Epidemiology, Monitoring & Evaluation, MCA, Geneva

Mr Martin Dohlsten, JPO, Maternal Health, MCA, Geneva

Dr Karen Edmond, Scientist, Newborn Health, MCA, Geneva

Dr Ameena Goga, Medical Officer, Child Health and Development, MCA, Geneva

Dr Laurence Grummer-Strawn, Unit Head, Food and Nutrition Action in Health Systems, NFS, Geneva

Dr Regina Guthold, Adolescent and Young Adult Health, MCA, Geneva

Mr Jorgen Johnsen, Food and Nutrition Action in Health Systems, NFS, Geneva

Mr Jorgen Johnsen, Food and Nutrition Action in Health Systems, NFS, Geneva
Dr Elizabeth Katwan, Data Manager, Epidemiology, Monitoring & Evaluation, MCA, Geneva
Dr Etienne Langlois, Technical Officer, Partnership for Maternal Newborn and Child Health, UHL
Dr Justine Le Lez, Consultant, Maternal Health, MCA, Geneva
Dr Blerta Maliqi, Technical Officer, Maternal Health, MCA, Geneva
Dr Lamin Massaquoi, Technical Officer, Adolescent and Young Adult Health, MCA, Geneva
Dr Carey McCarthy, Technical Officer, Health Workforce, Geneva
Ms Frances McConville, Technical Officer, Maternal Health, MCA, Geneva
Dr Emily McWhirter, Consultant, Office of the Chief Nurse, Geneva
Dr Allisyn Moran, Unit Head, Maternal Health, MCA, Geneva
Dr Moise Muzigaba, Technical Officer, Epidemiology, Monitoring & Evaluation, MCA, Geneva
Dr Yasir Bin Nisar, Medical Officer, Child and Health Development, MCA, Geneva
Dr Olufemi Oladapo, Unit Head, Maternal and Perinatal Health, SRH, Geneva
Ms Francesca Palestra, Technical Officer, MCA, Geneva
Ms Annie Portela, Scientist, Maternal Health, MCA, Geneva
Dr Anne Rerimo, Consultant, MCA
Dr Lisa Rogers, Technical Officer, Food and Nutrition Action in Health Systems, NFS, Geneva
Dr Nigel Rollins, Medical Officer, Child and Health Development, MCA, Geneva
Dr Khalid Siddeeg, Medical Officer, CAH, EMRO
Dr Marjolein Smit, Healthier Populations, Geneva
Mr Marcus Stahlhofer, Technical Officer Human Rights, EME, MCA, Geneva
Dr Kathleen Strong, Scientist, Child and Health Development, MCA, Geneva
Ms Tigist Tamrat, Technical Officer, Integration in Health Systems, SRH, Geneva
Ms He Tang, Technical Officer, MCA, Geneva
Ms Ai Tanimizu, Technical Officer, Family Health, Gender and Life Course, SEARO
Dr Georgia Taylor, Consultant, MCA, Geneva
Dr Naveen Thacker, Surveillance Medical Officer, SEARO
Dr Daisy Trovoada, Medical Officer, MCAT/RMNCAH, AFRO
Dr Meera Thapa Upadhyay, Technical Officer, Maternal and Reproductive Health, FGL, SEARO
Dr Özge Tunçalp, Medical Officer, Maternal and Perinatal Health, SRH, Geneva
Dr Beena Varghese, Consultant, Food and Nutrition Action in Health Systems, NFS, Geneva
Dr Elena Villalobos, Technical Officer, Climate Change and Health, HEP, Geneva
Dr Wilson Were, Medical Officer, Child and Health Development, MCA, Geneva
Dr Nuhu Yaqub, Medical Officer, Child and Health Development, MCA, Geneva
Dr Sachiyo Yoshida, Technical Officer, Newborn Health, MCA, Geneva
Ms Laure Cartillier, Team Assistant, MCA
Ms Katia Gaudin-Billaudaz, Senior Assistant to Director, MCA
Partners and Other Registered Participants

