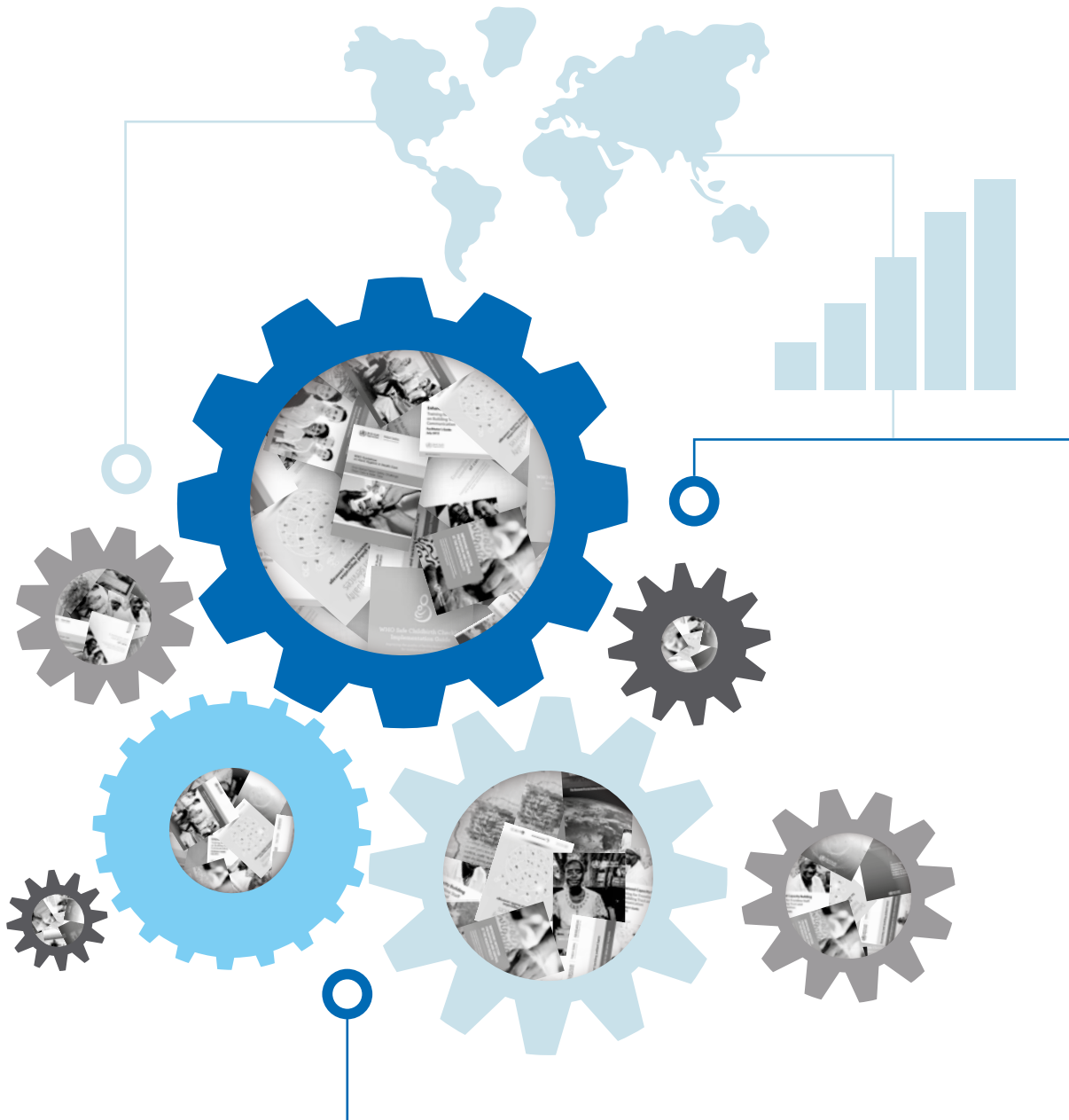**World Health Organization**

IMPROVING THE QUALITY OF HEALTH SERVICES – TOOLS AND RESOURCES

IMPROVING THE QUALITY OF HEALTH SERVICES – TOOLS AND RESOURCES

compiled by the

WHO Service Delivery and Safety Department

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This document has been developed by an Improvement cross-cut team within the Department of Service Delivery and Safety (SDS) at WHO headquarters. The document aims to support implementation of quality improvement approaches to make health services more effective, safe and people-centred. The document brings together the main tools and resources focused on quality improvement currently in use within the SDS department.

CONTENTS

THE COMPENDIUM AT A GLANCE

WHAT IS THE COMPENDIUM?

The tools and resources described in this document (hereafter referred to as "the compendium") are a resource for WHO Member States aiming to improve the quality of service delivery. The compendium collates current tools and resources on quality improvement (QI) developed by the WHO Service Delivery and Safety Department (SDS) and provides examples of how the tools and resources have been applied in country settings.

WHO IS THE COMPENDIUM FOR?

- Ministries of health, quality improvement teams, researchers and development agencies.
- WHO technical programmes, regional and country offices in their technical cooperation work with country counterparts and donors.
- Those working to improve the quality of health service delivery.

WHY IS IT NEEDED?

- The compendium has been developed to collate existing resources that facilitate quality improvement in service delivery.
- As a technical resource for countries in support of quality improvement efforts within health service delivery.
- Highlight adaptable tools and resources that can support local quality improvement efforts.

SDS TECHNICAL AREAS AND TYPE OF TOOLS

TECHNICAL AREAS

- Traditional complementary and integrative medicine
- Emergency and essential surgery
- Primary care
- Blood safety
- Palliative care
- Hospital management
- People-centred care
- Infection prevention and control
- Emergency
- Policies, strategies and plans
- Community engagement
- Institutional health partnerships
- Patient safety

TYPES OF TOOLS AND RESOURCES

- Guidance
- Implementation
- Advocacy
- Manuals
- Capacity-building
- Guidelines
- Frameworks
- Research
- Assessment
- Training resources

HOW COULD I USE THE COMPENDIUM?

- As a reference list of helpful tools and resources aimed at improving the quality of health services.

- As an overview of available tools and resources for quality improvement that have been developed by WHO.

- As a starting point for further technical collaboration with partners and WHO expertise in these respective subject areas.

- The current compendium is not an exhaustive list of QI interventions. It should be used in conjunction with other existing evidence-based guidance. The compendium is grouped into two sections: the first part of the compendium provides an overview of finalized tools and resources. The second part of the compendium collates tools and resources currently under development. Where applicable, case studies have been provided.

INTRODUCTION

The adoption of the sustainable development goals (SDGs) placed additional emphasis on improving overall human development by 2030. Improving health outcomes is at the forefront of this global commitment, with Goal 3 calling on all stakeholders to "ensure healthy lives and promote well-being for all at all ages". The SDGs also reaffirm a global commitment to advancing universal health coverage (UHC). Its focus is to ensure that all people and communities have access to the quality health services they need, without facing financial hardship. The momentum towards UHC is rooted in the principles of the Alma-Ata Declaration *(1)* which identified health as a human right. To realize the goal of health for all and achieve universal access to quality health services, the

WHO Framework for Integrated People-Centred Health Services (IPCHS) calls for a fundamental shift from health systems designed around diseases and health institutions towards health systems designed for people *(2)*. Globally, there is a need to look beyond service coverage and financial protection and emphasize improvements in quality service delivery at the core of country action. This is because quality of health services, coupled with service coverage will play a critical role in strengthening national health systems and improving health outcomes.

Global consensus on quality is emerging. Three major publications on quality have been published in 2018: first, the joint WHO-World Bank-OECD publication on the delivery of quality health services as a global imperative for UHC; then, the Lancet Global

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[1] Declaration of Alma-Ata. International Conference on Primary Health Care, Alma-Ata, USSR, 6-12: World Health Organization (http://www.who.int/publications/almaata_declaration_en.pdf?ua=1 accessed 20 August 2018)

[2] Framework on integrated people-centred health services. Report by the secretariat: World Health Organization (http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_39-en.pdf?ua=1 accessed 20 August 2018)

high quality health systems in the SDG era; and third, the US National Academies of Science Report on Improving the Quality of Health Care Globally. Each call for action on quality improvement. This document is developed in anticipation of and in support of this collective call and will be refined further over time.

There is an increasing collective recognition that quality health services should be:

- **effective**: providing evidence-based health care services to those who need them;

- **safe:** avoiding harm to people for whom the care is intended and reducing the risk of unnecessary harm associated with health care to an acceptable minimum;

- **people-centred:** adopting the perspectives of individuals, carers, families and communities as participants in, and beneficiaries of, trusted health systems that are organized around the comprehensive needs of people, rather than individual diseases, and that respect social preferences.

In addition, in order to achieve the benefits of quality health care, health services should also be:

- **timely:** reducing waiting times and sometimes harmful delays for both those who receive and those who give care;

- **equitable:** providing care that does not vary in quality on account of age, sex, gender, race, ethnicity, geographical location, religion, socioeconomic status, linguistic or political affiliation;

- **integrated:** providing care that is coordinated across the entire spectrum of health care services and providers and makes available the full range of health services throughout the life course;

- **efficient:** maximizing the benefit of available resources and avoiding waste.

SERVICE DELIVERY AND QUALITY IMPROVEMENT

Improvement in the quality of health care is a pivotal entry point for health systems strengthening. Quality improvement (QI) approaches play a role in improving the quality of health services delivered across the various levels of the health system – primary, secondary and tertiary. QI approaches support the identification of various service delivery gaps, produce solutions to address identified gaps and mitigate potential service delivery bottlenecks. The experience surrounding QI approaches in improving care in specific areas such as maternal, neonatal and child health, HIV/AIDS, TB/Malaria programmes is well documented. Technical programmes and development agencies have adhered to various definitions of quality improvement.

Findings from a rapid mapping of these quality improvement definitions can be found in Annex 1.

The collation of these definitions points to a consensus on certain essential principles for quality improvement to be effective and sustainable.

Principles:

• commitment from senior leadership

• ownership by people and teams

• developing locally identified solutions

• improvement of input structures

• clearly identified roles and responsibility of team members

• continuous monitoring and learning for improvement

• feedback and incentive mechanisms.

Building on this rapid scanning and the grounding principles, a quality improvement intervention can be defined across various levels of the health system.

Focusing on change processes, a quality improvement intervention can be defined as "a change process in health care systems, services, or suppliers for the purpose of increasing the likelihood of optimal clinical quality of care measured by positive health outcomes for individuals and populations" *(3)*.

At the organizational level, a quality improvement intervention can be defined as "an organizational strategy that formally involves the analysis of process and outcomes data and the application of systematic efforts to improve performance" *(3)*.

Building further, a working definition of quality improvement definition co-developed by the WHO headquarters SDS Improvement cross-cut team reads as follows:

Quality improvement is the action of every person working to implement iterative, measurable changes, to make health services more effective, safe and people-centred.

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[3] Evidence-based Practice Center systematic review protocol: closing the quality gap 2010:quality improvement interventions to address health disparities. Rockville, MD: Agency for Healthcare Research and Quality; 2012 (https://effectivehealthcare.ahrq.gov/topics/disparities-quality-improvement/research-protocol, accessed 19 February 2018)

TOOLS AND RESOURCES FOR IMPROVING THE QUALITY OF HEALTH SERVICES

Goal and objectives

The overall goal of this document is to provide a resource for countries seeking to improve the quality of their health service delivery.

The document:

- collates existing WHO tools and resources on quality improvement; and

- outlines the use of the tool or resource as applied in service delivery.

The primary inclusion criteria for the tools and resources included in this document is that they must be applicable for country support. Thereby, the document provides practical examples of how the tool was applied in-country, including relevant links with other areas, such as measurement.

The document focuses on tools and resources developed within the WHO Service Delivery and Safety Department. It is not, therefore, an exhaustive list of service delivery and safety tools and resources across WHO or

beyond. Of particular note, the document is not designed as a standards setting tool.

The categorization of the tools and resources in this document has been informed by the WHO publications categorization system. Types of tools include training and capacity-building tools, along with text books and guidance documents. Resources include advocacy documents, country reports, meeting reports and technical reports. Documents listed as guidelines have all gone through the WHO Guideline Review Committee process.

Target audience

The target audience for this document are ministries of health, facility quality improvement teams, researchers and development agencies.

