World Health Organization
Regional Office for South-East Asia

Towards maternal and newborn survival in the WHO South-East Asia Region

Implementation experience of the WHO SEARO model of point-of-care quality improvement (POCQI)

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Foreword

In recent years, Member States of the WHO South-East Asia Region have achieved significant reductions in maternal, newborn and child mortality. Between 1990 and 2018, the Region's estimated decline in under-five and neonatal mortality was around 72% and 62%, respectively. Between 2000 and 2017, the Region achieved a more than 57% decline in maternal deaths – the largest of any WHO region. Member States achieved these reductions by progressively improving the coverage of evidence-based interventions for reproductive, maternal, newborn, child and adolescent health (RMNCAH), for which they must be commended.

By strengthening the quality of RMNCAH services, countries will accelerate reductions in maternal, under-five and newborn mortality and advance progress towards universal health coverage – both Flagship Priority areas. Data show that poor-quality health services are currently responsible for more deaths in the Region than inadequate access. Increasing health service coverage must therefore be complemented by efforts to enhance quality, which would also promote positive health-seeking behaviour and increased service utilization.

WHO, in consultation with Member States, has developed a Regional Framework for Improving Quality of Care for RMNCAH. As outlined in the Framework, WHO is supporting countries to develop national mechanisms for improving the quality of care by establishing leadership at the national and subnational levels in ministries of health. Such leadership must not only be responsible for assuring the availability of essential health-care infrastructure, but also for supporting and monitoring continuous improvements in quality of care.

To enable rapid and sustained improvements at the facility level in the Region, WHO has prepared a Point of Care Quality Improvement (POCQI) model in collaboration with several partners, including the WHO Collaborating Centre at AIIMS New Delhi, UNICEF, UNFPA and USAID. The model will build the capacity of health-care providers across a range of RMNCAH services. It highlights four steps for health workers to take ownership of the process and deliver the change required: form a team, take the lead, use local data to identify quality gaps, and together as a team devise solution using available resources. The model has been applied in nine countries of the Region over the past three years.

I am pleased that this document captures the evolution of the regional POCQI model from inception to its application in more than 400 hospitals across the Region and beyond. I urge all policy-makers and stakeholders to leverage the experiences documented herein to improve the quality of RMNCAH services, accelerate reductions in maternal, newborn and child mortality, and advance progress towards achieving the Flagship Priority and Sustainable Development Goal that underpins all others – universal health coverage.

Dr Poonam Khetrapal Singh
Regional director
WHO, SEARO

Background

As per the latest UN estimates, under-five mortality in the WHO South-East Asia (SEA) Region has declined by nearly 72% and neonatal mortality by 62% between 1990 and 2018. Yet, about 1.2 million under-five children, including 0.7 million neonates, died in 2018 in the WHO SEA Region as per UN estimates released in 2019.[1]

Between 2000 and 2017 the WHO South-East Asia Region experienced the largest decline in maternal deaths, witnessing a 57.3% reduction in mortality compared with the global level of 38%.[2] An estimated 61 000 women died in 2015 in the Region due to pregnancy-related causes. At the same time, stillbirths remain a hidden challenge with about 0.8 million stillbirths reported annually from the SEA Region.

This progress in mortality reduction in the SEA Region can be related to an increase in the coverage of some life-saving, evidence-based interventions. For example, the proportion of institutional deliveries has increased by 78% in the Region over the past decade. However, this should have resulted in a higher reduction of maternal and newborn mortality if good quality of care (QoC) had been ensured.

For reducing maternal, newborn and child mortality during the Millennium Development Goals (MDG) phase the focus had been on reaching higher coverage with key reproductive, maternal, neonatal and child health (RMNCH) interventions.[3] It has been observed that several evidence-based interventions are often delivered with inadequate quality.[4] A number of studies over the past years have documented poor quality of care provided to neonates and children.[5],[6],[7] Similarly, deficiencies in maternal health care, for both routine and emergency care, have also been described in such studies.[8]

This is not only harmful for the health of the individual but may also lead to adverse impact on future health-seeking behaviours by communities.[9] Universal coverage of health-care services, as promoted by the World Health Organization, lays strong emphasis on good quality of care. It is, therefore, mandatory that interventions are delivered with sufficient quality, meeting appropriate standards of care.

The Lancet Global Health Commission on High-Quality Health Systems in the SDG Era (2018) reports that at present quality of services is a bigger issue than non-utilization or non-availability of care. For example, 64% of neonatal deaths in the SEA Region could be because of poor quality of health-care services (1.9 million deaths due to poor quality compared with 1

[1] Child Mortality Report 2019, by UN Inter-Agency Group for Mortality Estimation, UNIGME

[2] Trends in maternal mortality 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization; 2019.

[3] Countdown to 2015. Accountability for maternal, newborn and child survival: the 2013 update. 2013. WHO and UNICEF.

[4] Souza JP, Gulmezoglu AM, Vogel J, Carroli G, Lumbiganon P, Qureshi Z et al. Moving beyond essential interventions for reduction of maternal mortality (the WHO Multicountry Survey on Maternal and Newborn Health): a cross-sectional study. Lancet 2013 May 18;381(9879):1747-55.

[5] Sidik NA, Lazuardi L, Agung FH, Pritasari K, Roespandi H, Setiawan T et al. Assessment of the quality of hospital care for children in Indonesia. Trop Med Int Health 2013 April;18(4):407-15.

[6] Duke T, Keshishiyan E, Kuttumuratova A, Ostergren M, Ryumina I, Stasii E et al. Quality of hospital care for children in Kazakhstan, Republic of Moldova, and Russia: systematic observational assessment. Lancet 2006 March 18;367(9514):919-25.

[7] Nolan T, Angos P, Cunha AJ, Muhe L, Qazi S, Simoes EA et al. Quality of hospital care for seriously ill children in developing countries. Lancet 2001;357((9250)):106-10.

[8] Ocviyanti D, Prasetyo S, Adisasmita A, Moegni E, Pambudi I, Lawintono L et al. Assessment of the quality of care for mothers and newborns in health facilities in Indonesia. in preparation 2013.

[9] Zaidi AK, Huskins WC, Thaver D, Bhutta ZA, Abbas Z, Goldmann DA. Hospital-acquired neonatal infections in developing countries. Lancet 2005 March 26;365(9465):1175-88.

million deaths because of non-utilization). The Commission further states that poor quality of care and experience of care may lead to loss of confidence in the formal health sector and adversely impact future health-seeking behaviours. The Lancet Commission has cited an analysis from India where it was found that care-seekers bypassed health services in their neighbourhood because they perceived these to be offering poor-quality care.

The time around childbirth is the most risky period for mothers and newborns as maximum mortality among women and newborns, as well as stillbirths, are likely to happen at this time (Lancet 2015). Hence, all efforts should be made to ensure good quality, evidence-based care for mothers and newborns around the time of delivery in a health facility that has adequate essential provisions.

The question which faces us at this juncture is: can the ambitious targets for Sustainable Development Goal (SDG) 3 related to maternal and child mortality be attained by the countries of the Region? This may be possible only by implementing evidence-based interventions that offer good quality care during childbirth and the immediate postnatal period and ensuring that these are made available to 95% of people who need these services.

It needs to be reiterated that most neonatal deaths occur around the time of birth, on the day of birth, or over the first seven days of life. This crucial period has many factors which interact in a complex milieu, chief among them being life-threatening problems such as asphyxia, hypothermia or infections. This is particularly true for preterm, low-birth-weight babies.

Much depends on the capacity of human and other resources available at the birth facility in terms of equipment and infrastructure, as well as the quality of care provided. Quality improvement is one such methodology which integrates hospital infrastructure with the process of providing safe, effective and affordable patient care.

The renewed and updated Global Strategy for women's, children's and adolescents' health (2016–2030) and the SDG Framework provide further impetus towards ending preventable mortality among mothers, neonates and children. The goal of providing universal health care is the edifice of SDG 3, wherein quality of health care is a crucial element. Quality of care is also embedded in the recently developed global frameworks such as ENAP (Every Newborn Action Plan) and EPMM (Ending Preventable Maternal Mortality).

Quality of care is, therefore, a key focus area of WHO and partners. WHO, in collaboration with partners, has put forth a global vision for improving the quality of maternal and neonatal health (MNH) care that emphasizes the provision of quality of care as well as improved experience of care at the time of childbirth. WHO and partners have developed the MNH and paediatric standards for good quality and respectful care. A "Global Quality Equity Dignity (QED) Network" has been created in 2017 that now has 11 countries as members, including Bangladesh and India from the South-East Asia Region. This QED Network has prepared implementation guidelines and a measurement framework to guide and monitor the implementation of initiatives for improving quality of care.

WHO SEARO Regional Framework for improving quality of care for RMNCAH

In the SEA Region the issues of quality of care for maternal, newborn, child and adolescent health have been deliberated upon at several regional meetings organized by the Regional Office for South-East Asia (SEARO). Member States and partners have developed the Regional Strategic Framework for Improving

the quality of care for reproductive, maternal, neonatal, child and adolescent health (RMNCAH) (2015), which recommends strengthening health systems and improving the quality of MNCH services as key strategic directions.