**Bill & Melinda Gates Foundation**
Ms Claire-Helene Mershon, Program Officer, Maternal, Newborn and Child Health

**Foreign Commonwealth and Development Office, (formerly DFID)**
Dr Meena Gandhi, Senior Health Advisor

**German International Cooperation Agency**
Dr Lara Speer, Advisor, German International Agency (GIZ)

**Japan International Cooperation Agency**
Ms. Keiko Osaki, Senior Advisor, Health and Medicine

**USAID**
Dr Nancy Bolan, Senior Newborn Health Advisor
Ms. Robyn Churchill, Team Lead, Maternal Health
Dr Lindy Fenlason, Senior Nutrition and Capacity Strengthening Advisor
Dr Patricia Jodrey, Senior Advisor for Child Health
Dr Pavani Ram, Chief, Child Health and Immunization Division
Dr Ananthy Thambinayagam, Chief, Maternal & Newborn Health Division

Dr Fatima Gohar, Maternal, Newborn & Adolescent Health Specialist
Dr Swathi Manchikanti, Lead for Climate Adaptation, Healthy Environments for Healthy Children Programme
Dr Abheet Solomon, Senior Programme Manager, Health Programme

**United Nations Fund for Population Activities**
Dr Michel Brun, Reproductive Health Adviser

**World Bank and Global Financing Facility**
Dr Alison Morgan, MNCH Health Specialist, Global Financing Facility, World Bank
Professional Organizations

Dr Mandy Forrester, Midwife, International Confederation of Midwives (ICM)
Dr Hani Fawzi, International Federation of Gynecology and Obstetrics (FIGO)

Other Observers

Dr Esmat Alqasim, Ministry of Health and Prevention, United Arab Emirates
Dr Himansu Basu, Medical Director RMCH Rotary Action Group, Rotary International
Dr Lorena Mercedes Binfa, Professor, Universidad de Chile
Dr Matthew Chersich, Professor, University of Witwatersrand
Dr Anthony Costello, Professor of Global Health and Sustainable Development, University College London
Dr John Eastwood, Medical Officer of Health, National Public Health Service, New Zealand
Dr Veronique Filippi, London School of Hygiene and Tropical Medicine
Dr Pauline Irungu, Global Health Policy Consultant, PATH
Dr Siri Kaldenbach, Consultant
Dr Silvana Masi, Pediatrician, Luxembourg Health Directorate
Dr Elizabeth Mason, Global Public Health Sarl
Dr Rajesh Mehta, Formerly Regional Adviser, WHO-SEARO
Dr Catherine Schwinger, Researcher, University of Bergen
Dr Min-Su Tzeng, Associate Professor, Fu Jen Catholic University
Dr Edda Weimann, University of Cape Town
## Annex 3: WHO progress report on STAGE recommendations from STAGE meetings in May 2022 and November 2021