WHO technical programmes, regional and country offices can also use the document in their technical cooperation work with the identified audience. Those working to improve the quality of health service delivery can also make good use of this resource.

Gaps

Development of the document allowed gaps to be identified in the quality improvement tools and resources that exist. Of particular note is that:

- improvement and measurement are inter-related; however, a number of the identified QI tools and resources made little or no mention of measurement considerations;

- there is currently no mechanism to track the application of SDS tools and resources in-country, once finalized, such an approach would contribute to the refinement of the tools, informed by implementation experience.

These gaps will allow a set of recommendations to be developed that will inform future development of quality improvement resources.

A feedback loop mechanism is currently under development to prospectively track the application of the resource at the country level. This feedback mechanism will allow for input into the adoption and usage of tools at the country level. It could also help to shed light on the adaptation of emerging global tools and to identify promising case studies at the country level. This mechanism will be linked strongly with the WHO SDS corporate web page, once activated.

Implications for countries and WHO

The document has clear implications for the work on service delivery for country level engagement and internally within WHO. The document can:

- provide framing and catalyse action on quality improvement activities and facilitate WHO's support to ministries of health on quality of care;

- support the implementation of WHO normative standards on quality of care by highlighting available tools and resources in service delivery;

- serve as a facilitator and bring about convergence of the work on quality improvement within WHO, working closely with the WHO Taskforce for Quality UHC.

Structure of the document

Each section addresses a technical area. The structure is standardized with detailed information on finalized WHO SDS documents. The first level of the document provides an overview of WHO SDS tools and resources. Where applicable, case studies and key lessons learnt have been provided. A second section of the document outlines tools and resources that are currently in development within SDS.

PART I. STRUCTURE TOOLS AND RESOURCES FINALIZED

Name of tool (Year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas

1. QUALITY IMPROVEMENT IN EMERGENCY SETTINGS

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Recovery Toolkit (2015)	Training / capacity-building	Policy-makers, front-line staff, civil society, academic researchers	The Recovery Toolkit is a library of guidance resources in a single place which can be quickly and easily accessed, to guide action. A key purpose of the Recovery Toolkit is to support countries in the reactivation of health services which may have suffered as a result of a public health emergency. These services include ongoing programmes such as maternal and child health services, and noncommunicable diseases. But in addition, and because the Toolkit contains core information needed to achieve functioning national and sub-national health systems, it also supports countries to implement their national health plans during the recovery phase of a public health emergency.	Use of the early Recovery Toolkit addresses a key challenge – how to identify and access the best and most up-to-date technical resources to support action planning and action. Bringing together the resources of vertical programmes in one place has the potential to enhance efficiency.	The "resource supplement" of the WHO, World Bank and OCED report "Delivering quality health services: a global imperative for UHC" provides a compendium of resources that measure and report quality of care at the international level, according to pre-determined measurement tools.

Building back from the Ebola outbreak in Liberia: spotlight on country voices

Liberia: I'm confident that the early recovery toolkit will increase awareness and access among partners and countries of the products/resources available. This awareness can help to achieve high standards, prevent inefficient duplication of effort and wheel reinvention and encourage communication and coordination when it is most needed.

- Alex Gasasira, WHO Representative, Liberia

2. POLICIES, STRATEGIES AND PLANS

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Delivering quality health services: a global imperative for universal health coverage (2018)	Guidance	Policy-makers	This joint WHO-World Bank-OECD publication provides a global picture of quality of care and its importance to achieving public health goals within the context of universal health coverage. It describes how quality improvement should be built into the foundations of health systems, and addresses key issues that require attention in order to improve quality of health care in countries. It also presents a range of levers to improve quality and highlights the importance of driving quality improvement through national policy and strategy. A quality call for action is put forward to health policy-makers seeking to achieve the goal of access to high quality, people-centred health services for all. For more information visit http://www.who.int/servicedeliverysafety/quality-report/en/	No lessons learnt as yet.	A compendium of resources, "Global efforts measuring quality of care" is provided, that summarizes global efforts in measuring and reporting quality of care at the international level, according to pre-determined measurement tools: http://www.who.int/servicedeliverysafety/measurement/en
WHO Handbook for National Quality Policy and Strategy (2018)	Capacity-building, advocacy	Policy-makers, technical partners	The WHO Handbook for national quality policy and strategy (NQPS) outlines an approach for the development of national policies and strategies to improve quality of care. The NQPS Handbook is not a prescriptive process guide, but is designed to support teams developing such policies and strategies, recognizing the varied expertise, experience and resources available to countries at different stages in this process. The Handbook is designed to support countries to improve quality of care and institutionalize a culture of quality across the health system. An accompanying compendium of tools and resources has been collated to support development and implementation of national quality policies and strategies.	1. Co-development of the Handbook with national quality leads and those with expert knowledge on quality of care secured early stakeholder buy-in and ensured content was relevant to the end user. 2. Country engagement during the development of the Handbook revealed significant demand for national quality efforts to be structured and guided by an overarching policy and strategy. 3. The approach outlined in the handbook can be a time-consuming process, and countries are likely to need further tools, resources and support beyond that provided in the Handbook if the policy and strategy are to be effective. This may include support from donors and technical agencies, direct technical support from WHO, and access to further tools and resources.	The WHO Global Learning Laboratory for Quality UHC hosts tools and resources to support implementation of national quality policies and strategies alongside a mechanism for active learning through discussion.

Case study 1: National quality policy and strategy in Sudan

In Sudan, the approach outlined in the NQPS Handbook has been used to guide the process of developing a national quality policy and strategy. Working in collaboration with the WHO Sudan Country Office, WHO Eastern Mediterranean Regional Office, and WHO headquarters Service Delivery and Safety department, the Sudan Federal Ministry of Health led a multi-stakeholder process to develop and implement a national quality policy and strategy. Sudan has a relatively long history of efforts to improve quality of care, with a quality directorate having been established in the Federal Ministry of Health in 2001. Following some success with setting standards and rolling out initiatives on patient safety and infection prevention and control, there was increasing momentum behind a new push for quality care driven by public expectations, resource constraints, and the ongoing threat of emerging outbreaks and emergencies.

Development of the national quality policy and strategy in Sudan involved consideration of all eight essential elements outlined in the Handbook: identification of national health goals and priorities; co-development of a local definition of quality; stakeholder mapping and engagement; comprehensive situational analysis; selection of improvement methods and interventions; clarification of governance and organizational structures; assessment and strengthening of health management information systems; and identification of quality indicators and core measures. Each stage of the process was supported by WHO working in close collaboration with colleagues leading each element in the Federal Ministry of Health. Tools and resources to support the process, such as those for situational analysis, were adapted to the specific local context, and data collection tools were co-developed.

A key observation of applying the Handbook process in Sudan is that the eight elements are not to be seen as separate entities in a linear process, but as interconnected considerations in a broader process of policy and strategy development. For example, identification of national goals, development of the local quality definition, and elements of the situational analysis were all incorporated in a large stakeholder engagement process.

Another key lesson from the Sudan NQPS experience is the importance of early engagement of key stakeholders. For example, it was identified early on, that while the Federal Ministry of Health was responsible for policy and strategy development, other state ministries would be responsible for implementing. Thus, their early and meaningful engagement was critical to success.

The Sudan experience also emphasized the importance of ensuring that the process outlined in the Handbook is supported by detailed operational planning and monitoring of the implementation effort. Situational analysis revealed that, where this had not occurred, previous national efforts had been less successful.

In general, the national team developing the policy and strategy felt that the NQPS process was relevant to their setting and useful as a foundation for their initiative. However, some tools, resources and aspects of the approach did have to be adapted to the local context, and further technical support was required to build the capacity of the local team to complete the NQPS process. Population level impact is not yet known, but the NQPS process itself promotes building of systems of measurement to assess the impact of national quality efforts.

3. COMMUNITY ENGAGEMENT

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Enhanced Capacity Building Training for Front-line Staff on Building Trust and Communication: Facilitator's Guide (2016)	Training/ Capacity-building	Technical staff working in surveillance and emergency	This training guide contributes to improving the quality of emergency responses. It was designed to improve the quality of surveillance activities by equipping front-line staff with the skills and tools to engage with communities in ways that build trust, support the uptake of public health interventions and contribute overall to achieving infection prevention and control objectives, such as during an Ebola outbreak.	1. Trained staff demonstrated greater knowledge and more positive attitudes regarding trust building and communication with communities. 2. Trained staff reported higher levels of confidence in their ability to build trust and communicate effectively. 3. Front-line staff both reported and demonstrated a greater ability to turn frustration into opportunities for dialogue. 4. Front-line staff worked to build trust by working with community members to improve living conditions even though such tasks are considered outside their 'normal' job functions.	Although specifically developed for the 2014 Ebola response in Sierra Leone, content of this facilitator's guide can be adapted and used by health staff across various functions that directly interact with community members.
Understanding and Managing Fear - Training for Humanitarian Workers in Emergencies [video] (2016)	Capacity-building	Front-line staff in emergencies	This technical video contributes to quality improvement in response operations. It was specifically developed as part of a training package to help health professionals and response staff prepare to engage and communicate with Ebola-affected communities. The video describe how fear influences biological, physiological, emotional, cognitive and behavioural responses and the importance of this knowledge for health professionals to be able to promote connectivity and build trust with individuals, families and communities who are experiencing fear.		The video is relevant for emergency preparedness, response and recovery. It can also be applied to long-term health systems strengthening efforts.

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Community engagement framework for quality, people-centred and resilient health services (2017)	Meeting report	Programme, managers, policy-makers, researchers, and technical partners	The CEQ meeting report introduces a framework that institutionalizes community engagement as a fundamental component of health service design and delivery. The CEQ framework describes key features that the health system needs to have to be prepared and ready to engage with service users, their families and local communities. The process used to generate the CEQ framework is also described.	The CEQ framework was generated by identifying important interface points between health services, service users and local communities that impact service quality, people-centredness and resilience. The CEQ framework will be used to generate evidence around a package of engagement interventions that support continuous quality improvement. The CEQ was developed jointly with the Health Promotion and Social Determinants Unit in the WHO African Regional Office and will be field-tested with the Global Malaria Programme, Maternal and Child Health, HIV and Immunization departments within WHO.	

Case study 2: Community engagement as a mechanism to improve the quality of surveillance and build trust with communities during the 2013-2016 Ebola virus disease response in Sierra Leone

This capacity-building project (the intervention) responded to an identified need in Ebola-affected countries to address community trust and improve the quality of relationships between front-line staff and communities, particularly surveillance staff who were conducting case investigation and contact tracing activities – critical to preventing and controlling further spread of Ebola virus disease. Some of the outcomes sought were greater receptivity of front-line staff to communities, increased trust between front-line staff and quarantined families and improved capacity of local staff to design and deliver follow-up trainings.

A consultative and iterative process of co-development and co-learning between multiple stakeholders (disciplinary experts and partners) at global, national and local levels was managed by WHO throughout design and implementation of the project. The intervention was rolled out in Sierra Leone in collaboration with the Health Education Unit and the Department of Disease Prevention and Control. Over 600 health personnel across three districts were trained by a mixed international and national team of trainers. The training programme centred on facilitated and experiential adult-centred learning. Interlinked modules included: reactive and receptive emotional states; dialogic techniques to manage conversation challenges; trust building;, understanding culture, etc.
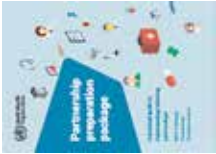
Key lessons learnt.

1. The design of interdisciplinary training to improve service delivery has to be led and delivered by content specialists able to design and deliver training and who are skilled in facilitation. This enabled trainers to continuously adapt and respond to the needs of participants.

2. Having mixed cohorts that included surveillance officers, village and religious leaders, social mobilization staff and Ebola survivors enhanced the process of learning and also built important relationships between different groups who needed to work together.

3. It was important to ensure that the training team had the right composition to ensure that relevant technical content was available and questions could be answered. It also ensured that engagement capability was built and stayed within local systems.

In-training evaluation showed that mean participant comfort in engaging with the community increased and post-training case study interviews also showed that front-line staff were better able to turn frustrations into opportunities for dialogue, better de-escalate tensions and nurture greater trust. This was also observed by WHO staff on the ground who saw surveillance officers quickly de-escalating tense situations.