The WHO SEARO Regional Framework for improving QOC recommends a two-pronged strategy. One stream of work includes supporting national authorities to (i) prepare national structures, policies and procedures for improving quality of care; (ii) adopt and implement national standards of care for mothers and newborns; and (iii) undertake assessment of quality of care at health facilities. WHO SEARO in collaboration of partners has supported the Member States in these areas of work. Present status is presented in the table below.

Items	BAN	BHU	DPRK	IND	INO	MAV	MMR	NEP	SRL	THA	TLS
National Cell for QOC established and functioning: **Yes / No**	YES	YES	Yes	YES	YES	YES	YES	YES	YES	YES	YES
National QI alliance / Partnership established: **Yes / No**	YES	YES		YES	YES	NO		YES	NO		
National standards for MNH aligned with Global standards: **Yes / No**	YES	YES		YES	YES	YES	YES	YES	YES		YES
National QOC plan prepared and existing QI initiatives absorbed: **Yes / No**	YES			YES	YES	YES			YES		

The other stream of work recommended by the regional QOC framework envisages building capacity at health facilities and hospitals to undertake quality improvement at the local level. To instill quality consciousness at the level of health facilities and hospitals, there is an urgent need for training health-care providers on quality improvement so that they can infuse this into their work culture. This document describes the progress achieved in the Region in this stream of work.

Point-of-care quality improvement: POCQI model

The primary purpose of quality improvement at the health facilities is to meet the recommended standards of care and improve clinical performance to ensure desirable health-care outcomes, such as reducing mortality among mothers, newborns and children. It is a prerequisite that essential infrastructure and resources are available at the hospitals and health facilities for the health-care teams to practice quality improvement approaches. In fact, health system support is essential to maintain infrastructure as per the national standards and practise quality improvement.

For this stream of work at hospitals and health facilities described in the Regional Framework, the WHO Regional Office has developed the "Point-of-care Quality Improvement" (POCQI) model. Point-of-care quality improvement means improving the quality of care at the very point a patient comes in contact with health-care workers.

It has been widely observed that clinical training and training tools alone may not be enough to practise the recommended standard treatment protocols towards improving the quality of care. To improve compliance with the standard treatment protocols, hospital management and staff need to be educated about the science of improvement. They must be convinced that it is within their job to improve quality and be motivated enough to adopt QI into their practice as an ongoing work culture in the hospital and other health facilities. QI has to become integral to their work practices, only then can the vision of reducing maternal and newborn mortality be achieved and meeting the rights of patients fulfilled.

It is essential to understand what it is that quality improvement (QI) does to improve the survival of mothers, newborns and children. As soon as a pregnant woman or newborn with complications arrives at a health facility, a series of informed steps are taken to provide the required care to the mother and the newborn. The QI initiative ensures that the steps of care (or process of care) ensure best possible health outcomes without untoward events or experience es.

QI assumes particular significance for mothers and newborns as their survival and future health often rests on the care and treatment they receive in the labour room, in the first few hours after birth, and during the first week of life.

To build capacity for quality improvement at health facilities, the Regional Office of WHO, in collaboration with the WHO Collaborating Centre (WHOCC) for Newborns at the All India Institute of Medical Sciences (AIIMS), New Delhi, and the USAID ASSIST (Applying Science to Strengthen and Improve Systems) project, developed a training package called the point-of-care quality improvement or POCQI (pronounced as "poki") package, in 2016.

The training package was designed to provide the basic concepts of quality improvement to health-care providers. It helps implement evidence-based practices through a team approach, using local data to identify gaps in quality, and addresses them in a scientific manner through root-cause analysis. It is a common sense approach for problem-solving in this context in a given situation.

The uniqueness of POCQI lies in the fact that it offers a simplified, four-step process that can be implemented and is scalable. The training highlights four main steps:

The POCQI package has been developed in the form of a "Learner Manual" for the participants (trainees) and a "Facilitator Manual" for the trainers. This package is available for face-to-face training of hospital teams.

To reach out to hospital teams in far-flung, difficult-to-reach areas and to accelerate the spread of training among hospital teams, an alternate e-learning method of web-based, electronic training as an e-workbook was subsequently developed, and made accessible at www.pocqi.org. This provides them the knowledge of basic concepts and the four steps of POCQI. People can complete the POCQI workbook online and generate a certificate of course completion.

The POCQI model targets teams of health workers, training them in the steps for quality improvement in maternal and newborn care to begin with. The aim has been to create a large pool of "Quality Champions" who can carry forward the considerable task that lies ahead. The WHO Regional Office has initiated implementation of POCQI at the inpatient settings in hospitals, although the same principles apply to improving quality of care in outpatient (OPD) settings and to community-based health services. This strategic decision was taken to first engage the clinical leadership and prepare a pool of QI experts among medical and nursing professionals who can become champions in QI, serve as role models for others and, in turn, train and mentor others.

Four main steps highlighted by the training

The first step is to identify a set of specific problems, prioritize which problem to tackle first, form a team, and write an "aim" statement

The second step involves analysing the problem using standard tools for root cause analysis and measuring and documenting the quality of care given.

The third step is about developing and testing changes that can improve the quality of care in the local settings. Changes bring improvement, but after a while, when desired results have been achieved, complacency can set in

The fourth step, therefore, is about sustaining the improvements made

WHO SEARO made another strategic choice to start POCQI from the time of care of the women and newborns at birth to improve both the provision and experience of care. As mentioned earlier, this is the most dangerous period with high possibility of complications. Most maternal, neonatal and fetal mortality occurs around the time of birth.

However, the concept and principles of POCQI are fully applicable to improve quality in all health-care areas across RMNCAH as well as all others, including outpatient care, specialty care and diagnostic services.

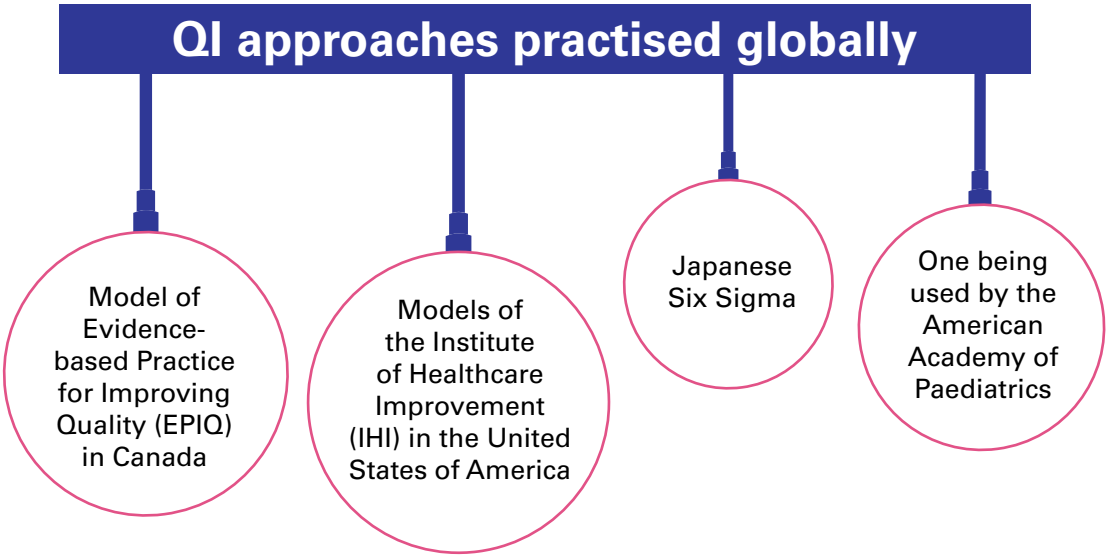
Documenting the early phase of POCQI implementation

This brief documentary enumerates the story of how the concept of POCQI, developed by WHO and partners such as the WHOCC for Newborns at AIIMS, Kalawati Saran Children's Hospital (KSCH), and Lady Hardinge Medical College, New Delhi, among others, in India, and progressively spread to other countries of the South-East Asia Region.

Birth of POCQI model

The WHO Collaborating Centre for Training & Research in Newborn Care at AIIMS, New Delhi, provided early leadership for quality improvement.

> "It was realized quite early that more than individuals, QI is about teams. But creating teams and motivating them needs strong leadership and passionate belief. It has been a very long journey, a journey that is continuing, to convince the leadership, programme managers and other stakeholders, including frontline workers, about a common vision, and a quest to improve things. QI is a continuing process with no room for complacency, creating new teams and local champions,"
> – Dr Ashok Deorari, Head of the Department of Paediatrics & Neonatal Division, and Director of the WHO Collaborating Centre for Training & Research in Newborn Care



The USAID-ASSIST had a long experience of extensively using QI methodology in Africa and some states in India. A QI model was being used in India earlier through the work of USAID-ASSIST project. This followed a seven-step process, which was found to be somewhat complex.

> 'The experience clearly suggested that for widespread application of QI in the field a simpler model and a training tool must be prepared. WHO SEARO convened all these experts and partners to prepare a simplified basic package to provide primary training to health-care teams. A four-step process was crystallized from reviewing the existing models. WHO SEARO supported the WHO collaborating centre to prepare a teaching-learning tool explaining the four simple steps of quality improvement in the day-to-day health-care settings. That is how the first prototype of POCQI was developed with a case study on care of mothers and newborns around the time of birth in the labour room,'
> – Dr Ashok Deorari

In the initial experience of using QI methods at the WHOCC it was recognized that the nurses worked round-the-clock with patients and were a very important link for QI implementation in the hospital. After initial application of POCQI in the departments of neonatology and obstetrics, it was soon offered to the departments of emergency medicine, trauma and ophthalmology, and the nursing staff was actively engaged. USAID-ASSIST did the early handholding and provided the motivation for QI work at AIIMS.