### May 2022 STAGE recommendations

#### Directors’ progress report from WHO on the May 2022 STAGE recommendations

<table>
<thead>
<tr>
<th>STAGE Recommendations (May 2022)</th>
<th>Progress Made (November 2022)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Innovations in maternal health and scaling up for country impact</strong></td>
<td></td>
</tr>
<tr>
<td>WHO to support countries to implement life-saving commodities to improve maternal and newborn health and well-being and reduce stillbirths.</td>
<td>WHO is developing a working group and process to prioritize and develop implementation guidance for scaling up WHO recommended maternal and newborn commodities and devices. Students from LSE are conducting a desk review of key stakeholders and WHO recommended commodities to be completed by early 2023. The working group will be formed in 2023.</td>
</tr>
<tr>
<td>WHO will establish a working group under STAGE with key partners, professional organizations and other stakeholders, including country representation. The working group will identify life-saving maternal and newborn health commodities and will guide the development of an implementation strategy for scaling up across different country contexts as part of strengthening health systems in line with WHO recommendations.</td>
<td>STAGE requests WHO to present at a subsequent meeting the full scope of the maternal and newborn health innovation pipeline for commodities/medicines/devices. A session on the MNH innovations pipeline will be presented during the November 2022 meeting.</td>
</tr>
<tr>
<td>STAGE requests WHO to present at a subsequent meeting the full scope of the maternal and newborn health innovation pipeline for commodities/medicines/devices.</td>
<td></td>
</tr>
<tr>
<td><strong>Assessing the impact across the life course of preventive adolescent health and well-being check-ups</strong></td>
<td></td>
</tr>
<tr>
<td>WHO identifies critical components and organizational models for adolescent health care to inform policy-makers, as part of the child health redesign agenda.</td>
<td>Work across teams is in progress to develop the guidance on well-child/well-adolescent visits. The adolescent health and well-being perspective is integrated into the guidance by considering age-specific recommendations.</td>
</tr>
<tr>
<td>WHO develops a conceptual framework and measures to assess the impact across the life course as well as the intergenerational impact of context-specific adolescent health and well-being preventive check-up visits.</td>
<td>Work has begun on a systematic review of impact measures used in preventive screening programmes. Drawing on the results, a conceptual framework will be proposed that has appropriate measures identified from the analysis.</td>
</tr>
<tr>
<td>WHO develops an investment case that accounts for the life-course impact of preventive care in adolescence, and in particular of preventive well-adolescent visits.</td>
<td>MCA is collaborating with PMNCH and other partners to develop the investment case in the lead-up to the Global Forum for Adolescents 2023. An advisory group to provide technical inputs and guidance on the investment case was set up, and work is in progress.</td>
</tr>
<tr>
<td>Supportive countries who are transitioning to midwifery models of care</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td>WHO makes every effort to expand the Y-check research programme to all regions and use the Y-check and other similar context-specific implementation research programmes as an opportunity to validate the applicability of the conceptual framework, critical components and organizational models as recommended above.</td>
<td>A number of ‘satellite’ countries (Finland, Nepal, India and Gambia) have been identified, which have or are undertaking screening programmes similar to the Y-check intervention. These together with current Y-check countries constitute a community of practice for Y-check, sharing experiences and findings from diverse contexts. The conceptual framework, critical components and organizational models will be discussed at the next Y-check investigators meeting to be held in January 2023.</td>
</tr>
<tr>
<td>WHO updates the adolescent health research priorities 2015, including research priorities for preventive well-adolescent visits.</td>
<td>An evaluative exercise on the 2015 priorities is underway.</td>
</tr>
<tr>
<td>Supporting countries who are transitioning to midwifery models of care</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td>WHO to support countries that wish to transition to a collaborative midwifery model of care, requiring professional midwives, with policy advice and implementation guidance. This transition and the model of care will depend on the context of the country health system and should be aligned with integrated health workforce solutions.</td>
<td>WHO is supporting 6 countries in midwifery through which we are learning from supporting the transition to a midwifery model of care. Lessons learned from these countries: need guidance on ‘how to transition’; need government-led mechanism for coordination and alignment of partners and donors; involve private sector in planning and monitoring and evaluation processes; support a government data dashboard on midwifery; strengthen midwifery leadership, starting with a national leadership assessment; include climate change.</td>
</tr>
<tr>
<td>WHO to convene a STAGE working group, bringing together key stakeholders, ensuring midwifery representation to develop implementation guidance to support countries transition to a midwifery model of care, including collaborative teamwork, networks of care, leadership, and engagement of private and non-profit-making (3rd) sector. The working group should develop the implementation guidance within a 6–12 month timeframe, as well as an agenda for evaluating the implementation of midwifery models of care in different country health systems.</td>
<td>The terms of reference of the working group have been drafted and the potential members have been identified, ensuring midwifery representation. The working group will develop the implementation guidance within a 6–12 month timeframe.</td>
</tr>
<tr>
<td>STAGE endorses the WHO community of practice platform to establish a continued learning agenda on transitioning to midwifery models of care, which links to ending preventable maternal mortality (EPMM)/Every Newborn Action Plan (ENAP) and other global programmes.</td>
<td>Five working sub-themes have been identified from the results of a theory of change on midwifery conducted by WHO: 1- midwives; 2- women, families and communities; 3- health systems; 4- legal, policy, regulatory environment; and 5- enabling environment (gender, equity &amp; human rights).</td>
</tr>
<tr>
<td>The first meeting will take place in November, at which the final objectives of the working group will be discussed.</td>
<td>The first meeting will take place in November, at which the final objectives of the working group will be discussed.</td>
</tr>
<tr>
<td>WHO Global Nursing and Midwifery Community of Practice (GNMCoP) platform has been set up as the learning platform with the Chief Nursing Officer. Its structure will be further discussed at the 17 November planning meeting, to ensure it reflects the needs as a learning platform and repository of information.</td>
<td></td>
</tr>
</tbody>
</table>
### November 2021 STAGE Recommendations