Looking ahead, this experience should serve as a call for further work to integrate community engagement more systematically within national surveillance systems, as a way of improving the quality, responsiveness and people-centredness of surveillance systems.

4. INSTITUTIONAL HEALTH PARTNERSHIPS

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Twinning Partnerships for Improvement: Steps 1-6 (2018)	Training/ Capacity-building	Administrators, front-line staff, policy-makers	The model is based on a 6-step cycle which begins when two partners agree to establish a partnership. TPI guides the respective partners through a systematic process, in order to identify areas for improvement, develop an action plan to implement improvements, and then evaluate the progression and changes made towards quality improvement. The 6 steps related to improvement include: partnership development, needs assessment, gap analysis, action planning, action and evaluation.	1. Acknowledge that gaps exist, that improvements are needed and agree/commit to a partnership approach as the means of improvement. 2. Joint identification of problems and co-development of the interventions using a systematic approach to address the improvement area(s). 3. Consider spread and sustainability of health service improvements from onset of activity(s) at the hospital level (including national and sub-national level)	Step 6 of the partnership model is directly related to measurement. In the Liberia/Japan country example, the partners worked together to collectively develop a monitoring and evaluation plan. This will be placed within the content of the compendium. Tools and resources relating to evaluation are also captured in this document.

Case study 3: Partnership development and continued strengthening – Japan and Liberia

The Partnership between Nagasaki University Hospital (NUH) and Tellewayon Memorial Hospital (TMH) in Lofa County, Liberia, was formed in August 2016. At the time, TMH was recovering from the West African Ebola outbreak of 2014 and relying on international support to reactivate its essential health services and moving forward with recovery efforts in alignment with national recovery plans. During the recovery at TMH, it was quickly realized that impact of the Ebola response had depleted many resources and that extensive work was needed to improve quality. NUH saw that the needs at TMH were extensive and agreed to form a partnership with TMH. The Ministry of Health and the County authorities in Liberia supported this partnership at the onset of the formal TPI agreement. Careful consideration was given to the architecture of the partnership, recognizing the different culture and context of the respective partners.

Moving forward from this initial partnership, a situational assessment and gap analysis were completed at TMH in October 2016. Following the gap analysis, an official "action planning" meeting took place in December 2016 where both partners agreed to tackle some areas within infection prevention and control (IPC) such as hand hygiene and waste management. It was noted that by improving these two services, overall quality could be improved throughout the whole hospital.

The partnership undertook two partnership exchange visits in Liberia and Japan respectively. The principles of the partnership were reinforced throughout while the improvement work proceeded. The bi-directionality of the partnership learning was emphasized. For example, the TMH team leader gave a talk about their experience in the Ebola response, which NUH stated they benefited greatly from because they learnt about the realities of diagnosis and treating Ebola-affected patients. In Liberia, the technical improvements aligned with overall process and managerial improvements within TMH.

In light of the three objectives of TPI (partnership, improvement and spread), the 6-step model guided the partnership through the three crosscutting areas of improvement. In addition to the improvements made to IPC practices at TMH, measurement processes were also implemented by using such tools as the WHO hand hygiene assessment strategy. Engagement of the community and other hospitals in the region was one outcome of 'spreading' the improvements. For example, the leadership in Lofa County hosted a learning event for the improvements at TMH to be shared with three other area hospitals. In summary, TPI is a comprehensive, cross-cutting model focused on building relationships, improvements and then sharing the knowledge gained.

The activities undertaken were in alignment with the national and county health plans which continued to evolve as the partnership progressed.

5. PATIENT SAFETY

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Safe Childbirth Checklist (2015)	Guidance	Doctors, nurses, midwives, paediatricians, general practitioners, and other birth attendants in maternity facilities	The WHO Safe Childbirth Checklist is a tool intended to improve the quality of care for women and babies at the time of childbirth. The Checklist is an organized list of evidence-based essential birth practices targeting major causes of maternal deaths, intrapartum-related stillbirths and neonatal deaths that occur in facilities around the world. A collaborative field-testing exercise was carried out from 2012 through 2015 to explore questions addressing compliance with, barriers to and success factors of effective and sustained use of the Checklist in a range of settings around the world. The results are published at http://www.who.int/patientsafety/topics/safe-childbirth/childbirth_collaboration_engaging/en/. The Checklist is in line with the comprehensive WHO Framework for Improvement of the Quality of Maternal and Newborn Care that aims to achieve coverage of key practices, people-centred outcomes and eventually improved health outcomes.	1. Gain buy-in from managers/administrators in the first instance. 2. Ensure that staff have adequate knowledge and skills to handle complications. Mentoring and training is one example of building skills and competencies. 3. Lack of supplies and equipment is a major barrier to successful implementation of the Checklist. 4. Local adaptation and contextualization are key. 5. Integrate Checklist use into the broader quality of care improvement efforts for mothers and newborns, including mothers' case notes.	This tool is closely linked with the work on improving quality of maternal and newborn care. For more information, please see http://www.who.int/maternal_child_adolescent/topics/quality-of-care/en/.

Case study 4: Better Birth study in India

The BetterBirth study, conducted by Ariadne Labs (www.ariadnelabs.org) from 2014-2016 was a multi-centred randomized controlled trial to test the WHO Safe Childbirth Checklist (SCC) in Uttar Pradesh, India. At the heart of this study were the concepts of 'engage' (buy-in at district and facility level, promoting systematic change), 'launch' (implementation of the SCC), and finally 'support' (coaching, mainly with peer-to-peer models for the uptake of essential birth practices). This is one of the largest facility-based randomized controlled trials, which measured the impact of a multi-pronged approach (checklist + coaching + data feedback) on early (7-day) maternal and perinatal morbidity and mortality in institutional childbirths in resource-limited settings. The outcomes across 161 000 deliveries were very promising, showing a dramatic improvement in adherence to essential best practices in sites where the SCC was introduced. While there was no measurable improvement in maternal and neonatal morbidity and mortality in the intervention arm, it was recognized that the SCC cannot be a standalone tool. Rather the WHO SCC embodies the basic essential best practices for optimal maternal and neonatal care. The Checklist is now incorporated as part of the quality of care toolkit in India.

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Safe Childbirth Checklist implementation guide (2015)	Guidance	Health care professionals	A guide to help health care managers and leaders, and birth attendants introduce, implement, and use the Safe Childbirth Checklist in facility-based deliveries. It covers how to introduce and ensure continuous use of the Checklist, how to launch it formally, and how to provide support for implementation through coaching and data sharing. The Implementation guide provides a step-by-step approach for effective and sustainable use of the Checklist in health care facilities, which will in turn improve adherence to essential birth practices. The Guide provides further details on the key facilitating factors identified, and highlights important factors for engagement, launch of the Checklist and ongoing support. Targeted for facility level but includes advice for a national level approach.	1. Gain buy-in from managers/administrators in the first instance. 2. Ensure that staff have adequate knowledge and skills to handle complications. Mentoring and training is one example of building skills and competencies. 3. Lack of supplies and equipment is a major barrier to successful implementation of the Checklist. 4. Local adaptation and contextualization are key. 5. Integrate Checklist use into the broader quality of care improvement efforts for mothers and newborns, including mothers' case notes.	This tool is closely linked with the work on improving quality of maternal and newborn care. For more information, please see http://www.who.int/maternal_child_adolescent/topics/quality-of-care/en/.

Case study 5: Safe Childbirth Checklist use in Sri Lanka

The WHO Safe Childbirth was implemented in a tertiary care hospital in Sri Lanka. After introducing the Checklist, health care workers were trained to use it. It was to be used for each woman admitted to the labour room. A regulatory requirement was put in place for nursing staff to adopt and implement the Checklist, and coaching was provided for the birth attendants.

The average number of childbirth practices checked in the Checklist was 21 out of 29. Items related to educating the mother to seek help during labour, after delivery and after discharge from hospital, seeking an assistant during labour, early breast-feeding, maternal HIV infection and discussing contraceptive options were checked least often. The mean level of knowledge on the SCC among health workers was 60.1%. Attitudes to acceptance of using the Checklist were satisfactory. Average adherence to Checklist practices was 71.3%. Increased workload, poor enthusiasm of health workers towards new additions to their routine schedule and level of user-friendliness of the Checklist were limitations to its wider use.

Among users, attitude towards the Checklist was satisfactory. Adoption rate among all health workers was 45.8% and knowledge regarding the Checklist was 60.1%. These two factors are probably linked. Therefore prior to introducing it to a facility, awareness about the value and correct use of the SCC needs to be increased, while giving attention to satisfactory staffing levels.

Lessons learnt: 1) The SCC can be implemented as a national approach; 2) The level of knowledge of staff must be addressed prior to implementation; 3) Continuous staff education and motivation is essential; 4) Encouragement must originate from the top down, with early engagement of the MOH, and policy-makers; 5) The SCC must be adapted according to the country setting and facility it is implemented in. [Reference: Implementation of the WHO safe childbirth checklist programme at a tertiary care setting in Sri Lanka. BMC Pregnancy and Childbirth 2015.]

Name of tool	Type of tool	Audience	Summary description	Key lessons learnt:	Interlinkages with other areas:
Minimal Information Model User Guide: Minimal Information Model for Patient Safety (MIM PS) (2017)	Guidance	Health care professionals	A tool to facilitate collection, analysis, comparison, sharing and global learning from adverse events, which can be used by countries or institutions looking to set up or improve their current patient safety reporting and learning systems.	Several hospitals and countries adapted MIM PS for their reporting and learning systems.	The tool is also strongly linked with measurement efforts with the inclusion of a structured template containing the definition and the rationale for every entity (category or relationship) of a minimal adverse event reporting system.
Patient Safety Research: A guide for developing training programmes (2012)	Guidance	Academic institutions	This guide is designed to aid curriculum development and the organization of training programmes in the field of patient safety research.		Closely linked to the work on national quality policy and strategy, and infection prevention and control
Summary of the evidence on patient safety: Implications for research (2008)	Research	Policy-makers, health care administrators and regulators, academic institutions, researchers, quality managers	This document provides guidance for setting WHO's priorities for patient safety research on unsafe care in clinical contexts in various countries and the underlying causes contributing to unsafe care.		The document has relevance to a number of service delivery related areas: national quality policy and strategy, infection prevention and control, primary health care.

Name of tool	Type of tool	Audience	Summary description	Key lessons learnt:	Interlinkages with other areas:
Patient Safety Curriculum Guide (2011)	Guidance training/ Capacity-building	Professional associations, academic institutions, education councils	This document is a comprehensive guide to assist effective capacity-building in patient safety education by health care academic institutions and is targeted at dentistry, medical, midwifery, nursing and pharmacy schools. It contains information for all levels of faculty staff and a comprehensive curriculum covering the essential patient safety principles and concepts. The Guide can be easily integrated into existing curricula to meet individual needs and is applicable to different cultures and contexts.		The first part of the Guide is aimed at health care educators and provides a systematic approach to building institutional capacity and highlights the educational principles essential to teaching patient safety to different categories of health care professionals. The second part of the Guide contains 11 topics, some of them cross-cutting nature, including IPC, invasive procedures, medication safety, quality improvement methods, reporting and learning, engaging patients.
Patient Safety Curriculum Guide for Medical Schools (2009)	Guidance Training/ Capacity-building	Academic institutions (medical schools), professional organizations, educational councils	This Curriculum guide provides a comprehensive programme for implementation of patient safety education in medical schools worldwide.		The first part of the Guide is aimed at health care educators and provides a systematic approach to building institutional capacity and highlights the educational principles essential to teaching patient safety in medical schools. The second part of the Guide contains 11 topics, some of them cross-cutting in nature, including IPC, invasive procedures, medication safety, quality improvement methods, reporting and learning, and engaging patients.