With this initial experience of local implementation, the POCQI prototype was introduced in the regional meeting on improving quality of RMNCAH care organized by the WHO Regional Office in May 2016. The draft POCQI training package was tested with the hospital teams invited from the countries of the Region. The teams included obstetricians, paediatricians and midwives/nurses as the focus was on labour room care. Hospital directors and managers were also invited, so that they could understand the concept and importance of QI and support the initiative in hospitals. The pilot test was successful as the teams found the training simple and useful.

After successful testing of the POCQI package WHO SEARO got this endorsed by UNICEF, the United Nations Population Fund (UNFPA) and the United States Agency for International Development (USAID) as the ASSIST project had contributed since the beginning. The POCQI training package was soon finalized, and it included a Facilitator's Manual and a Participant's Manual including a workbook.

The WHOCC at AIIMS assumed the role of "Regional Hub for POCQI" and contributed to a series of training of trainers (ToT) workshops focusing on nurses and doctors. The WHOCC also created a learning platform in the form of a dedicated website [www.pocqi.org] that was launched with support from the Regional Office. A self-learning e-Workbook on POCQI was created and hosted on this website. People could register and complete the brief orientation on POCQI using the e-Workbook to learn the basic concepts through the four steps of QI and generate a certificate upon successful completion. Several country and regional project experiences have been posted on the website that serves as a learning platform.

POCQI training was initially focused on the care of women and newborns around the time of birth in the labour and delivery room, as this

is the high-risk time for maternal and newborn deaths as well as for stillbirths. Subsequently, case studies on newborn care in neonatal care units and on paediatric care have also been incorporated in the POCQI training package.

Initial work on quality improvement in hospitals

The initial prototype of POCQI was practised in AIIMS in the neonatal unit and obstetrics department in AIIMS. QI initiative in the labour rooms was focused on improving care of women and the newborn at the time of birth.

The use of POCQI helped to refine the process of patient care in the labour rooms. This led to a better implementation of the standard treatment protocols and checklists by nurses to avoid missing important steps of care and to not commit errors. Impolite behaviour with patients could be common in busy hospitals. The QI approach enforced something as basic as cordial behaviour with patients no matter how stressed the doctors are. QI approach has also been used to reduce the waiting time for pregnant mothers who come for ultrasound tests or consultation. Alongside the POCQI model a feedback form was introduced to understand the experience of the patients with regard to the quality of care in the hospital.

> 'QI is about implementation of evidence-based standard treatment guidelines to improve the patient's experience. The clinicians often fail to look beyond treatment or teaching and are not oriented to problem solving. This simplified POCQI approach is directly relevant for labour rooms where there is scope for improving care with little but effective change in the way we work,'
> – Dr Aparna Sharma, Additional Professor of Obstetrics and Gynaecology at AIIMS New Delhi

The success of POCQI demonstrated that this approach can be built into a popular movement among doctors, nurses and support staff to be more compassionate with patients and ensure better experience of care by the clients in addition to ensuring compliance with standard treatment protocols that lead to improved health outcomes.

One of the first POCQI projects implemented in the labour room in AIIMS, New Delhi was to enhance the practice of "skin-to-skin" care for newborns. Now newborns, particularly preterm babies, are placed on the mother's bosom immediately after birth, and this helps to maintain the baby's body temperature and facilitate initiation of early breastfeeding. This standard procedure has also been implemented for women who deliver babies by caesarean section. After application of POCQI, the skin-to-skin care for prolonged periods, what is also known as kangaroo mother care (KMC), has virtually become a norm in the neonatology unit for preterm and low-birth-weight neonates who are at risk of developing hypothermia that can lead to complications and even death.

Another QI protocol that has been introduced in the labour room at AIIMS, and is fast spreading to other hospitals, is allowing a "birth companion" to accompany the woman during the period of labour and childbirth. Both the expectant mother and the "birth companion" are duly counselled on how to handle the imminent situation. Counselling builds their confidence, and this goes a long way in easing birth pangs. Such small changes in how the care is provided to mothers and newborns, made possible through POCQI, have turned childbirth more humane and safer.

Based on the positive experience of using it at AIIMS, the POCQI model has been introduced in the national Labour Room Improvement (LaQshya) Initiative of the Ministry of Health and Family Welfare of the Government of India. The "POCQI Approach" is used to support implementation of quality circles for improving care of mothers and newborns at the time of birth.

POCQI is used to train and coach the health-care workers to form teams and use data-driven improvements in the process of care. QI experts (POCQI trainers) train the selected clinical leaders from the departments of obstetrics, paediatrics and nursing professions in medical colleges in the POCQI approach subsequently and support their capacity-building as QI coaches.

These coaches in turn support the completion of pre-decided quality cycles of the LaQshya programme at their own hospitals and subsequently would transfer this capacity to district hospitals under the national programme. An agreement with the Ministry of Health has been reached that POCQI training would be integrated with the clinical trainings in the LaQshya Initiative in India.

Applying POCQI beyond maternal and newborn care

The department of ophthalmology applied POCQI to improve the treatment of retinopathy of prematurity, or ROP, in preterm newborn babies. They were able to significantly reduce waiting time for babies who needed detailed eye check-up for ROP or its treatment in the operation theatre.

Retinopathy of prematurity (RoP) has emerged as a significant problem. RoP progresses rapidly and can quickly lead to blindness. With only a short window of opportunity for treating these babies, screening of newborns must be timely. For this, newborns with RoP may require multiple visits to the hospital for screening and treatment. In 2017, with increased screening and detection of RoP, referrals to the eye centre at AIIMS had increased substantially. As a

result, the waiting time for these baby patients also increased, sometimes substantially. In addition, these preterm babies had to be kept fasting for an hour before the procedure could be performed. This waiting period often got extended indefinitely because of over-crowding. With crying babies and anxious parents there was chaos around the eye clinic.

To tackle this situation the POCQI project was rolled out to reduce waiting time for the tiny patients. It was realized that there was no system to streamline the flow of patients between the eye ward and the OT area. After some deliberations among the nurses, doctors and the security staff, the key problem was identified, and a decision taken to try to reduce the waiting time for patients by at least 30%.

Process of care was modified by classifying patients into three categories and their patient cards kept in three piles. New patients or complicated cases were in one pile, meant for the senior doctor to examine. Examination equipment such as RetCam lens was positioned beforehand. Post-operative patients were called at 2 p.m. instead of 12.30 p.m. as their eyes are already prepared for examination, and they did not have to wait to receive the eye drops in the OT area. Three examination tables were organized that could be run simultaneously for the three categories of patients. All this ensured that waiting time for patients was reduced drastically.

It took three "plan-do-study-act (PDSA)" cycles spread over a few weeks to set things right. The improvement team included the RoP specialist, and his QI team of two senior residents, two junior residents, a nursing officer and a registration staff.

"For a five-minute procedure, the newborns often had to wait for five to seven hours. It was the security guards who brought this point to our attention. This is what POCQI has achieved: it brought a sense of ownership even among the lowest rungs of the hospital staff," explains Sister Dolma, a QI champion.

> 'POCQI implementation in the department has changed the work culture all around; it has brought an awakening of sorts. It has empowered doctors, nurses and support staff to take managerial decisions on any problem related to quality of care and solve it. In the pre-QI days they would wait and expect the hospital administration to solve such problems. That is no longer the case. Now all of them proactively take the lead and work as a team to improve the process of care,'
> – Dr Parijat Chandra of AIIMS, New Delhi

In the Emergency department there are known basic standards of patient care, such as conducting an ECG immediately after a patient is suspected of myocardial infarction so that specific treatment could start within 120 minutes of the onset of symptoms as a thumb rule. However, these standards are rarely achieved, particularly in government hospitals. POCQI has changed that situation in the emergency room (ER) of AIIMS by enabling use of problem analysis identifying management decisions and taking corrective action.

One aspect that QI has greatly helped achieve is triaging or prioritizing of patients in the emergency room. Through a POCQI project patients were graded into red, yellow and green categories. Those in the red category are the serious patients and must be attended to immediately while those in the yellow or green category are less urgent. This grading of

patients helped in prioritizing the most serious patients out of several in the queue. This has become the norm now and patients in ER are attended according to the seriousness of their condition. Those in a life-threatening situation, where time is of the essence, are urgently attended to.

> 'POCQI has taught us to translate academic knowledge into high-quality patient care. It has bridged the 'know-do' gap, POCQI is a cross-fertilization of science and sociology. It has brought about a cultural change and given frontline workers a sense of ownership and empowerment. Now even the security guards feel a part of the team; they feel empowered to offer suggestions for improving patient care,' – Dr Akshay Kumar of the new Emergency department at AIIMS New Delhi

Using the POCQI approach has brought several benefits in the Emergency department at AIIMS, which is visited by between 4000 to 8000 patients every day. Changes in the arrangement of trolleys at the entry of the emergency reception has led to streamlining of patient movement and the waiting time for incoming patients has reduced drastically from 90 to 30 minutes. The time to receive blood for transfusion has dropped and so has the time for providing nebulization to the patients with respiratory distress.