**Directors’ progress report from WHO on the November 2021 STAGE recommendations**

<table>
<thead>
<tr>
<th>STAGE Recommendations (November 2021)</th>
<th>Progress (May 2022)</th>
<th>Update (November 2022)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outpatient management of possible severe bacterial infections</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHO guidelines on inpatient and outpatient PSBI management should be updated using the standard WHO guidelines development process.</td>
<td>Guidelines update started, expected to be completed by end of 2022. Scoping meeting of the Guidelines Development Group held in February.</td>
<td>We have initiated the process and facilitated the Guideline Development Group meetings to finalise the scope and PICO. As the next step, we are commissioning independent groups for systematic reviews, which will be completed by mid-next year.</td>
</tr>
<tr>
<td>A STAGE working group on PSBI prevention and management should develop consensus around an implementation strategy.</td>
<td>KMC working group will soon finish its work and will be reformulated into PSBI working group.</td>
<td>KMC working group will be reformulated into the PSBI working group.</td>
</tr>
<tr>
<td>STAGE recommends investment in research and innovation, diagnosis, surveillance and prevention of newborn infection.</td>
<td>Discussion with donors and partners initiated.</td>
<td>Ongoing.</td>
</tr>
</tbody>
</table>

**Anaemia: global action plan**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The global action plan should cover children, adolescent girls, and women of reproductive age, and should be comprehensive and ensure community engagement.</td>
<td>The process for developing a global action plan on the prevention and management of anaemia has been initiated. Technical focal points of WHO departments of NFS, SRH, MCA, GMP and NTD have formed a working group for its development and are working to further define its scope, which includes children, adolescent girls and women.</td>
<td>Progress has been made on the development of this plan with input received from the STAGE subgroup on anaemia and members of the Anaemia Action Alliance. Consultation with African, Eastern Mediterranean and South-East Asia regions are underway to ensure the framework of the plan responds to the needs of the countries and regions.</td>
</tr>
<tr>
<td>The plan should be multisectoral in design and include implementation with the health sector as well as food systems and agriculture, and education and social affairs.</td>
<td>A multisectoral plan for delivery of interventions will be developed that will involve health and other sectors.</td>
<td>The multisectoral and multidisciplinary approach is being reinforced as the input papers are developed and we further engage with partners and the work they are undertaking in parallel, particularly USAID’s Advancing Nutrition Anaemia Task Force and Exemplars in Global Health.</td>
</tr>
<tr>
<td>Form a STAGE working group to review the current evidence on actions to address</td>
<td>Members of a working group on anaemia have been proposed and terms of reference are being developed.</td>
<td>A STAGE working group has been formed. Two meetings of the working group were held in July and October 2022.</td>
</tr>
<tr>
<td>Keep STAGE informed on the integration and implementation of strategic plans and actions.</td>
<td>STAGE will be kept informed as work progresses.</td>
<td>STAGE will be updated on our progress during the November meeting.</td>
</tr>
</tbody>
</table>
Redesign of maternal and child health: addressing post-neonatal child mortality