Name of tool	Type of tool	Audience	Summary description	Key lessons learnt:	Interlinkages with other areas:
Conceptual Framework for the International Classification for Patient Safety (ICPS) (2009)	Guidance	Policy-makers, health care administrators and regulators, quality managers	The Framework provides a method for organizing patient safety data and information. It provides guidance to compare data across disciplines/ organizations, examine the role of system and human factors, identify potential patient safety issues, develop priorities and safety solutions.	ICPS has been widely used to develop the reporting and learning systems at facility and national levels. International Classification of Diseases (ICD) -11's Safety and Quality Topic Advisory Group has been working on mapping ICPS to ICD-11.	The ICPS is designed to be a genuine convergence of international perceptions of the main issues related to patient safety and to facilitate the description, comparison, measurement, monitoring, analysis and interpretation of information to improve patient care.
High 5's: Standard Operating Procedures	Guidance	Policy-makers, health care administrators and regulators, quality managers, clinicians and other hospital staff	This project aims to facilitate the development, implementation and evaluation of three SOPs. The three SOPs related to medication reconciliation, correct site surgery, and concentrated injectable medicines, have been developed, implemented and evaluated.		The tool presents the exemplary indicators and the guidelines to measure three areas, namely medication reconciliation, the performance of the correct procedure at the correct body site, and the safe management of concentrated injectable medicines. In addition, methodological recommendations for measuring patient safety are presented.
Methodological guide for data poor hospitals (2010)	Guidance	Health care administrators and regulators, quality managers, clinicians	The guidance describes a set of methodologies that can be used either to estimate the extent of harm caused by the delivery of health care in a particular health care facility or to establish priority actions around perceived patient safety issues.		The document is closely linked with patient safety and its implementation in hospitals.

6. TRADITIONAL COMPLEMENTARY AND INTEGRATIVE MEDICINE

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
WHO Benchmarks for training in: Ayurveda (2010) Unani Medicine (2010) Naturopathy (2010) Osteopathy (2010) Nuad Thai (2010) Traditional Chinese Medicine (2010) Tui na (2010)	Training/Capacity-building	Academics/researchers, development agencies, health workers, nongovernmental organizations, policy-makers	The series of benchmarks for training reflect what the community of practitioners in traditional and complementary medicine consider to be reasonable practices in training professionals to practice the discipline, considering consumer protection and patient safety as being core to professional practice. The training tools provide a reference point to which actual practice can be compared and evaluated. The documents describe models of training for trainees with different professional backgrounds. The list, developed by a community of practitioners, aims to promote safe practice and minimize the risk of accidents.	There is a need to update and align the training benchmarks with practice benchmarks. Resource mobilization to support development and refinement of documents is key.	The tools serve as reference points to which actual practice can be compared and evaluated.
WHO Guidelines on Basic Training and Safety in Chiropractic (2005)	Training/Capacity-building	Academics/researchers, development agencies, health workers, nongovernmental organizations, policy-makers	This document comprises guidelines on basic training and safety in chiropractic. Available in English, French and Spanish.	Regular and timely update is needed to maintain the relevance of this resource.	A system of examinations and licensing may be established or adapted on the basis of this training programme, to ensure the competence of the trainees and avoid the practice of chiropractic by unqualified persons.

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Guidelines on Basic Training and Safety in Acupuncture (1999)	Training/Capacity-building	Academics/researchers, development agencies, health workers, nongovernmental organizations, policy-makers	The guidelines on basic training cover basic requirements for training non-physician acupuncturists and physicians wishing to use acupuncture in their clinical work and includes a core syllabus. The guidelines on safety in acupuncture are intended for hospitals, clinics and practitioners and provide standards for safety in the clinical practice of acupuncture. Available in English, French and Spanish.	There is need to update and align the training benchmarks with practice benchmarks. The practice benchmarks are under development.	The document is intended to assist national health authorities in setting standards and establishing official examinations, as well as medical schools and institutions wishing to arrange training programmes.
WHO Guidelines for Assessing Quality of Herbal Medicines with Reference to Contaminants and Residues (2007)	Guidance	National /international drug regulatory agencies, researchers, pharmaceutical control laboratories, policy-makers	These WHO guidelines present general considerations on potentially hazardous contaminants and residues in herbal medicines and include guiding principles for assessing the quality of herbal medicines, in terms of major contaminants and residues. It also recommends analytical methods for qualitative and quantitative determination of such contaminants and residues.	Regular and timely update is needed to maintain the relevance of the resource.	Within the overall context of quality assurance, these guidelines intended to provide general technical guidance to Member States in assessing quality relating to the safety of herbal materials and products classified as medicines, in relation to major and common contaminants and residues.
General Guidelines for Methodologies on Research and Evaluation of Traditional Medicine (2000)	Guidance	Academics/researchers, development agencies, health workers, nongovernmental organizations, policy-makers	The specific objectives of the guidelines are to: harmonize the use of certain accepted and important terms in traditional medicine; to summarize key issues for developing methodologies for research and evaluation of traditional medicine; and to improve the quality and value of research in traditional medicine. The guidelines consist of sections on herbal medicines, traditional procedure-based therapies, clinical research, and related issues, including ethics, education and training, as well as surveillance systems. Available in English, French and Spanish.	Regular and timely update is needed to maintain the relevance of this resource. Resource currently being updated.	Provide appropriate evaluation methods to facilitate the development of regulation and registration of traditional medicine.

Case study 6: Indo-Swiss Ayurveda Foundation

In 2009, Switzerland recognized traditional and complementary medicine (T&CM) in its public health system through a change in its constitution. Through SAMA's (Swiss Ayurvedic Medical Academy) active engagement with the Swiss and Indian governments, the Indo-Swiss Ayurveda Foundation (ISA), a non-for-profit organization, was officially created in 2013 under Swiss law.

As a result of the work of ISA, Switzerland has defined three professions for T&CM in its public health system: (i) the allopathic doctor with a complementary training in T&CM and (ii) two T&CM professions without prior training in medicine. WHO benchmarks for training in Ayurveda define the same three professions as foreseen by the Swiss regulations for T&CM. The release of WHO's benchmarks for training in Ayurveda validated ISA's vision of Ayurveda as a key part of the medical system. Swiss authorities formally recognized Ayurveda as a fundamental training component for all three T&CM-related professions.

To support implementation of Ayurveda into the Swiss health system, a high standard training programme in Ayurveda medicine, MedVaidya (run by SAMA and supported by ISA) was developed. The training is inspired by WHO benchmarks, Swiss regulations and BAMS content (Bachelor of Ayurveda Medicine and Surgery, India). The objective of the training is to train high-level professionals to practice Ayurveda and ensure safe knowledge transfer, as well as patient safety. The WHO benchmarks supported ISA in the design of the training programme.

Three key lessons learnt from this process include:

1. The WHO benchmarks for training in Ayurveda have given the Swiss regulatory model for Ayurveda its global relevance, on the one hand by defining the same three professions for the discipline and on the other hand by supporting ISA Foundation's vision of respecting Ayurveda's traditional scientific requirements and high professional standards in the globalization process.

2. Through the process of engaging with the Swiss Government in this process, the following areas of improvement were noted for the Ayurveda guidelines:

Modern teaching methodologies should be introduced, such as interactive teaching, group work, peer learning, supervised personal training outside the classroom

E-learning and E-teaching should be considered as options for future teaching methodologies.

Some training content is no longer relevant in modern times for students outside India. Some training aspects can be considered as optional (reduce the number of suggested hours) like agada tantra and rasa shastra.

7. EMERGENCY AND ESSENTIAL SURGERY

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Surgical Care System Strengthening (2017)	Manual	Policy-makers, government authorities, academics and researchers	This manual provides the basics for developing a national surgical, obstetric and anaesthesia plan. Included are eight case studies from countries. A national plan will provide the basis for building service delivery capacity, including establishing information management with M&E.	• Delivers the building blocks for developing surgical service delivery • Implementation is the most difficult step • Health Ministry buy-in and leadership are critical • All stakeholders' input is critical	Surgical sub-specialties: anaesthesia, obstetrics, maternal and child health, reproductive health emergencies, noncommunicable diseases, HIV, neglected tropical diseases, medicines.
Surgical Site Infection Guidelines (2017)	Guidance	Practitioners, facilities,	Checklist for reducing surgical site infections to improve surgical outcomes.		
Patient's Communication Tool for Surgical Safety (2015)	Advocacy	Patients, families and caregivers	This tool aids patient's with a list of essential information that they need to know and discuss with their health care provider to ensure safer surgical care before and after the procedure.		
Surgical Assessment Tool: facility and service assessment tool, used for gap analysis and building capacity	Guidance	Policy-makers, government authorities, academics and researchers	Without continued monitoring and evaluation, using reliable survey tools, there will not be quality improvement. This tool provides the means to obtain reliable data from a facility and a service delivery perspective. Comprehensive facility and service delivery assessment tool on surgical care with sub-modules for paediatric surgery and anaesthesia care. Reliable data must be available and used to drive strategic health policy.		

Case study 7: Surgical Care System application in Zambia

In 2014, the Zambian Ministry of Health performed an audit revealing that despite significant improvements in many health indicators, the MDG targets for neonatal and maternal mortality were not being met. Therefore, a task force was created by the MOH to identify some of the root causes of this gap. The primary obstacle to achieving these targets was a lack of surgical services, especially the provision of caesarean sections. Furthermore, a country-wide study revealed that 74% of Zambians did not have access to safe, timely and affordable surgical care.

In 2015, the Zambian delegation spearheaded WHA resolution 68.15 to draw attention to the need to prioritize emergency and essential surgical and anaesthesia care as part of universal health coverage. Recognizing current gaps within the domains of infrastructure, workforce, service delivery, finance, information management, and leadership and governance, the Zambian Ministry of Health began the process of developing a National Surgical, Obstetric and Anaesthesia Plan (NSOAP).

Zambia's national planning process emphasized a provider-driven process, with oversight by the Ministry of Health. This NSOAP process was composed of the following phases:

1. Baseline assessment and gap analysis
2. Stakeholder meetings
3. Writing workshop
4. National Surgical, Obstetric and Anaesthesia Forum
5. Costing workshop.

In early 2017, the NSOAP was signed by the Zambian Permanent Secretary for inclusion within Zambia's National Health Strategic Plan for 2017-2021. The NSOASP includes a roadmap with concrete milestones and monitoring mechanisms for surgical scale-up in all critical domains.

8. PRIMARY CARE

Name of tool	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas:
Technical series on Safer Primary Care (2016)	Technical report	Ministries of health, health care administrators and regulators, organizations/ institutions	These documents describe the scope, approach, potential solutions, practical next steps, and then provide links to online toolkits and manuals to provide practical suggestions for countries and organizations that have committed to making primary care safer. Technical areas covered include: patient engagement, education and training, human factors, administrative errors, diagnostic errors, medication errors, multi-morbidity, transitions of care and electronic tools.	No lessons learnt as yet.	Seen through a PHC lens, these monographs address areas which would be relevant for various technical areas. For example, the monograph on electronic tools would be of interest to the eHealth unit within WHO headquarters as well as the Guidelines Review Committee.

Name of tool	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas:
Methods and measures used in primary care patient safety research: results of a literature review (2008)	Research	Researchers, quality managers, clinicians	This document looks at the methods used to research patient safety in primary care and the metrics this research uses and produces.	No lessons learnt as yet.	Given the search criteria included research about community-based complementary or alternative medicine, it also informs community outreach programmes, as well as traditional medicine programmes.