POCQI has been introduced in the AIIMS Trauma Centre where nurses trained in this QI model are now efficiently running multiple QI projects that have streamlined patient care.

Similarly, nurses at the Cardiology department in AIIMS were trained in POCQI. Within two months the nurses were able to initiate 14 QI projects in the Cardiology and Cardiac Surgery departments. Seeing this the faculty of the department found it important to use the POCQI approach to ensure patient-centred care. The Head of the Department of Cardiology has become a QI champion.

Thus, the POCQI model has been successfully introduced in several departments at AIIMS New Delhi the concept of quality improvement is catching up not just among doctors and nurses but also other support staff, including security personnel. The latter are among the first line of people that patients come across. The security guards play an important role in streamlining crowds of sometimes nearly 25 000 patients who visit AIIMS every day.

Improving maternal infant and child nutrition services

"Alive & Thrive" (A&T)[10] in India, under the QI intervention, has used point-of-care quality improvement (POCQI) methodology to train doctors, staff nurses and all service delivery personnel concerned from the departments of Obstetrics & Gynaecology, Paediatrics and Community Medicine in select nine medical colleges by engaging a team of QI experts.

A total of 1890 doctors, nurses and counsellors have been trained in the states of Uttar Pradesh and Bihar. After being trained in POCQI, the medical colleges identified one area of improvement each, based on updated maternal, infant and young child

[10] Alive & Thrive (A&T) is a global nutrition initiative to save lives, prevent illness, and ensure healthy growth of mothers and children. Since 2015 A&T is leveraging its robust network and knowledge base to strengthen systems and build capacity in these in countries across Africa and Asia. A&T is managed by FHI 360 and funded by the Bill & Melinda Gates Foundation, Irish Aid, the Tanoto Foundation and UNICEF.

nutrition (MIYCN) service delivery protocols, and formed QI teams led by the head of the department concerned that included doctors, residents, interns, nurses and counsellors from that department.

Furthermore, two coaches were identified from each of the medical colleges and provided with enhanced QI training to monitor and ensure that the QI implementation is on track. The teams were additionally supported through onsite mentoring visits by QI experts and the A&T team.

Inter-departmental coordination committees, with representatives from the three departments of Obstetrics and Gynaecology, Pediatrics and Community Medicine, were constituted in each medical college to sustain the POCQI efforts. Currently a total of 10 quality improvement projects have been completed by the QI teams and six are in progress (see list in the Annex).

The path has not been a bed of roses. Initial resistance faded away only when successful projects with measurable data were shared. Another barrier was QI being mixed up with quality assurance. It was clarified that quality assurance is essential with its emphasis on the hospital infrastructure for service delivery. But it does not necessary improve the clinical performance. QA and QI are two sides of the coin and should always be implemented together.

Nursing leadership for quality improvement

Nurses were co-opted to participate in the POCQI workshops at an early stage. The QI leadership in the institute was quick to recognize their role. Encouraged by doctors, it is the nurse leaders who have untiringly championed for quality improvement in AIIMS. Nurses of AIIMS are now torchbearers of QI.

Nurse leadership in the neonatal intensive care unit (NICU) at AIIMS New Delhi has undertaken several improvement projects for newborn care. Breast milk intake among the admitted preterm babies was as low as 12% when the QI team at the NICU improved it to 30% within a short period of six weeks using the POCQI approach. And they have managed to sustain breast milk feeding among newborns at about 80% for the last four years. POCQI helped us lay down protocols to counsel mothers about breastfeeding and using expressed breast milk.

The POCQI model was also used to improve kangaroo mother care (KMC) of the preterm babies in NICU to keep them warm, promote breastfeeding and improve psychological bonding. KMC was roughly three hours a day and has now risen to 10 hours a day at the NICU after the POCQI model was introduced. This model included measures such as early expression of breast milk to stopping the frequent breakage of the temperature probe of the overhead baby warmer.

"There is no room for neglect in the NICU and the sisters on duty know that well. QI teaches us to do what we would like for ourselves. Nurses form the backbone of QI work being carried out in the NICU. But QI is not a one-person job, it's a team effort," said Sister Meena Joshi, nursing in-charge at NICU. She regularly facilitates POCQI workshops in the institute as well as outside and trains new nurses and even doctors in quality improvement methods.

"Without a dedicated team success cannot be achieved. Alone, one cannot sustain the changes that QI brings in." As a QI veteran who was at the lead in reducing waiting time for newborns with RoP, Sister Dolma lays great emphasis on the monthly experience-sharing meetings that she organizes. She is often called upon by different departments within AIIMS for problem-solving.

Similarly, the nurse leadership has been in the forefront of quality improvement activities in the Eye department of AIIMS, New Delhi, where 50 to 60 cataract patients are operated on every day. POCQI was used to undertake several improvement projects for patient satisfaction that has become quite high now. "Data is key to measuring improvements and make generic statements of improvement more visible and authentic," says Sister Yangchen Dolma, of AIIMS, who has trained and mentored a large number of nurses and doctors in her own institute and other hospitals.

Nursing professionals have been involved in QI work from the very beginning at another hospital, the Kalawati Saran Children's Hospital, New Delhi. "When the doctor-nurse coaching teams go to conduct workshops and reviews, they go out as equals … with the same perks, the same travel facilities and similar accommodation," say Sister Susy Sarah John, Senior Faculty, College of Nursing, LHMC, and Sister Jeena Pradeep, Adviser Nursing, NQOCN. They also train undergraduate and postgraduate medical and nursing students at Lady Hardinge Medical College, New Delhi.

POCQI champion

In the POCQI Training of Trainers' workshop organized by the WHO Regional Office during the regional meeting on improving quality of RMNCAH care in 2016, many hospital teams from Member countries were trained in point-of-care quality improvement. That led to the emergence of several champions of QI in the Region.

"At the regional POCQI workshop participants were asked to start QI activities in their own hospitals. One of the recommendations adopted by the delegates was to identify and support QI champions," said one of the participants, Dr Vikram Datta, Director and Professor of Paediatrics at Kalawati Saran Children's Hospital and Lady Hardinge Medical College, New Delhi.

Soon after, in June 2016, with some mentoring from the USAID-ASSIST team, the first project on "reduction of newborn hypothermia" was initiated in the neonatal unit of Kalawati Hospital. The outcome of the QI project on neonatal hypothermia was very encouraging. Hypothermia among newborns dropped from 38% to just 6% over six weeks. On sustaining this achievement nearly 84 newborn lives were saved in next one year without the use of any additional resources. This was a 38% reduction in newborn mortality.

The team at KSCH disseminated the QI model among interested teams around the country. They have conducted about 100 POCQI trainings in different districts and states of India since then.

A group of QI champions have formed the Nationwide Quality of Care Network (NQOCN). The NQOCN has been able to create a pool of over 1500 professionals (paediatricians, obstetricians and nurses) who have been trained in POCQI and have mentored multiple health-care teams in undertaking QI projects in the hospitals across 11 states of India, covering over 400 000 deliveries a year. WHO and UNICEF have provided support for this work by NQOCN in India. They have over 100 nurses and 60 doctors from across the country who have now become QI trainers and coaches.

The NQOCN is now a technical resource partner for the Government of India's LaQshya programme, which aims to improve labour rooms across the country.

> 'Spread across 11 states in India, NQOCN is working with over 100 public, private and academic health facilities with the aim of creating and nurturing best practices for the delivery of newborns. We have sown the seeds ... now wherever it gets a nurturing environment, QI will bloom,' – Dr Vikram Datta of KSCH, New Delhi

NQOCN has introduced QI into the curriculum of in-service nurses as a part of the ongoing continuing nursing education programme of the Ministry of Health and Family Welfare of the Government of India. As a part of this, nearly 600 in-service nurses have been trained in New Delhi over last three years.

Introducing POCQI among students

Concurrently. NQOCN has initiated the spread of QI across young nursing and medical students in Lady Hardinge Medical College, New Delhi, through the formation of a group called "Be the Change". This group of students have initially used the POCQI approach to fix their own lifestyle issues. Convinced by their success it is certain that they will apply POCQI when they enter the clinical training stage. This attempt at introducing POCQI in the pre-service education has been featured in the WHO Quality of Care Network as a video film and podcast.

Ms Chhavi, a postgraduate medical student, said it was a wonderful experience getting acquainted with colleagues from the nursing community and learning to work as a team right from their undergraduate days. "The hierarchy we had known before has melted away. This experience will hold us in good stead in our working life," said Khushboo, her fellow student and colleague.

Similarly, POCQI has been introduced in pre-service education of medical students at AIIMS, New Delhi. All new residents joining AIIMS after completing their compulsory internship now undergo a one-day POCQI training. Efforts are also on to introduce POCQI as part of the medical school curriculum.

> 'That day is not too far when the POCQI approach to health care will be known to all medical practitioners across the country even before they join the service or private practice,'
> – Dr Randeep Guleria, Director AIIMS, New Delhi

Further progress in India

With support provided by WHO, POCQI has been initiated in the districts where local champions have started improving the quality of care and have shared their experience at national and international meetings. Many states have come up with success stories in their labour rooms, stories that have been published and disseminated among the medical fraternity.