<table>
<thead>
<tr>
<th>WHO should invest in understanding the risk stratification at multiple levels, household, individual, programme, and the broader context (fragile areas/states). Risk stratification strategies should look at vulnerable households for delivery of focused household pre-emptive interventions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO has established a Risk Stratification Working Group (RSWG) that is conducting an individual-data pooled analysis (IDPA) of risk factors for childhood mortality and wasting. The aim is to identify actionable predictors of mortality that can improve screening and management of children presenting with acute illness.</td>
</tr>
<tr>
<td>The WHO RSWG has pooled 29 datasets from studies in 17 countries. A data analysis plan has been agreed by the RSWG which is being implemented by a team at the University of Bergen led by Professor Tor Strand. The results of phase 1 analysis will be discussed in mid-December. The analyses will estimate mortality risks (absolute effects) according to individual and cumulative risks: anthropometric deficits and comorbidity exposures. First findings are expected in early November and hopefully completed by Q1 2023. Manuscripts will be submitted to peer-reviewed journals in early 2023.</td>
</tr>
</tbody>
</table>

A second phase of work is also envisaged in 2023 to conduct an IDPA to identify predictors of impaired childhood development that will be similarly used to improve screening and management tools.
Improving breastfeeding and mitigating the marketing of breast-milk substitutes

Importance of breastfeeding and the need to regulate the marketing of BMS must be raised to the highest political level considering the multisectoral dimensions of the issue. WHO to undertake political economy analyses of multiple barriers in selected countries to build the case for breastfeeding promotion, protection, and support.

The importance of breastfeeding was a major theme highlighted at the Global Nutrition for Growth Summit in December 2021 and many countries announced public commitments to substantially increase their rates of breastfeeding. The commitments made at the Summit have been summarized in the N4G Compact. Nine of the registered commitments are on the marketing of breast-milk substitutes. A side event for the Summit did focus on breastfeeding and the Code and can be watched online.

The research presented to STAGE was publicly disseminated in February and April 2022, and WHO Member States were directly briefed on it.

A series of papers on the importance of breastfeeding and on the marketing of BMS have been submitted to the Lancet for publication later this year. These papers also address structural and policy barriers to improving breastfeeding practices. Additional manuscripts have also been submitted to other journals that further elaborate country case studies.

The Lancet series mentioned previously will be published in February 2023. BMJ and CAP 2030 in September 2022 that focused on marketing practices to individual health professionals and their association.

NFS is coordinating:

1. a global congress of national stakeholders in June 2023 to support development of workplans to advance Code legislation and enforcement;
2. development of WHO guidance on interventions to regulate and mitigate the effects of digital marketing of BMS. This will be presented to the Health Assembly in May 2024.
3. a convening of health care professional association presidents to address sponsorship from the formula industry in December 2023;
4. a global network of civil society organizations supporting national implementation of the International Code (NetCode).

MCA is coordinating development of a WHO report on BMS marketing and human rights that will be launched at the Human Rights Council in March 2023.

Need further research to better understand the social norms and values, health status (anaemia, etc.), work and economic demands which are impacting women's opportunities and decisions.

The rationale for this research is not clear. There is a large existing literature on the contextual factors that shape decisions on infant and young child feeding. The Lancet paper referred to above will add to this literature. The greater challenge is the implementation of the action that can change these influences.

No new research is planned. However, to draw greater attention to the multiple societal factors impacting on breastfeeding, WHO is expanding the indicators included in the annual Global Breastfeeding Scorecard to include paid maternity leave, workplace accommodations for breastfeeding, counselling services, and community support.

CLOSED
WHO to explore and use marketing models to increase societal support for breastfeeding and eliminate BMS marketing.

WHO is using social media strategies to increase societal support for the elimination of BMS marketing. Launches of the two reports – Multicountry study and Digital Marketing of BMS – were both live streamed and there were postings on Twitter, Facebook, and Instagram.

In collaboration with UNICEF and WHO Department of Communications, NFS is leading development and deployment of a digital strategy – ‘push’ – that will use social media platforms and methods to highlight the scope and approaches used by industry to promote BMS.

To establish a STAGE working group on BMS and breastfeeding.

To discuss further the strategic value of such a working group. There is already a joint WHO–UNICEF and civil society coalition of nearly 30 international organizations – the Global Breastfeeding Collective – that focuses on advocacy to promote breastfeeding and mitigate the influence of BMS marketing.

At this time, a formal STAGE working group may not be the most efficient approach. As previously described, WHO is already working with a number of external partners to maintain momentum on the messaging and processes.

CLOSED