9. BLOOD SAFETY

Name of tool	Type of tool	Audience	Summary description	Key lessons leaned	Interlinkages with other areas:
Aide-Memoire: Quality Systems for Blood Safety (2002)	Advocacy	Policy-makers, national blood programme manager	An effective quality system provides a framework within which activities are established, performed in a quality-focused way and continuously monitored to improve outcomes. A quality system should cover all aspects of its activities and ensure traceability, from the recruitment and selection of blood donors to the transfusion of blood and blood products to patients. It should also reflect the structure, needs and capabilities of the blood transfusion service, as well as the needs of the hospitals and patients that it serves.	1. The blood transfusion service is an important component of a strong health system. A systems approach is crucial in developing a national blood service to ensure universal access to safe and quality blood transfusion.	Links with national quality policy and strategy, primary care and hospital management

Name of tool	Type of tool	Audience	Summary description	Key lessons leaned	Interlinkages with other areas:
Quality management training for blood transfusion services Facilitators' toolkit	Training manual and toolkits	National blood programme manager, quality manager of blood service, educational and training institutes, health workers	Quality Management Training (QMT): this facilitator's toolkit is a comprehensive set of teaching materials to support an 18-day training course for quality managers in blood transfusion services. It contains guidance for QMT facilitators, a course curriculum, PowerPoint presentations, activities, presentation notes, resource materials and glossary. Facilitators are encouraged to add local resource materials, such as national standards and examples of documentation. Part 1 of the course introduces general concepts of quality and Part 2 focuses on quality in the specific context of blood transfusion, from blood donor recruitment to the transfusion of blood and blood products to the patient. The course consists of 15 modules containing 57 presentations and 69 activities.	2. A pre-requisite to implement a quality system in all the aspects of blood transfusion chain, from donor recruitment to patient transfusion, is the establishment of nationally coordinated blood transfusion services. 3. The establishment and maintenance of an effective and sustainable quality management system in blood transfusion services requires leadership commitment, a strong quality culture and a sustainable external assessment programme to drive the system continually to improve.	Links with national quality policy and strategy, primary care and hospital management
Establishing External Quality Assessment Programmes for Screening of Donated Blood for Transfusion-Transmissible Infections Implementation Guide	Guidance	National blood programme manager, quality manager of blood service, QC personnel	An external quality assessment (EQA) is an important component of quality systems for blood transfusion services. Establishing external quality assessment programmes for the screening of donated blood for transfusion-transmissible infections (TTI): this implementation guide aims to support WHO Member States in establishing and operating EQA programmes for screening donated blood for TTI. The guide has been designed for use by national health authorities and EQA organizing institutions in the development of EQA programmes. It will also give participating laboratories insights into the organization of EQA programmes for TTI screening and an understanding of the benefits of participation in this.		Links with in vitro diagnostics and laboratory technology: http://www.who.int/ diagnostics_laboratory/ en/

Name of tool	Type of tool	Audience	Summary description	Key lessons leaned	Interlinkages with other areas:
Aide-Mémoire for Ministry of Health: National Haemovigilance System	Advocacy	Policy-makers, national blood programme manager	The organization of a haemovigilance system is largely determined by the structure of the existing national blood system and wider health system. A system of haemovigilance is dependent on the traceability of blood and blood products from donors to recipients and vice versa, and on the monitoring, reporting, investigation and analysis of adverse events. The rigorous management of information generated through this system is key to introducing amendments in blood policies and guidelines that lead to changes in processes and practices in donation and transfusion.	Same lesson learnt as before	Links with national quality policy and strategy, primary care and hospital management.
A guide to establishing a national haemovigilance system	Guidance	Policy-makers, national blood programme manager, clinicians and transfusion medicine specialist	Haemovigilance includes the monitoring, reporting, investigation and analysis of adverse events related to the donation, processing and transfusion of blood, and taking action to prevent their occurrence or recurrence. This guidance aims to support countries in establishing effective national systems for haemovigilance throughout the transfusion chain. It provides policy guidance on establishing a haemovigilance system as part of national blood and health systems, and includes technical information and guidance on the specific measures and actions which need to be taken to implement a successful haemovigilance system.		Links with reporting for patient safety: http://www.who. int/patientsafety/ implementation/ reporting_and_learning/ en/

Name of tool	Type of tool	Audience	Summary description	Key lessons leaned	Interlinkages with other areas:
Clinical transfusion process and patient safety (Aide-mémoire for National Health Authorities and Hospital Management)	Advocacy	Policy-makers, national blood programme manager, clinicians and transfusion medicine	An appropriate and correct clinical transfusion process ensures patient safety and contributes to improved health and survival. However, transfusion carries the risk of adverse events including errors, transfusion reactions and transmission of infections. Errors during the clinical transfusion process can be prevented by the strengthening of hospital systems and processes for clinical transfusion, the training of hospital staff and the implementation of standardized procedures throughout the clinical transfusion process.		Links with national quality policy and strategy, primary care and hospital management
The clinical use of blood in obstetrics, surgery, paediatrics, and anaesthesia, trauma and burns	Training Manual	National blood programme manager, clinicians and transfusion medicine	The Clinical use of blood aims to show how blood and blood products can be used appropriately at all levels of the health care system in any country, without compromising standards of quality and safety. It provides a comprehensive guide to the use of blood and blood products and, in particular, ways of minimizing unnecessary transfusion.		Primary care, hospital management, infection prevention and control

Name of tool	Type of tool	Audience	Summary description	Key lessons leaned	Interlinkages with other areas:
Global Status Report on Blood Safety and Availability 2016	Report	Policy-makers, national blood programme managers	The World Health Organization Global Database on Blood Safety (GDBS) was established in 1998 to address global concerns about the availability, safety and accessibility of blood for transfusion. The objective of this activity is to collect and analyse data from all countries on blood and blood product safety as the basis for effective action to improve blood transfusion services globally. The 2016 report, which is based on the latest GDBS data, provides information on the current status of blood transfusion services.		Links with national quality policy and strategy, primary care and hospital management

Case study 8: Strengthening the National Blood System in Bhutan to ensure equitable access to safe blood transfusion

In 2010, Bhutan became a beneficiary of the WHO/OFID joint project (phase I: 2010-2013 and phase II: 2015-2017). The overall project goal has been to prevent medical transmission of infectious diseases such as HIV, hepatitis B and C through transfusion of blood and its associated products. Through the project, support in policy guidance, advocacy, technical and capacity-building were provided by WHO. An adapted version of the WHO tool was used to identify existing constraints and gaps in national blood availability and safety. Project activity plans were developed with the objectives to standardize the blood screening process with a focus on strengthening laboratory facilities, implementing good laboratory practices as well as strengthening the national blood system to improve access to safe, quality and adequate blood supplies.

The key elements are outlined in the Aide-Memoire on Quality systems as building blocks to initiate the process of quality management. In 2013, the National Standards for BTS were developed and later incorporated into the regulatory framework for improved compliance. WHO tools were used as reference materials during the consultative and drafting stages for the development of national guidelines such as blood donor motivation and recruitment strategies, blood donor assessment and selection, quality assured screening of transfusion-transmissible infections, national external quality assessment schemes (NEQAS) in blood group serology and transfusion-transmissible infections. A guidance document on haemovigilance in Bhutan has now been published and is in use across the country. Quality management trainings based on WHO Quality Management Training (QMT) modules were conducted as part of capacity-building of BTS personnel and a core group of quality managers involved in writing the Quality Manual, standard operating procedures and work instructions. Data reporting and information management on blood safety has been strengthened and recently a status report on blood safety and availability in Bhutan was released using findings of the GDBS report of 2016.

The immediate impact has been on the general public being more aware of the importance of blood donation, behaviour change and positive response observed when asked to donate blood voluntarily. The timely availability of blood at the grass root level, has saved lives of many Bhutanese, especially preventing maternal deaths due to blood loss, with newborns, infants and other chronically ill individuals being other beneficiaries. No HIV or hepatitis transmission through blood has been reported by respective programmes. Performance of blood banks has escalated in past years and better compliance among nurses to use SOPs and report adverse reactions to blood.

Key lessons learnt
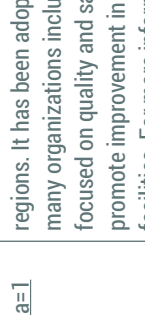
1. Blood system must be incorporated in any national health system WHO documents (in particular the one-page Aide Memoire) are the appropriate advocacy tools for gaining political commitment and support.
2. A system approach and the implementation of a comprehensive strategic plan is crucial for achieving provision of timely and universal access to safe and quality blood transfusion services and products.
3. Performance of national blood service can be benchmarked and continually improved through the reporting and analysis of global/regional KPIs of data.
4. Future support should be on establishing programme and capacity for the selection of in-vitro diagnostic kits for blood screening, promoting evidence-based clinical transfusion practices and implementing patient blood management guidelines.

10. INFECTION PREVENTION AND CONTROL

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
WHO guidelines on core components for IPC (2016)	Guideline	Policy-makers (national level) and facility level administrators (facility level)	The guidelines summarize eight facility-level and six national-level recommendations on IPC, addressing programmes, guidelines, education and training, surveillance, multimodal strategies, monitoring, audit and feedback, an enabling environment including workload, staffing and bed occupancy and the built environment, materials and equipment. For more information: http://www.who.int/infection-prevention/publications/core-components/en/	The guidelines are being used in a number of countries to drive national and facility level improvement in IPC, supported by relevant assessment tools. In some regions the guidelines and associated assessment and implementation tools are serving as the foundation for national IPC guidelines and/or being positioned as part of the AMR agenda.	Water, sanitation and hygiene (WASH), quality, patient safety, antimicrobial stewardship accreditation/ regulation, public health/ disease control, occupational health
WHO Core components national implementation manual (2017)	Implementation manual	Policy-makers and implementers responsible for IPC (including IHR) and AMR	This practical manual is designed to support implementation of the WHO Guidelines on core components of infection prevention and control programmes at the national level, with special focus on countries with limited resources. This practical manual outlines how to do this, that is, how to implement the Guidelines. It focuses on the development of a sustainable action plan informed by the local context to put into operation the Guideline recommendations. For more information: http://www.who.int/infection-prevention/tools/core-components/en/	This manual outlines five steps for implementing IPC programmes to maximize the likelihood of success and overcome some of the complexity in the process. The emphasis within each step is on local adaptation. However, depending on the local situation, some steps may already have been achieved, while others may need gradual development or to be revisited as new challenges or changes within the health care system arise.	WASH, quality, patient safety, antimicrobial stewardship accreditation/regulation, public health/disease control, occupational health.

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
WHO Core components national assessment tool (IPCAT2) (2017)	Assessment tool	Policy-makers and implementers responsible for IPC (including IHR) and AMR	IPCAT2 will assist countries to determine the core components already in place, that is, national existing strengths, and to identify gaps or weaknesses to guide action planning. IPCAT2 corresponds to the six core component recommendations of the guidelines targeted at the national level. For more information: http://www.who.int/infection-prevention/tools/core-components/en/	It is very important to understand that IPCAT2 is not intended to be used as an audit tool. Its purpose is to help assess, plan, organize and implement a national IPC programme. The tool provides a general overview of the status of IPC activities according to the guideline recommendations, rather than focusing on specific IPC practices/risk factors related to individual patients.	WASH, quality, patient safety, antimicrobial stewardship accreditation/regulation, public health/disease control, occupational health.
WHO Core components health care facility implementation manual (2018)	Implementation manual	IPC leads/focal persons and teams in acute health care facilities responsible for implementing IPC, including health care facility managers	This manual offers practical guidance, tips, resources and examples from around the world to support guideline implementation. It also focuses on the development of a sustainable action plan that should be informed by the local context to put into operation the guideline recommendations. Finally, the manual focuses on integrating and embedding IPC within the day-to-day structure and activities of a health care facility. For more information: http://www.who.int/infection-prevention/tools/core-components/en/	Only recently launched. No lessons learnt as yet.	WASH, quality, patient safety, antimicrobial stewardship accreditation/regulation, public health/disease control, occupational health.
WHO Core components health care facility assessment framework (IPCAF) (2018)	Assessment tool	IPC leads/focal persons and teams in acute health care facilities responsible for implementing IPC, including health care facility managers	The IPCAF is a structured, closed-formatted questionnaire with an associated scoring system. It is primarily intended to be self-administered but it can also be used for joint assessments with external assessors (for example, from the ministry of health, WHO or other stakeholders) and facility staff. For more information: http://www.who.int/infection-prevention/tools/core-components/en/	Only recently launched. No lessons learnt as yet.	WASH, quality, patient safety, antimicrobial stewardship accreditation/regulation, public health/disease control, occupational health.

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
WHO guidelines on the prevention of surgical site infection (2016)	Guideline	Surgical teams, (surgeons, nurses, technical support staff, anaesthetists) and any professionals directly providing surgical care	The aim of these guidelines is to provide a comprehensive range of evidence-based recommendations for interventions to be applied during the pre-, intra- and postoperative periods, for the prevention of SSI, while also considering, aspects related to resource availability and values and preferences. For more information: http://www.who.int/infection-prevention/publications/ssi-guidelines/en/	These guidelines have gained attention in a range of settings since their launch, including through letters and responses within scientific journals, and are already informing an improvement tool kit.	WASH, quality, patient safety, antimicrobial stewardship accreditation/regulation, public health/disease control, occupational health.
WHO guidelines on hand hygiene in health care (2009)	Guideline	Policy-makers and implementers responsible for IPC (including International Health Regulations (IHR)) and Antimicrobial Resistance (AMR), IPC leads/focal persons and teams in acute health care facilities responsible for implementing IPC, including health care facility managers	Guidelines on hand hygiene in health care with a review of the evidence on hand hygiene in health care and specific recommendations to improve practices and reduce transmission of pathogenic microorganisms to patients and HCWs. The guidelines are to be implemented in any situation in which health care is delivered either to a patient or to a specific group in a population. For more information, http://www.who.int/infection-prevention/publications/hand-hygiene-2009/en/	The guidelines have driven awareness and action since their launch in 2009 and have been the impetus for commitment by countries (including numerous ministerial pledges) and health facilities (including registration for WHO's hand hygiene campaign), leading to use of the WHO improvement strategy/toolkit.	WASH, quality, patient safety, antimicrobial stewardship accreditation/regulation, public health/disease control, occupational health.