In Madhya Pradesh, for instance, POCQI led to a 50% decrease in the use of antibiotics in a sick newborn care units (SNCU), thus contributing to rational use of antibiotics and decreasing the possibility of developing antimicrobial resistance. POCQI led to savings of a projected Rs 650 000 in a year when oxygen consumption dropped drastically in the SNCUs by replacing hoods with nasal prongs and using pulse oximetry as an essential step in deciding if oxygen was required by a patient.

In West Bengal, QI was kickstarted in 2017 when the National Health Mission and UNICEF supported a training of trainers for medical college faculty from obstetrics and paediatrics departments along with nurses. It was so useful that there already were a couple of QI champions available locally because of the earlier efforts of AIIMS, New Delhi.

Soon the Kolkata-based Nilratan Sarkar Medical College and Hospital initiated POCQI at its SNCU to introduce step-by-step measures for early initiation of specific treatment of sick newborns immediately on arrival in the hospital. The aim was to ensure that newborns in their unit received the prescribed treatment within 30 minutes of arrival. Particular attention was given to the care of preterm and caesarean babies. As a result of the intervention, the mean time for attending to sick babies dropped dramatically – by as much as 60 minutes. The percentage of newborns receiving treatment within 30 minutes shot up from 20% to 80%.

The momentum gained was maintained in the post-intervention period. With the percentage of sick newborns receiving early treatment their survival rate improved markedly. QI projects for the improvement of labour delivery rooms and respectful maternity care in the institution were also initiated.

Such encouraging stories have also been reported from other Indian states such as Chhattisgarh, Uttar Pradesh, Telangana and Meghalaya where QI is being practiced in many hospitals. NQOCN has developed a modified "Hub and Spoke" model of QI in urban and rural settings in Delhi and Maharashtra using POCQI approach.

Additionally, trainings and handholding in skills of QI have been started in the government nursing colleges of Madhya Pradesh. The NQCON's regular national and regional workshops have successfully created a large pool of QI coaches across the country. These coaches are further training doctors and nurses in the POCQI model, expanding the reach of QI to districts and small towns. Meanwhile, involvement of the private hospitals is also on the rise.

NQOCN has demonstrated that the POCQI manual can be condensed into a six-page local language module for use in training frontline health workers (such as the ASHA, a village-level health volunteer), leading to successful translation of skills and knowledge.

In December 2019, NQOCN was requested by the Ministry of Health to convene a national meeting of partners with the support of WHO. The Partners' Forum, a first of its kind, brought together state governments, institutional partners, NGOs, development partners, private sector partners and funding partners to share lessons on quality improvement challenges and ideas to sustain the progress accomplished so far. Sharing experiences at all levels of the health system was a key aspect of the Forum, with leaders from the states of Rajasthan, Uttar Pradesh, Gujarat and Maharashtra presenting the work that they have done at the state level to improve the quality of maternal and newborn health care using the POCQI approach.

Several hospital teams from across the country also had the opportunity to share their experience of implementing quality improvement. The Partners' Forum made a series of recommendations to the Ministry of Health & Family Welfare to ensure sustainable growth and expansion of quality improvement across the country, including sustaining and scaling up of the POCQI model for continuous quality improvement under the LaQshya programme that is led by the Ministry of Health.

Over time, the POCQI model has diffused into other health-care areas in hospitals and is now being used to improve care in other clinical departments. QI is now integrated even into the postgraduate resident's orientation programme. QI experts at the institute, through their network of sister institutions and colleagues, have spread the POCQI model to neonatal units and obstetric units across several states of India in collaboration with local governments and partners such as the United Nations Children's Fund (UNICEF).

Combining clinical training and POCQI: A new approach to build competence of health-care teams

A multimodal training package on preterm care for doctors and nurses has been prepared that has integrated training in quality improvement using the POCQI method. This combination has been found quite useful by the trainee doctors and nurses who have reported that it is effective in the acquisition of the required knowledge and skills through this package. Clinical skills and quality improvement methodology is learnt in one go so that the health-care teams can immediately start working to reach 100% compliance with the clinical practices taught in the combined training.

POCQI in the South-East Asia Region

Learnings from the implementation of the POCQI model beginning from India have been disseminated to nine of the 11 Member countries of the WHO South-East Asia Region. QI is now being actively implemented in about 400 hospitals across the countries of the Region. In due course, the desirable objective is to see POCQI and other quality improvement models being scaled up as institutionalized programmes in South-East Asia to accelerate reduction in maternal, newborn and child mortality.

The WHO SEARO Regional Framework of improving quality of care in RMNCAH was launched in 2015. With the dissemination of the Framework and its implementation, countries of the SEA Region now have an identified division in their health ministries that is responsible for quality-of-care work. As recommended in the Regional Framework these countries have also aligned and updated their national MNCAH standards in line with global standards, and some have national QOC operational plans already in place. WHO and partners have supported the assessment of the quality of maternal, newborn and child care in selected hospitals in seven countries of the Region.

WHO-SEARO has been at the helm of efforts to design the Regional Quality Improvement Model (POCQI) described in this publication. Since the initial regional training on POCQI in 2016, nine countries have undertaken national trainings in POCQI to lay the foundation for QI roll-out beginning with the area of maternal and newborn care in hospitals and health facilities. By 2020 POCQI has been initiated in more than 400 hospitals across the countries of the Region.

Bangladesh

Bangladesh has been implementing QI for maternal and newborn care in about 55 hospitals in 17 districts with support from partner agencies over the last two years. The Ministry of Health is leading the effort. They have organized a series of QI training workshops and are providing onsite support to the QI teams in the hospitals in these districts.

District	Number of QI projects
Sirajganj:	18 projects
Moulvi Bazar:	8 projects
Patuakhali:	12 projects
Rangmati:	11 projects
Kurigram:	34 projects
Jamalpur:	7 Projects
Cox's Bazar:	10 projects

The details of quality improvement projects in the districts is provided below and in the Annex.

Bhutan

The WHO POCQI approach has been introduced in the in=service training of doctors and nurses in hospitals as well as in the preservice education of the nurses in Bhutan.

The Ministry of Health (MoH) has developed National Health Policy and established Quality

Assurance and Standardization Division (QASD) in the Ministry and all the hospitals. Bhutan Healthcare Standards for Quality Assurance (BHSQA) approved by the Government and rolled out by the QASD, MOH in many healthcare facilities in the country. The BHSQA has 116 standards, 639 objectives and 45 Key Performance Indicators to be implemented by the health facilities using SOPs and assessment tools for clinical audits.

MOH has supported several trainings for health-care workers to strengthen individual competencies, but it has been realized that this alone is not enough to bring changes in workplaces to reduce the knowledge-practice gap and ensuring optimal evidence-based care. With the support of WHO the Regional Model of Point of Care Quality Improvement (POCQI) was introduced initially in the maternal and newborn health services in 2017.

As a result of this training, QI project concepts were developed by the hospital teams and implemented in JDWNRH and three referral hospitals. Subsequently, a national ToT on POCQI was supported by WHO in collaboration with UNICEF and organized by KGUMSB under the leadership of the RH programme in the MoH in which teams from several hospitals and the Faculty of KGUSMB were trained in QI. POCQI has also been introduced in the new curriculum of PG students and they are expected to conduct 1 QI project based on standardized POCQI methodology for QI projects in their 7th semester. It carries marks for their evaluation as per the new curriculum.

Nepal

Initial training of hospital teams from Nepal was provided in the Regional POCQI workshops organized by WHO-SEARO. Later a national Training of Trainers was undertaken in Nepal followed by training of another batch of hospital teams for a province with the support of UNICEF. Several quality improvement projects have been undertaken in these hospitals.

QI projects in Nepal

Health facility/ hospital	Responsible department/unit	Aim of improvement of the first QI project after initial POCQI training
BP Koirala Institute of Health Sciences, Dharan, Nepal	Obstetrics	To reduce the rate of wound infection undergoing caesarean section from 4% to 2% in 12 weeks
Nepalgunj Medical college, Kohalpur, Nepal	Labour room/ postnatal ward	To increase breastfeeding initiation to all newborns within 10 minutes of admission in postnatal ward from 51% to 80% in 4 weeks
Nepalgunj Medical college, Kohalpur, Nepal	Labour room	To increase % skin-to-skin contact after birth in all newborns with good APGAR, born by uncomplicated vaginal delivery in LR from 0%-80% in 8 weeks
Bharatpur hospital, Chitwan, Province 3, Nepal	Labour room	To increase the number of babies receiving inj. Vit-K1 in labour room from 4 % (except PT/LBW and instrumental delivery) to 80% within 8 weeks.
Bharatpur hospital, Chitwan, Province 3, Nepal	Labour room	To increase early initiation of breast feeding within 1 hour in all neonates delivered in labor room from 50% to 90% in 4 weeks.
Bharatpur hospital, Chitwan, Province 3, Nepal	Maternity OT	To increase the neonatal resuscitation by paediatric team in high-risk deliveries by C/S in OT from 5% to 50% in 12 weeks.
Paropakar Maternity & Women's Hospital, Kathmandu, Nepal	Labour room and MNSC ward	To reduce the percentage of hypothermia (<36.50c) of all neonates admitting in NICU from 20% to 5% in 8 weeks
Paropakar Maternity & Women's Hospital, Kathmandu, Nepal		To decrease the secondary wound infection in surgery cases from 25% to 5% in 8 weeks
Paropakar Maternity & Women's Hospital, Kathmandu, Nepal	Postnatal OPD	To increase % of postnatal examination in women delivering by C/S who come for dressing and stitch removal in OPD from 10% to 60% in 4 weeks
Narayani hospital, Birgunj		Increase skin-to-skin contact of mother and newborn after normal delivery from 5% to 50% by 6 weeks
Provincial hospital, Janakpur		Improve fetal heart rate monitoring in labour cases from an average of 1 to 4 times in 6 weeks
Gajendra Narayan Singh Hospital, Rajbiraj		Increase delayed cord clamping of all stable babies born in labour room of GNS Hospital from 30% to 80% by 31 January 2020

Sri Lanka

The Maternal and Newborn Care Programme in Sri Lanka is now focusing on enhancing the quality of MNH services. The Family Health Bureau (FHB) backed by WHO and UNICEF has set up a robust QI scaling-up plan from province to province. While some teams from Sri Lanka had received initial training in POCQI at the regional workshop, QI got a boost when in August 2017 WHO supported a capacity-building workshop on POCQI for mothers and newborns in Colombo.

Seven hospital teams from across the country were trained with the support of WHO-SEARO. In July 2018, UNICEF, WHO and FHB organized mentoring visits to selected hospitals for building capacity of teams of doctors and nurses. After three national workshops QI is being practised in 16 hospitals now.

QI projects in Sri Lanka

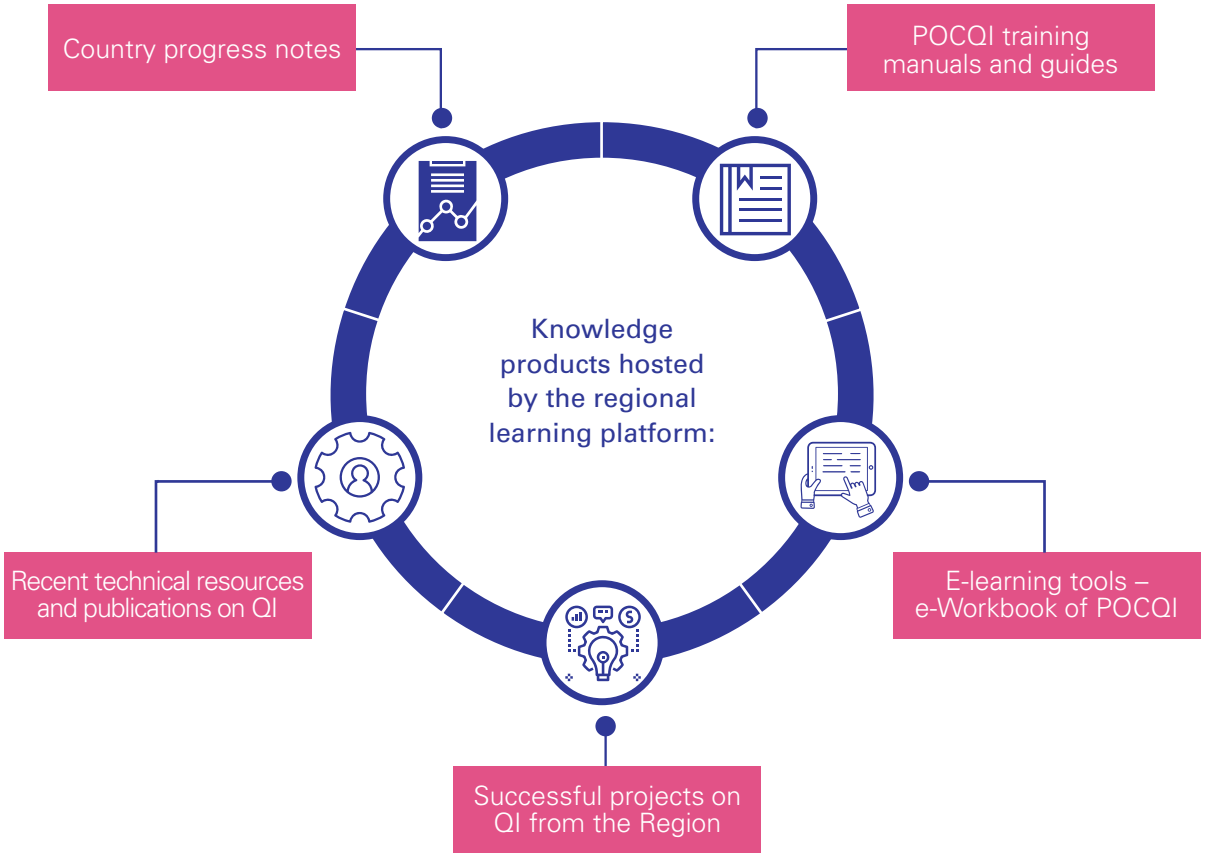
Facility name	Improvement project/aim
Base Hospital, Deniyaya	To reduce the infected episiotomies among mothers who delivered at Base Hospital Deniyaya from (30% to 10%)* within one month (1 August to 31 August) (*=estimated).
Base Hospital, Kamburupitiya	To reduce hypothermia among babies born by LSCS on admission to NICU from 50% to 25% in two months.
Base Hospital, Elpitiya	To increase handwashing/hand-rubbing before examination of each new-born in the post-natal ward from baseline to 40% within 2 months from 1 August to 30 September 2018.
Base Hospital, Balapitiya	To increase the percentage of mothers who are discharged at the next immediate visiting hour, after discharge decision has been made, in all postnatal discharges from ward 9 at Base Hospital Balapitiya from (60% to 80%)*, within 4 weeks starting on 1 Aug. 2018.
District General Hospital, Matara	To reduce re-admission due to lactation failure for normal babies born through uncomplicated vaginal or caesarean deliveries from (x% to y%) * in two months.
District General Hospital, Kalutara	To reduce the percentage of hypothermic neonates admitted to NICU from the OT, from 75% to 25%, over a period of 6 weeks from 30 July 2018.
Teaching Hospital, Karapitiya	To reduce the incidence of hypothermia among post-surgery babies returning to NICU from OT from 100% to 50% in 6 weeks.
Teaching Hospital, Mahamodara	To improve the percentage of eligible mothers receiving lignocaine injection prior to performing an episiotomy in labour room 1, Teaching Hospital, Mahamodara, from an estimated 40% to 70% within one month from 1 Aug. to 31 Aug.

Documenting success and best practices

The WHO Collaborating Centre at AIIMS has developed and hosted a dedicated website [www.pocqi.org] to disseminate knowledge and share experience in quality improvement; record progress in POCQI implementation as well as provide a regional learning platform.

The regional learning platform supports the function of knowledge sharing and e-learning.

The teams trained in POCQI have published several articles in peer-reviewed journals. A special issue was commissioned on quality of care in Indian Pediatrics, a popular peer-reviewed journal. This was published in 2018 (see the list of articles in the Annex https://www.indianpediatrics.net/sep2018/current.htm).