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
WHO hand hygiene self-assessment framework (HHSAF) (2010)	Assessment tool	Policy-makers and implementers responsible for IPC (including IHR) and AMR, IPC leads/focal persons and teams in acute health care facilities responsible for implementing IPC, including health care facility managers	A systematic tool with which to obtain a situation analysis of hand hygiene promotion and practices within an individual health care facility. For more information: http://www.who.int/gpsc/country_work/hhsa_framework_October_2010.pdf?ua=1	This tool is used widely in many countries as demonstrated through two WHO global survey reports and forms part of a hospital excellence award in four WHO regions. It has been adopted by many organizations including those focused on quality and safety, to promote improvement in health facilities. For more information on the survey report, visit: http://www.who.int/infection-prevention/publications/related-documents/en/), Additional lessons learnt are captured in: Allegranzi B, Conway L, Larson E et al. Status of the implementation of the World Health Organization multimodal hand hygiene strategy in United States of America health care facilities. American Journal of Infection Control 2014; 42(3): 224-230 https://www.ncbi.nlm.nih.gov/pubmed/24581011?dopt=Abstract	WASH, quality, patient safety, antimicrobial stewardship accreditation/regulation, public health/disease control, occupational health.

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
WHO hand hygiene guide to implementation and associated resources	Implementation manual and associated resources	Policy-makers and implementers responsible for IPC (including IHR) and AMR, IPC leads/focal persons and teams in acute health care facilities responsible for implementing IPC, including health care facility managers	A suite of tools for implementing WHO guidance on hand hygiene. For more information: http://www.who.int/infection-prevention/tools/hand-hygiene/en/	The focus of a number of scientific publications, the multimodal improvement toolkit is widely used in most countries around the world. WHO web statistics also confirm the popularity of many of the tools, especially as they are targeted at both high- and low-middle income countries. A key publication summarizes the improvement strategy's success which therefore reflects the usefulness of the toolkit. https://www.bmj.com/content/351/bmj.h3728/	WASH, quality, patient safety, antimicrobial stewardship accreditation/regulation, public health/disease control, occupational health.
WHO guidelines for the prevention and control of carbapenem-resistant Enterobacteriaceae, Acinetobacter baumannii and Pseudomonas aeruginosa in health care facilities (2017)	Guideline	IPC leads/focal persons and teams	Provides evidence-based recommendations on the early recognition and specific required IPC practices and procedures to effectively prevent the occurrence and control the spread of CRE-CRAB-CRPsA colonization and/or infection in acute health care facilities. An evidence-based framework to help inform the development and/or strengthening of national and facility IPC policies and programmes to control the transmission of CRE-CRAB-CRPsA in a variety of health care settings is also presented. For more information: http://www.who.int/infection-prevention/publications/guidelines-cre/en/	Many countries have developed national implementation strategies or facility level implementation tools but there is a need for WHO to create an inventory of these tools (on progress as of June 2018) and then to identify and develop which WHO tools are necessary to support implementation.	Antimicrobial resistance, WASH.

Case study 9: National IPC programme implementation in Qatar

The national IPC programme in Qatar went through an external consultation using the WHO core components national implementation manual and associated national assessment tool (IPCAT2). This was done as part of the Joint Program Planning/Review Mission (JPRM) and the Country Cooperation Strategy for EMRO and the State of Qatar. The main aim of this mission was to assess the national IPC programme against the WHO standard and in doing so, to provide evidence-based guidance (including prioritization and tools) for stepwise implementation of the core components of IPC programmes that are required to be in place at the national level.

The Ministry of Public Health (MOPH) of Qatar used the IPCAT2 to self-assess the status of their national IPC programme against the six core components to identifying the level of progress and strengths and weaknesses. These results were then used in conjunction with the manual (which outlines the 'how' of implementation) to develop a stepwise, sustainable action plan aimed at achieving overall compliance with the requirements outlined in the WHO core components guidelines. Detailed technical findings are not reported here but the overall level of compliance varied widely across the six core components and the results were useful in helping to prioritize in which areas (core component) action was most needed. This work also highlighted the necessity of improving both interlinkages between the IPC programme and other programmes, and communication/collaboration between the MoH and other key stakeholders. The exercise resulted in an improved clarification of roles and responsibilities across departments as they relate to specific activities such as outbreaks and data reporting.

Main lessons learnt

- The combination of an inter-related assessment tool (IPCAT2), "how to do" manual (national level IPC manual) and normative guidance (IPC core components) provides a strong basis for assessing the status of national IPC programmes and making detailed and realistic plans.
- The tools are strong enough to generate improvement plans even with self-assessment is used.
- It is necessary to inter-relate national IPC programmes with other health intervention programmes, and across stakeholders, to ensure success. How this is achieved will vary across countries, but it always requires dialogue across stakeholders.

11. PEOPLE-CENTRED CARE

Name of tool (year)	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Continuity and coordination of care. A practice brief to support implementation of the WHO Framework on integrated people-centred health services (2018)	Practice brief	Health managers and practitioners	This practice brief on the continuity and coordination of care addresses the conditions and ongoing relationships needed to support seamless interactions among multiple providers within interdisciplinary teams and/or across care settings and/or sectors. It is part of a suite of WHO resources to support implementation of the Framework on integrated people-centred health services (IPCHS). It highlights the broad and overlapping nature of the two interrelated concepts, continuity and coordination, that can improve the experience of people with chronic care and support needs, enhance the provider experience, improve health outcomes and increase health system performance. It provides a taxonomy and priority practice interventions for health managers and practitioners, with a focus on practical actions that can support implementation of these practices. Moreover, it includes thirty global practice examples that have shown impact at the micro, meso and/or macro level. For more information: http://apps.who.int/iris/bitstream/handle/10665/274628/9789241514033-eng.pdf?sequence=1&isAllowed=y	No lessons learnt as yet.	Participatory Assessment and Planning (PAP) Toolkit.

12. PALLIATIVE CARE

Name of tool	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Manuals/publication on palliative care (paediatric, humanitarian crisis and primary health care) (2018)	Guidance	Palliative care actors at national level	Three tools to facilitate the implementation of paediatric palliative care, palliative care in the context of humanitarian crisis and in primary health care.	No lessons learnt as yet.	The documents are related to a number of areas including emergency settings and primary health care.

Name of tool	Type of tool	Audience	Summary description	Key lessons learnt	Interlinkages with other areas
Manual on planning and implementing palliative care services: a guide for programme managers (2018)	Guidance	Palliative care actors at national level	A tool to facilitate the implementation of palliative care. For more information, visit: http://apps.who.int/iris/bitstream/handle/10665/250584/9789241565417-eng.pdf;jsessionid=B03AA330D606CCA264F5417272529 7C6?sequence=1		Contribute to health system strengthening strategies and to UHC
Policy briefs on palliative care (2018)	Advocacy	Policy-makers	The policy briefs highlight practical examples of country strategies on palliative, as well as their resulting impact.	Inclusion of civil society from low-and-middle income countries to empower people in advocacy and policy-making for palliative care.	National quality policy and strategy

QUALITY IMPROVEMENT RESOURCES IN DEVELOPMENT

PART II. TECHNICAL AREA TOOLS AND RESOURCES IN DEVELOPMENT: STRUCTURE

Name of tool	Type of tool	Audience	Summary description	Interlinkages with other areas

1. CROSS-CUTTING TOOLS AND RESOURCES

Name of tool	Type of tool	Audience	Summary description	Interlinkages with other areas
Global Efforts Measuring Quality of Care(GEMQoC) (2018)	Technical report	Policy-makers and academic researchers	The report provides a compendium of resources for countries working to improve the quality of health services, based on evidence and objective analysis. This report classified 29 efforts according to the types of resources, domains of health care performance, foundation of quality and health care needs.	The technical report presents 29 existing global efforts to measure quality of care or quality related health systems components. http://www.who.int/servicedeliverysafety/measurement/en
Towards a common mapping tool for measurement in health service delivery (2018)	Conceptual framework	Policy-makers, academic/ researchers and technical partners	This conceptual framework has been developed to meet the global gap that currently exists on service delivery measurement and associated quality. The concept note presents a mapping tool for health service delivery measurement, lists pre-existing monitoring and evaluation, and a plan for analysing the gap and capacity-building in measurement.	The document links with various aspects of service delivery and safety. http://www.who.int/servicedeliverysafety/measurement/en

Name of tool	Type of tool	Audience	Summary description	Interlinkages with other areas
Evidence brief for policy on innovation in healthcare	Technical report	Policy-makers	The current situation regarding technological and social innovations in health care. Formulation of policy options to have an integrated, people-centred approach to innovation in health care. For more information visit: http://www.who.int/servicedeliverysafety/en/	Innovation is a cross-cutting endeavour within service delivery. Innovative approaches need to be assessed to understand the drivers or barriers for successful uptake in multiple contexts.
Evidence brief for policy on engagement (2019)	Technical report	Policy-makers	A look at the current situation of engagement from citizens, patients, families to the wider community. Documents different models and drivers of engagement. Formulation of policy options to have a systematic way of build better engagement.	Engagement is a cross-cutting endeavour within service delivery and key driver of UHC. Engagement strategies and practices need to be assessed to understand the drivers or barriers for successful uptake in multiple contexts.

2. COMMUNITY ENGAGEMENT

Name of tool	Type of tool	Audience	Summary description	Interlinkages with other areas:
A suite of programme-specific and generic tools and resources are being developed to adapt and apply the CEQ framework.	Implementation package	Administrators, front-line staff, programme and health facility managers, policy-makers, researchers	The CEQ implementation package will help countries, researchers and partners wishing to improve the quality of engagement between health service providers and service users. It will contain a.) programme-specific and generic assessment tools and interventions to ready and prepare services and programmes to engage; b.) a menu of engagement interventions with evidence to enable countries to select appropriate and relevant interventions; c.) a selection of indicators and measurement tools; and d.) case studies showing where they have been applied and their impact. For more information visit: http://www.who.int/servicedeliverysafety/areas/qhc/community-engagement/en/	The document will be co-developed with countries. This is an important and emerging area in QI that has the potential to significantly impact country level quality improvement efforts across entire health systems.

3. PATIENT SAFETY

Name of tool	Type of tool	Audience	Summary description	Interlinkages with other areas
WHO mother-baby 7 day mCheck tool	Guidance	Mothers and children	This tool instructs the user to recognize the danger signs in mother and baby during the first week after birth so appropriate health care can be sought.	Clear links with all technical programmes. For example ,maternal and child health and water, sanitation and hygiene.
Technical reports on Medication safety (polypharmacy, high-risk situations, transitions of care)	Technical reports	Policy-makers, health care administrators and regulators, organizations/ institutions	These three technical reports outline the problem, current situation and recommended future approach to reducing medication-associated harm in polypharmacy, high-risk situations and transitions in care.	Closely related to all aspects of service delivery.
Framework on patient and family engagement	Guidance	Policy-makers, health care providers	This document is an action framework that aims to support WHO Member States to nurture an enabling environment where patients, families and communities partner with providers and leaders at all system levels to improve patient safety, quality and health outcomes.	Linked to the WHO global strategy on people-centred and integrated health services. Also to health promotion and health literacy.