Going global

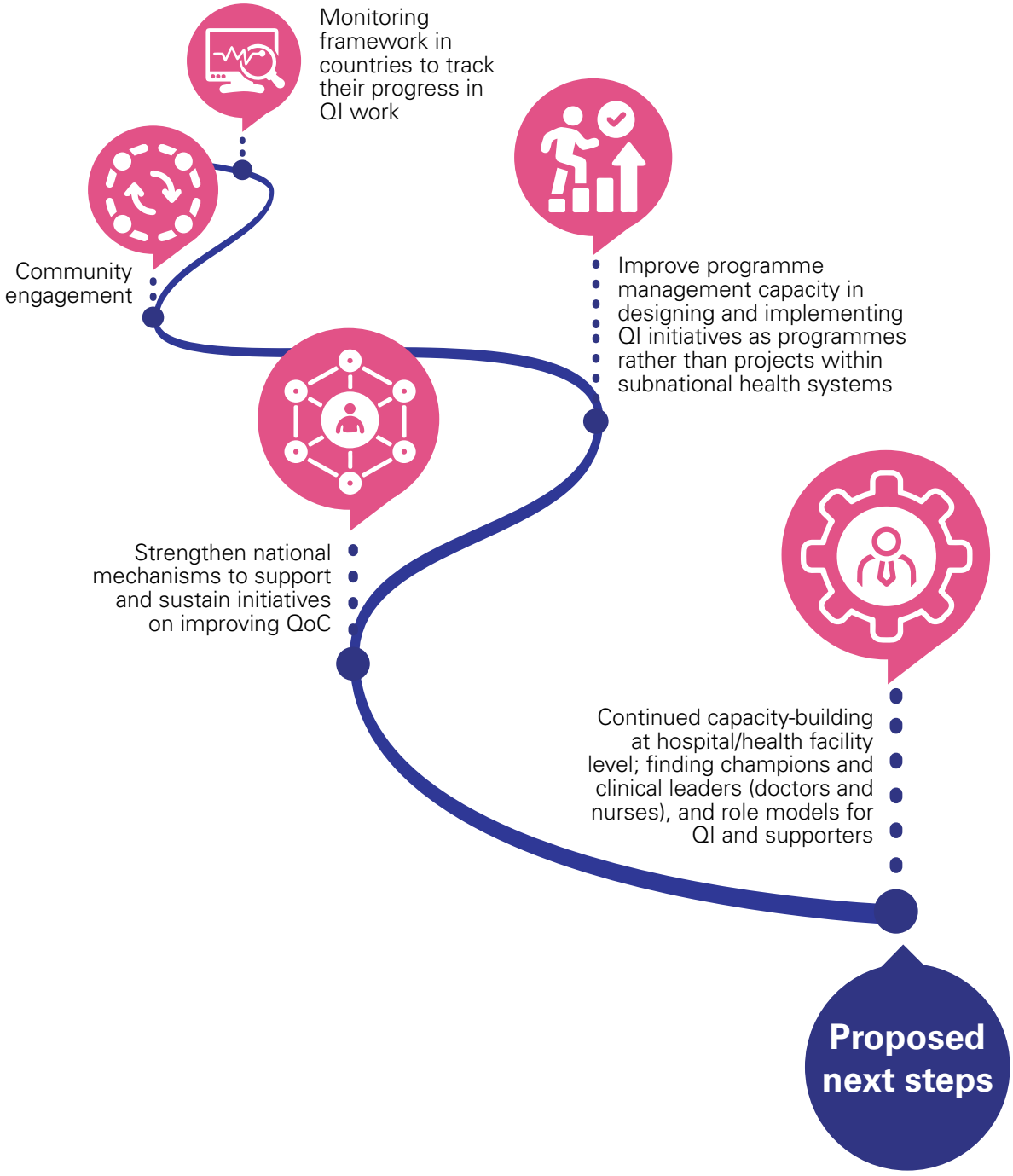
Meanwhile, the POCQI model has now travelled beyond the SEA Region. The Global QED Network or Quality, Equity and Dignity Network for reducing maternal and newborn mortality – comprising seven African nations, and Bangladesh and India from the Region – has included POCQI in the global toolkit. The training package is being translated into the French language for use in the West African countries The POCQI model has also travelled to the most populous country in the world, the People's Republic of China, as well as Uzbekistan, where it is being translated into the local languages thanks to efforts by UNICEF.

Role of the community

It must be acknowledged that patients, service users and communities have a critical role to play in identifying their own needs and preferences, and in managing their own health. Perspectives of women, their families and communities, on the quality of maternity care services influence their decisions to seek care. Community engagement, therefore, becomes a driving force for quality maternal and newborn care. WHO-SEARO and partners are strengthening their work on community engagement in improving quality of care.

Next steps

Quality improvement in MNCAH care is still in a nascent stage in the SEA Region. It must be turned into a national movement so that even patients demand quality care and a good hospital experience as their right.



Annexures

Annex1
Quality improvement projects published in the Indian Pediatrics

(Special Issue: September 2018; Volume 55: Number 9): Better health care through quality improvement; available at the web link: https://www.indianpediatrics.net/sep2018/current.htm

1. Impact of Quality Improvement Program on Expressed Breastmilk Usage in Very Low Birth Weight Infants – Anup Thakur, Neelam Kler, Pankaj Garg, Anita Singh and Priya Gandhi 739
2. Improving Duration of Kangaroo Mother Care in a Tertiary-care Neonatal Unit: A Quality Improvement Initiative – Meena Joshi, Tanushree Sahoo, Anu Thukral, Poonam Joshi, Amanpreet Sethi and Ramesh Agarwal 744
3. Reducing Healthcare-associated Infections in Neonates by Standardizing and Improving Compliance to Aseptic Non-touch Techniques: A Quality Improvement Approach – Supreet Khurana, Shiv Sajan Saini, Venkataseshan Sundaram, Sourabh Dutta and Praveen Kumar 748
4. Decreasing Central Line-associated Bloodstream Infections through Quality Improvement Initiative – Kalyan Chakravarthy Balla, Suman PN Rao , Celine Arul, A Shashidhar, YN Prashantha, Savitha Nagaraj and Gautham Suresh 753
5. Improving the Breastfeeding Practices in Healthy Neonates During Hospital Stay Using Quality Improvement Methodology – Seema Sharma, Chanderdeep Sharma and Dinesh Kumar 757
6. Improving First-hour Breastfeeding Initiation Rate after Cesarean Deliveries: A Quality Improvement Study – Sankalp Dudeja, Pooja Sikka, Kajal Jain, Vanita Suri and Praveen Kumar 761
7. Achieving Early Mother-baby Skin-to-skin Contact in Caesarean Section: A Quality Improvement Initiative – Arti Maria, Amlin Shukla, Rashmi Wadhwa, Bhupinder Kaur, Bani Sarkar and Mohandeep Kaur 765
8. A Quality Improvement Initiative for Early Initiation of Emergency Management for Sick Neonates – Asim Mallick, Mukut Banerjee, Biswajit Mondal, Shrabani Mandal, Bina Acharya and Biswanath Basu 768
9. Reducing Preoperative Waiting time in a Pediatric Eye Operation Theater by Optimizing Process Flow: A Pilot Quality Improvement Project – Parijat Chandra, Ruchir Tewari, Yangchen Dolma, Deepsekhar Das and Devesh Kumawat 773

Annex 2
POCQI-Preterm Baby Care Model

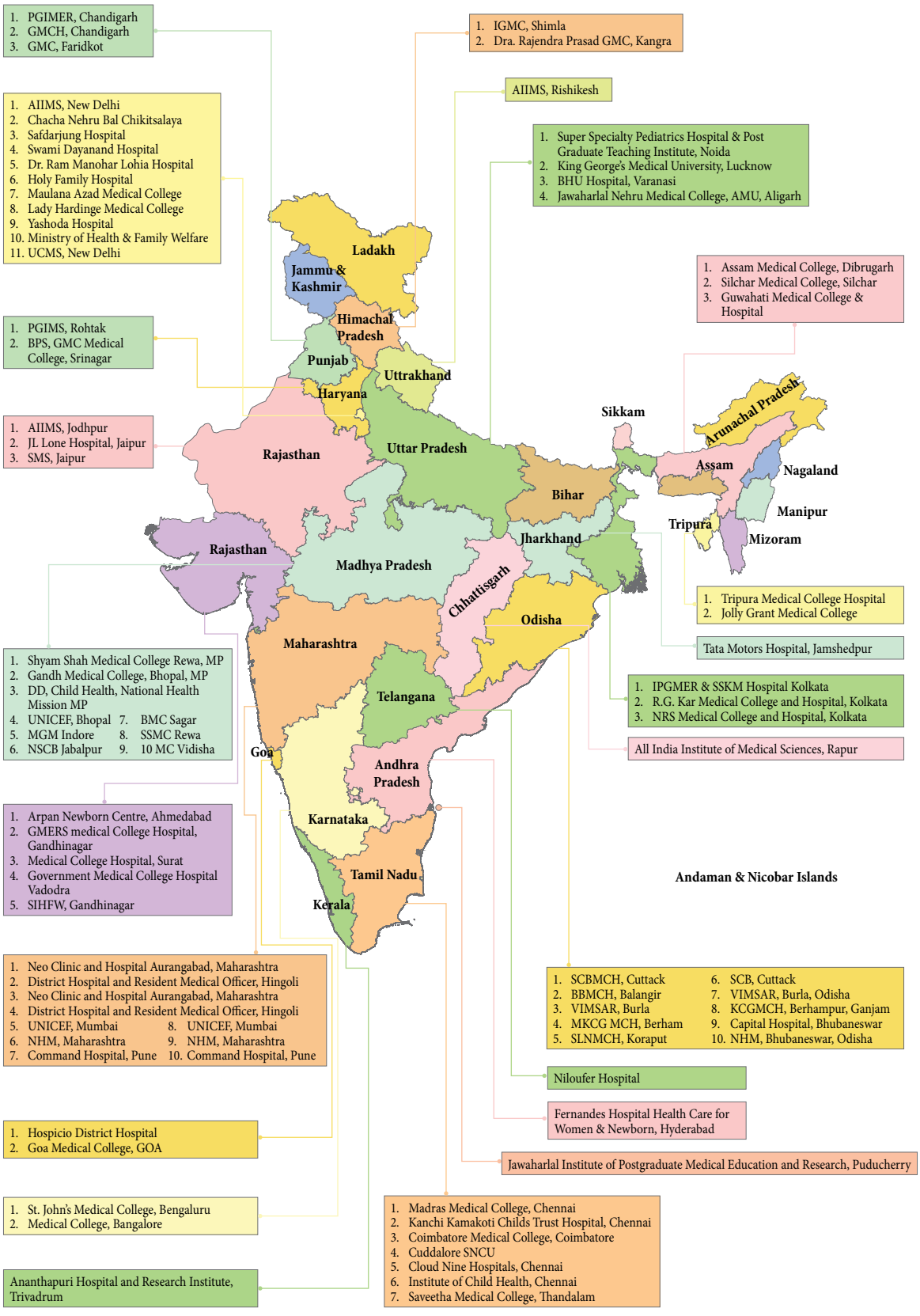
The WHO Collaborating Centre for Newborn Health at AIIMS new Delhi has prepared an e-course for training on care of preterm babies (www.pretermcare-eliminatingrop.com). The skill learning and simulation components are delivered in a workshop format (by participatory learning methodology) that is organized for teams of a doctor and a nursing officer from newborn units.