4. TRADITIONAL, COMPLEMENTARY AND INTEGRATIVE MEDICINE

Name of tool (year)	Type of tool	Audience	Summary description	Interlinkages with other areas
WHO Benchmarks for training in: • Yoga • Anthroposophic Medicine	Training/ Capacity-building	Academics/ researchers, development agencies, health workers, nongovernmental organizations, policy-makers	The series of benchmarks for training reflect what the community of practitioners in traditional and complementary medicine (TCM) consider to be reasonable practice in training professionals to practice the discipline, considering consumer protection and patient safety as core to professional practice. The training tool provides a reference point to which actual practice can be compared and evaluated. The document describes models of training for trainees with different professional backgrounds. The list, developed by a community of practitioners, aims to promote safe practice and minimize the risk of accidents.	The tool serves as a reference point to which actual practice can be compared and evaluated.

Name of tool (year)	Type of tool	Audience	Summary description	Interlinkages with other areas
Technical document on clinical research in traditional and complementary medicine (tentative title)	Guidance	Academics/ researchers, development agencies, health workers, nongovernmental organizations, policy-makers	The specific objectives of this guideline are to review the major challenges of clinical research in TCM and to clarify the aspects of clinical research that are unique to TCM. This document will present important and relevant guiding principles and key recommendations on research methods.	This document aims to provide appropriate methodologies and approaches to guide and conduct clinical research and evaluation of TCM; to promote and enhance the quality of clinical research addressing TCM; to facilitate the establishment of national regulations around TCM products and practices and enhance the quality of TCM practice in order to benefit patients.
WHO benchmarks for practice in: • Ayurveda • Panchakarma • Unani medicine	Guidance	Academics/ researchers, development agencies, health workers, nongovernmental organizations, policy-makers	Benchmarks can help assist in the development of approaches and frameworks and evaluate how existing systems can be improved.	These benchmarks for practice could be used in evaluating individual therapies, identifying trends in utilization, developing payment structures for service models, establishing regulatory frameworks for traditional and complementary medicine products and practice, providing oversight of providers, including accreditation and remuneration and determining how a service is delivered within a national health care system.
WHO benchmarks for training in Tibetan medicine	Guidance	Government authorities and regulatory agencies, health care providers including traditional and complementary practitioners, academics and researchers, communities and the general public, NGOs and other related stakeholders.	The document intends to present what professional experts and health regulators consider to be adequate training levels and appropriate learning modules for trainees with different backgrounds. It will not only serve as a reference tool of quality evaluation and improvement for relevant stakeholders, but also contribute to the formulation of a traditional and complementary medicine service mode in the context of integrated, people-centred health care.	Will serves as a reference tool of quality evaluation and improvement for relevant stakeholders.

Name of tool (year)	Type of tool	Audience	Summary description	Interlinkages with other areas
WHO benchmarks for practice in: • Acupuncture • Tui na • Cupping	Guidance	Government authorities and regulatory agencies, health care providers including traditional and complementary practitioners, academics and researchers, communities and the general public, NGOs and other related stakeholders.	The document intends to present what professional experts and health regulators consider to be standard procedures of reasonable practice for providers with different backgrounds. It will not only serve as a reference tool of quality evaluation and improvement for relevant stakeholders, but also contribute to the formulation of traditional and complementary medicine service mode in the context of integrated, people-centred health care.	Serves as a reference tool of quality evaluation and improvement for relevant stakeholders.

5. PEOPLE-CENTRED CARE

Name of tool	Type of tool	Audience	Summary description	Interlinkages with other areas
Participatory assessment and planning toolkit to support implementation of the Framework on integrated people-centred health services at the sub-national level	Capacity-building	Sub-national health authorities	The Participatory Assessment and Planning (PAP) toolkit will contribute to building capacity of sub-national (district) authorities to steer local health systems towards IPHCS. It encompasses assessing performance, setting priorities and preparing strategic action plans. More specifically, the PAP toolkit aims to support sub-national health authorities to identify opportunities for the delivery of integrated people-centred health services based on a comprehensive and shared diagnosis of current health structures, processes, activities and outcomes. It is based on the five interdependent strategies defined in the Framework on IPCHS and covers a defined territory/population catchment area, including all levels and settings of care, disease-specific programmes and coordination with other relevant sectors (social, education, transport, etc.). The application of PAP toolkit with sub-national governance structures will be a critical element of the Framework's implementation success by helping to bring integrated people-centred health services higher up on the policy agenda and building a vision for advancement of the model(s) of care	The PAP toolkit will incorporate a score card made up of 20-30 indicators for monitoring and evaluation of IPCHS progress at the sub-national level.

6. EMERGENCY AND ESSENTIAL SURGERY

Name of tool	Type of tool	Audience	Summary description	Interlinkages with other areas
Manual on optimal resources for children's surgery	Guidance	Policy-makers, government authorities, academics and researchers	Describes the optimal resources that should be available to enable safe paediatric surgery service delivery, including equipment and supplies, essential medicines, trained health workforce, infrastructure needs, etc. The document provides a reliable benchmark for paediatric surgery service delivery.	Maternal and child health, essential medicines
National surgical, obstetric and anaesthesia plan development manual	Manual	Policy-makers, government authorities, academics and researchers	This document aims to enable health ministries and governments to implement optimal surgical, obstetric and anaesthesia care delivery. A national plan will provide the basis for building service delivery capacity, including establishing information management with M&E.	Surgical sub-specialties: anaesthesia, obstetrics, maternal and child health, reproductive health emergencies, non-communicable diseases, HIV, neglected tropical diseases, medicines
Emergency surgery on sepsis	Guidance	Health workers	Possible checklist and algorithm for the optimal prevention and treatment of sepsis.	Infection prevention and control plays a critical role in sepsis and hospital acquired infections.
Anaesthesia guidelines	Guidance	Policy-makers, government authorities, academics and researchers	Safe standards for anaesthesia care delivery under a range of conditions and settings, including equipment and supplies, essential medicines, trained health workforce, infrastructure needs, etc. The document is aimed at improving surgical and anaesthesia outcomes.	Surgical sub-specialties: anaesthesia, obstetrics, maternal and child health, reproductive health emergencies, non-communicable diseases, HIV, neglected tropical diseases, medicines
Surgical safety checklist	Guidance	Health professionals, policy-makers, government authorities, academics and researchers	This document incorporates three "time out" periods before, during and after surgery to reduce the risk of complications that may arise from multiple system failures within the operating theatre.	Surgical subspecialties, Anaesthesia, Obstetrics, VIP, maternal adolescent and child health, reproductive health, emergencies, non-communicable diseases, HIV, neglected tropical diseases.
Ebola and Marburg Virus guidelines for surgical teams	Guidance	Health professionals, policy-makers, government authorities, academics and researchers	These are the guidelines to help reduce the risk of EVD transmission to surgical, obstetric and anaesthesia health care workers and all operating room team members.	Surgical subspecialties, Anaesthesia, Obstetrics, VIP, maternal adolescent and child health, reproductive health, emergencies, non-communicable diseases, HIV, neglected tropical diseases.

Name of tool	Type of tool	Audience	Summary description	Interlinkages with other areas
Surgical Treatment of Hydroceles secondary to Lymphatic Filariasis	Guidance	Health professionals, policy-makers, government authorities, academics and researchers	This document provides guidance on the surgical treatment of hydroceles secondary to Lymphatic Filariasis for surgeons and other health care providers in endemic areas.	Surgical subspecialties, neglected tropical diseases.

7. HOSPITAL MANAGEMENT

Name of tool	Type of tool	Audience	Summary description	Interlinkages with other areas
Hospital transformations towards integrated and people-centred health services for universal health coverage	Guidance	Policy-makers, academics/researchers, international partners	This document is part of a suite of WHO resources to support implementation of the Framework on Integrated People-centred Health Services (IPCHS). It sets out a vision for hospitals to take on population-based responsibilities and actively implement integrated and people centred health services, on the way to towards UHC. It highlights pressure points for hospital sector transformation and calls for reassessing the role of hospitals and their position in the health system and for strengthening their organization and internal operations. It then suggests a series of policy orientations at the system level and at the organizational level to enable and sustain a paradigm shift from "hospitals operating in isolation as individual entities" to "hospitals fully embedded in the local service delivery architecture and its community".	It is primarily aimed at decision-makers at the national and sub-national level to accompany them in thinking about health system transformations and more specifically about hospital planning and management within the wider health system architecture. It also offers the international community a renewed agenda on hospitals and seeks to generate a constructive dialogue towards a shared vision of how hospitals will function in the future.

8. INFECTION PREVENTION AND CONTROL

Name of tool	Type of tool	Audience	Summary description	Interlinkages with other areas
Surgical site infection implementation tools	A range of tools encompassing the WHO multimodal improvement strategy	Policy-makers and implementers responsible for IPC and AMR, IPC leads/focal persons and teams, and surgical teams, in acute health care facilities responsible for implementing safe surgery, including health care facility managers	Tools include those to monitor processes and outcome related to surgical site infection prevention, raise awareness and address the safety culture in a facility related to safe surgery. A publication has already informed this toolkit as well as the WHO SSI guidelines. https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(18)30107-5/fulltext	WASH, quality, patient safety, antimicrobial stewardship accreditation/regulation, public health/disease control, occupational health.

ANNEX 1: RAPID MAPPING OF QUALITY IMPROVEMENT DEFINITIONS

Published literature on quality improvement demonstrate its benefits in a variety of settings, particularly those with limited resources *(4,5,6)*. The science of improvement has evolved over time. The well-known Donabedian *(7)* model describes three parameters for quality of care: structure (or input), process and outcomes. This can be a useful approach to conceptualize the wide range of potential improvement methods and interventions. Structures, or inputs, refers to the setting in which care is delivered, for example the health facility and the human and financial resources underpinning it; process relates to the provision of care

itself, including all aspects of the transaction between the receivers and providers of care; and outcome is the measurable effect on health status, which may be affected by a wide range of factors. Inputs, process indicators and output measures act as key drivers for achieving improved quality of care, person satisfaction, positive experience and desired health outcomes.

A commonly cited concept in health care improvement efforts is the Juran Trilogy. The Juran Trilogy comprises three separate but related approaches that must all be considered when thinking through efforts to enhance

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[4] Singh, Kavita et al. Can a Quality Improvement Project Impact Maternal and Child Health Outcomes at Scale in Northern Ghana? Health Research Policy and Systems 14 (2016): 45. (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4910198/ , assessed 20 August 2018).

[5] Sheila Leatherman et al. The role of quality improvement in strengthening health systems in developing countries, International Journal for Quality in Health Care, Volume 22, Issue 4, 1 August 2010, Pages 237–243, (https://doi.org/10.1093/intqhc/mzq028 assessed 20 August 2018)

[6] Franco LM, Marquez L Effectiveness of collaborative improvement: evidence from 27 applications in 12 less-developed and middle-income countries BMJ Quality & Safety 2011;20:658-665.(http://qualitysafety.bmj.com/content/20/8/658.long , assessed 20 August 2018)

[7] Donabedian A. The quality of care. How can it be assessed? J Am Med Assoc 1988;260:1743–8.

quality: quality planning, quality control, and quality improvement. This can be a useful structure to conceptualize the different domains that can be addressed when selecting quality interventions. The approach highlights how the deliberate efforts by all stakeholders through the design and implementation phase of an intervention can improve health services and lead to improved outcomes. Quality planning includes the involvement of all stakeholders in the design phase of an intervention. It is at this stage that aims, processes and goals are developed. Quality control includes the monitoring of established processes to ensure their functionality. Quality improvement is a disciplined approach that improves the level of performance of a process. These same principles are echoed by Edward Deming who proposed that by focussing on management, organizations can improve productivity, quality and efficiency.

Table 1: Rapid mapping of quality improvement definitions

Quality improvement (QI) consists of systematic and continuous actions that lead to measurable improvements in health care services and the health status of targeted patient groups	Institute of Medicine	https://www.hrsa.gov/quality/toolbox/methodology/qualityimprovement/
Quality Improvement is the attainment, or process of attaining, a new level of performance or quality that is superior to any previous level of quality.	Joint Commission on Economic and Technological Cooperation	
Continuous quality improvement is a management approach involving the continuous study and improvement of the processes of providing health care services to always better meet the needs of patients and other persons.	Joint Commission on Economic and Technological Cooperation	
Quality improvement / continuous quality improvement is the sum of all the activities which create the desired change in quality. In the health care setting, quality improvement requires a feedback loop which involves the identification of patterns of the care of individuals (or of the performance of other systems involved in care), the analysis of those patterns in order to identify opportunities for improvement (or instances of departure from standards of care), and then action to improve the quality of care for future patients. An effective quality improvement system results in step-by-step increases in quality of care.	WHO Kobe Center	http://www.who.int/kobe_centre/ageing/ahp_vol5_glossary.pdf
QI is an approach to the improvement of service systems and processes through the routine use of health and programme data to meet patient and programme needs.	WHO, 2008	http://www.who.int/hiv/pub/imai/om_11_quality_improvement.pdf
Quality Improvement entails understanding the complex health care environment; applying a systematic approach; designing, testing, and implementing changes using real-time measurement for improvement, in order to make a difference to patients by improving safety, effectiveness and experience of care.	Academy of Medical Royal Colleges, 2016	http://aomrc.org.uk/wp-content/uploads/2016/06/Quality_improvement_key_findings_140316-2.pdf

A quality improvement effort aims at making changes in the health care system that address the causes of poor quality. To do so requires implementing an improvement strategy with three phases: • Identify issues and effective solutions through a small-scale pilot improvement project; • Replicate effective changes/interventions and the QI process to the entire health care system • Institutionalize an improvement dynamic throughout.	Abt Associates	http://www.abtassociates.com/reports/0847_Intro_Field_Qual_Improv_Hlth_Care_0206.pdf
QI is an organizational strategy that formally involves the analysis of process and outcomes data and the application of systematic efforts to improve performance	Agency for healthcare research and quality, 2010	https://ahrq-ehc-application.s3.amazonaws.com/media/pdf/disparities-quality-improvement_research-protocol.pdf
Quality improvement (QI) consists of systematic and continuous actions that lead to measurable improvement in health care services and the health status of targeted patient groups.	Department of Health and Human Services, 2011	https://www.hrsa.gov/sites/default/files/quality/toolbox/508pdfs/qualityimprovement.pdf

THEORETICAL FINDINGS

Quality improvement denotes both a philosophy (the pursuit of continuous performance improvement) and a family of discrete technical and managerial methods.	Leatherman et al	https://academic.oup.com/intqhc/article-lookup/doi/10.1093/intqhc/mzq028
Improving health care processes, drawing on a number of disciplines.	Heiby, 2014	https://academic.oup.com/intqhc/article/26/2/117/1802645/The-use-of-modern-quality-improvement-approaches
Quality improvement can be defined as the combined and unceasing efforts of everyone —health care professionals, patients and their families, researchers, payers, planners and educators— to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development.	Batalden & Davidoff, 2007	http://qualitysafety.bmj.com/content/16/1/2.short
Continuous quality improvement is embedded within five main components: 1. Improvement of organizational processes; 2. Use of structured problem-solving processes incorporating statistical methods and measurement to diagnose problems and monitor progress; 3. Use of teams, including employees from multiple departments and from different organizational levels, as a mechanism for introducing improvements in organizational processes; 4. Empowering employees to identify quality problems and improvement opportunities and to take action on these problems and opportunities; and 5. An explicit focus on "customers"- both external and internal.	Brennan et al 2009	http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003319.pub2/full

Quality improvement in public health is the use of a deliberate and defined improvement process, such as Plan-Do-check-Act, which is focused on activities that are responsive to community needs and improving population health. It refers to a continuous ongoing effort to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes and other indicators of quality in services or processes which achieve equity and improve the health of the community.	Beitsch et al 2015	https://www.ncbi.nlm.nih.gov/pubmed/25494050
Quality improvement processes use systems thinking, data analysis and teams of professionals to bring about better outcomes for patients and improved clinical processes.	Plsek,1999	http://acmd615.pbworks.com/w/file/fetch/46352558/QIMethodsInClinicalPractice.pdf
The term CQI can be defined briefly as a comprehensive management philosophy that focuses on continuous improvement by applying scientific methods to gaining knowledge and control over various work processes.	Kahan & Goodstadt 1999	http://idmbestpractices.ca/pdf/CQI.pdf
Health care delivery requires structure (eg. people, equipment, education, prospective registry data collection) and process (eg. policies, protocols, procedures), which, when integrated, produce a system (eg. programmes, organizations, cultures) leading to certain outcomes such as patient safety, quality, satisfaction.	Kronick et al 2015	http://circ.ahajournals.org/content/132/18_suppl_2/S397.long
Continuous quality improvement (CQI) is a management approach or set of principles that aims to constantly increase the efficiency and effectiveness of organizational systems to better meet the needs and expectations of patients and other stakeholders. These principles include a positive focus on creating better functioning organizational systems rather than isolated issues or personal blame, and organization-wide involvement to foster ownership and build quality improvement capacity.	Gibson-Helm et al 2016	https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-016-0892-1
Continuous quality improvement can be defined as a planned approach to transform organizations by evaluating and improving systems to achieve better outcomes.	Colton, 2000	https://www.ncbi.nlm.nih.gov/pubmed/10787951
Quality improvement in health care is the structured analysis of a health care system with a view to improving its performance.	Arasaratnam, 2012	https://www.ncbi.nlm.nih.gov/pubmed/22585323
Activities intended to close the gap between desired processes and outcomes of care and what is actually delivered.	Ferris et al 2001	https://www.ncbi.nlm.nih.gov/pubmed/11134448
Quality improvement is a distinct management process and set of tools and techniques that are coordinated to ensure that departments consistently meet the health needs of their communities.	Riley et al 2010	http://journals.lww.com/jphmp/Abstract/2010/01000/Defining_Quality_Improvement_in_Public_Health.3.aspx

Continuous quality improvement is a movement from the standard definitions of quality, which looked back at work already done, to a method of prevention. This involves defining and meeting customers' needs, leading to exemplary service.	Foreman, 1993	https://www.ncbi.nlm.nih.gov/pubmed/10129027
Quality improvement and continuous quality improvement focus on proactively improving and continually enhancing the quality of care and services by combining professional knowledge with knowledge about making improvements (14,15). Their philosophy is focused on continuous improvement of processes associated with services that meet or exceed the expectations of the patient or referring clinician. For quality improvement and continuous quality improvement, clear standards should be identified for every activity or process in an imaging facility. These standards should be measurable to allow processes to be continually improved.	Kelly & Cronin, 2015	http://pubs.rsna.org/doi/10.1148/rg.2015150057?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed&

ANNEX 2: FURTHER INFORMATION

RELATED ORGANIZATIONAL LINKS

- Service Delivery and Safety – webpage with links to a range of service delivery areas to support countries http://www.who.int/servicedeliverysafety/en/

- Quality improvement and hospitals: http://www.who.int/hospitals/en/

- External Web pages showcasing the application of modern quality improvement approaches in a range of technical areas:

    - Institute for Healthcare Improvement: http://www.ihi.org/Pages/default.aspx

    - International Society for Quality in Health Care: https://isqua.org

    - Jhpiego: https://www.jhpiego.org/

- The Organisation for Economic Co-operation and Development: http://www.oecd.org/els/health-systems/health-care-quality-and-outcomes.html

- The World Bank: http://www.worldbank.org/en/topic/health

- USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project: https://www.usaidassist.org/
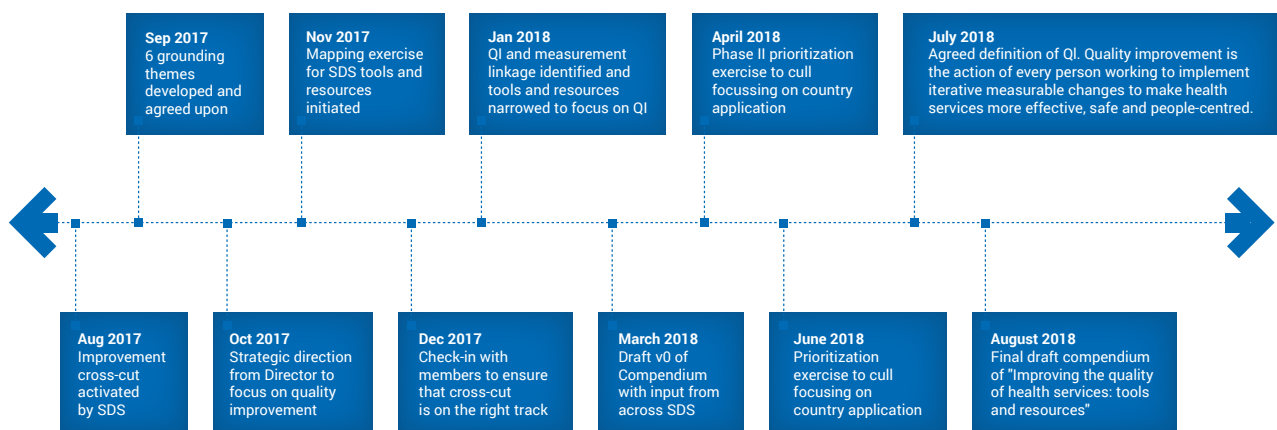
ANNEX 3: PROCESS NOTE - WHO SDS IMPROVEMENT CROSS-CUT

Three interdependent cross-cutting areas of work – measurement, engagement and improvement – were established in the Service Delivery and Safety department at WHO headquarters, to

support to Member States. To achieve this, specific objectives include:

1. to outline existing quality improvement approaches in service delivery in support of Member States;

Figure 1: development of the QI compendium

Sep 2017
6 grounding themes developed and agreed upon

Nov 2017
Mapping exercise for SDS tools and resources initiated

Jan 2018
QI and measurement linkage identified and tools and resources narrowed to focus on QI

April 2018
Phase II prioritization exercise to cull focussing on country application

July 2018
Agreed definition of QI. Quality improvement is the action of every person working to implement iterative measurable changes to make health services more effective, safe and people-centred.

Aug 2017
Improvement cross-cut activated by SDS

Oct 2017
Strategic direction from Director to focus on quality improvement

Dec 2017
Check-in with members to ensure that cross-cut is on the right track

March 2018
Draft v0 of Compendium with input from across SDS

June 2018
Prioritization exercise to cull focusing on country application

August 2018
Final draft compendium of "Improving the quality of health services: tools and resources"

maximize the effectiveness of all technical work and to ensure timely response on quality improvement matters to WHO regional and country offices.

The SDS improvement cross-cut was activated in August 2017 to bring coherence on quality improvement within service delivery and to enhance

2. to explore the relationship between quality improvement and service delivery;

3. to outline a number of practical case studies that ground the application of the identified tools and resource.

The cross-cut solicited representation from each of the units within the SDS department. WHO/SDS technical units involved in this compendium included those working on engagement; infection prevention and control; innovation in service delivery; knowledge management; measurement; patient safety and risk management; quality systems and resilience; services organization and clinical interventions; and traditional, complementary and integrative medicine.

A structured and collaborative approach was employed which resulted in input from across SDS. Cross-cut members, serving in liaison roles, were asked to feed back from cross-cut meetings and report back from their respective units. Monthly meetings (see Figure 1) were held to agree on direction and continued sustained development. Consensus-building was used to arrive at strategic decision points and inputs fed into the final compendium.

A conductive listening and engaging environment was created to ensure that everyone's perspective was reflected in the final products.

The work of the improvement cross-cut is grounded in three core principles. It is:

- **country-focused**, ensuring that SDS is well positioned technically to respond to emerging needs from Member States on quality improvement;

- **evidence-based**, grounding the work in practical and tested front-line quality improvement approaches to improve overall health care outcomes;

- **service-oriented**, focusing on service delivery.

The work of the improvement cross-cut was informed by the draft thirteenth general programme of work, 2019–2023[8]. The three strategic priorities articulated by the GPW, namely achieving UHC, addressing health emergencies and promoting healthier populations, are strongly linked with quality improvement. In order to move forward on UHC, quality improvement approaches need to be placed within the grasp of health systems designers and implementers.

In addressing health emergencies, quality improvement approaches can support preparedness and response efforts as well. Finally, in promoting healthier populations, improvement approaches can support multiple proposed flagship efforts, for example, care for mothers and newborns. Quality improvement approaches must be incorporated into all technical programmes as a means of strengthening health systems.

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8 Draft thirteenth general programme of work 2019 – 2023. World Health Organization (http://apps.who.int/gb/ebwha/pdf_files/EB142/B142_R2-en.pdf?ua=1 , assessed 20 August 2018)

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