The first day is dedicated to POCQI training wherein the participants learn the basic principles of quality improvement through group discussions and group exercises and formulate their own quality improvement projects followed by hands on training on the two specified modules of preterm care over the next two days.

WHO-CC AIIMS along with PGIMER and GMCH has conducted nine workshops from 2017 to 2019 and reached out to teams from nearly 125 institutions (Figure enclosed).

Over 20 QI projects were completed in the state of Madhya Pradesh and the experience has been shared in national and international presentations. The same methodology was then implemented in the states of Odisha and West Bengal with support from UNICEF and the National Health Mission.

	Hospital	QI and preterm baby package workshop; Bhopal 4–5 December 2018
1.	Govt Medical College, Bhopal	To initiate feeding in eligible LBW infants within 24 hours admitted in SNCU from 20% to 80% over 6 weeks.
2.	Medical College, Jabalpur	To increase the duration of KMC (at least 3 hours/day) in eligible neonates from current level to at least 60% over 8 weeks.
3.	Medical College, Vidisha	To decrease the proportion of neonates admitted with hypothermia from current level to 10% over 3 weeks.
4.	Medical College, Rewa	To increase the initiation of breast feeding within 1 hour in mothers delivering by LSCS from x% to y% over 8 weeks.
5.	Medical College, Indore	To increase the proportion of health-care workers following correct hand hygiene steps from 20% to 60% over 4 weeks.
6.	Medical College, Gwalior	To increase the proportion of health-care workers following correct hand hygiene steps from 20% to 60% over 4 weeks.
7.	Medical College, Sehore	To increase the duration of KMC at least 4 hours per day in eligible neonates from 25% to 60% over 4 weeks.
8.	Medical College, Dhar	To increase the duration of KMC rates in eligible neonates from 30% to 60% over 4 weeks.
9.	Medical College, Chhindware	To decrease the use of oxygen cylinders in eligible neonates from 7-8 per day to 5 per day over 3 weeks.
10.	Medical College AIIMS, Bhopal	To decrease the incidence of hunger cries from 100% to 50% over 3 weeks.
11.	Medical College, Ujjain	To increase the duration of KMC rates in eligible neonates from 13% to 50% over 8 weeks.
12.	Medical College, Barwani	To improve the rate of KMC among eligible preterm infants from current 10% to at least 50% over a period of 6 weeks.
13.	Medical College, Dhar	To decrease the proportion of babies admitted to SNCU Dhar who are initiated on oxygen from 50% to 30% in six weeks.
14.	Medical College, Mandsaur	To decrease the proportion of oxygen therapy in preterm infants within 8 weeks.
15.	Medical College, Satna	To increase the duration of KMC from baseline of 2 hours to 4 hours in eligible preterm infants in 6 weeks.
16.	Medical College, Ujjain	To increase proportion of eligible preterm infants initiated on expressed breast milk from 20% to 70%.
17.	Medical College, Vidisha	To decrease initiation of antibiotics from 60 to 40% over a period of 6 weeks.
18.	Medical College, Sehore	To decrease proportion of babies at any given time on oxygen from 70% to 50% over 8 weeks.
19.	Gandhi Medical College, Bhopal	To increase KMC rate from 20 to 40% by 4 weeks.
20.	JP Hospital, Bhopal	To increase the duration of KMC from baseline of 2 hours to 4 hours in eligible preterm infants in 6 weeks.


1. PGIMER, Chandigarh
2. GMCH, Chandigarh
3. GMC, Faridkot
1. IGMC, Shimla
2. Dra. Rajendra Prasad GMC, Kangra
AIIMS, Rishikesh
1. AIIMS, New Delhi
2. Chacha Nehru Bal Chikitsalaya
3. Safdarjung Hospital
4. Swami Dayanand Hospital
5. Dr. Ram Manohar Lohia Hospital
6. Holy Family Hospital
7. Maulana Azad Medical College
8. Lady Hardinge Medical College
9. Yashoda Hospital
10. Ministry of Health & Family Welfare
11. UCMS, New Delhi
1. Super Specialty Pediatrics Hospital & Post Graduate Teaching Institute, Noida
2. King George's Medical University, Lucknow
3. BHU Hospital, Varanasi
4. Jawaharlal Nehru Medical College, AMU, Aligarh
1. Assam Medical College, Dibrugarh
2. Silchar Medical College, Silchar
3. Guwahati Medical College & Hospital
1. PGIMS, Rohtak
2. BPS, GMC Medical College, Srinagar
Ladakh
Jammu & Kashmir
Himachal Pradesh
Punjab
Uttrakhand
Haryana
Sikkam
Arunachal Pradesh
1. AIIMS, Jodhpur
2. JL Lone Hospital, Jaipur
3. SMS, Jaipur
Rajasthan
Uttar Pradesh
Assam
Nagaland
Bihar
Manipur
Tripura
Mizoram
Jharkhand
Rajasthan
Madhya Pradesh
Chhattisgarh
Odisha
1. Tripura Medical College Hospital
2. Jolly Grant Medical College
Tata Motors Hospital, Jamshedpur
Maharashtra
1. Shyam Shah Medical College Rewa, MP
2. Gandh Medical College, Bhopal, MP
3. DD, Child Health, National Health Mission MP
4. UNICEF, Bhopal
5. MGM Indore
6. NSCB Jabalpur
7. BMC Sagar
8. SSMC Rewa
9. 10 MC Vidisha
Telangana
1. IPGMER & SSKM Hospital Kolkata
2. R.G. Kar Medical College and Hospital, Kolkata
3. NRS Medical College and Hospital, Kolkata
Goa
All India Institute of Medical Sciences, Rapur
Andhra Pradesh
1. Arpan Newborn Centre, Ahmedabad
2. GMERS medical College Hospital, Gandhinagar
3. Medical College Hospital, Surat
4. Government Medical College Hospital Vadodra
5. SIHFW, Gandhinagar
Karnataka
Andaman & Nicobar Islands
Tamil Nadu
Kerala
1. Neo Clinic and Hospital Aurangabad, Maharashtra
2. District Hospital and Resident Medical Officer, Hingoli
3. Neo Clinic and Hospital Aurangabad, Maharashtra
4. District Hospital and Resident Medical Officer, Hingoli
5. UNICEF, Mumbai
6. NHM, Maharashtra
7. Command Hospital, Pune
8. UNICEF, Mumbai
9. NHM, Maharashtra
10. Command Hospital, Pune
1. SCBMCH, Cuttack
2. BBMCH, Balangir
3. VIMSAR, Burla
4. MKCG MCH, Berham
5. SLNMCH, Koraput
6. SCB, Cuttack
7. VIMSAR, Burla, Odisha
8. KCGMCH, Berhampur, Ganjam
9. Capital Hospital, Bhubaneswar
10. NHM, Bhubaneswar, Odisha
Niloufer Hospital
Fernandes Hospital Health Care for Women & Newborn, Hyderabad
1. Hospicio District Hospital
2. Goa Medical College, GOA
Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry
1. St. John's Medical College, Bengaluru
2. Medical College, Bangalore
1. Madras Medical College, Chennai
2. Kanchi Kamakoti Childs Trust Hospital, Chennai
3. Coimbatore Medical College, Coimbatore
4. Cuddalore SNCU
5. Cloud Nine Hospitals, Chennai
6. Institute of Child Health, Chennai
7. Saveetha Medical College, Thandalam
Ananthapuri Hospital and Research Institute, Trivadrum

Annex 3
India: QI Projects under National Labour Room Improvement Initiative supported by AIIMS

	Kolkata
1.	We aim to increase the percentage of the resident doctors washing hands for minimum of 2 minutes before conducting vaginal deliveries in our labour room by 20% from baseline in 4 weeks' time.
2.	We aim to increase the Percentage of Mothers entering SNCU to feed their admitted babies, by 20% from current baseline of about 5% within next 4 weeks.
3.	Aim statement: We aim to increase the percentage of patients delivering vaginally in presence of birth companion from current 25% to 70% in 4 weeks.
4.	Reduce the caesarean section rates at CNMCH (and Diamond Harbour GMCH) from the current 40% (at both centres) to 30%, starting with two units (units 2 and 3) in CNMCH, by 6 March.
	Vijayawada
1.	To increase the percentage of women delivering in the labour ward in the presence of a birth companion from 50 % to 90 % in 3 weeks.
2.	To improve hand hygiene compliance of health-care providers in labour room while conducting delivery from 0% to 50 % in 6 weeks.
3.	To increase the generation of real time partogram in women delivering vaginally in the labour room from 40% to 90% in 4 weeks.
4.	To increase skin-to-skin contact of all babies born in labour room and going for routine care from 40% to 90% in 4 weeks.
	Rohtak
1.	Increase early initiation of breast feeding (within 1 hr of vaginal birth) from current baseline by 40% in next 4 weeks.
2.	Increase the percentage of patients delivering vaginally in presence of birth companion from current 0% to 20% in 4 weeks.

	Ranchi
1.	To inculcate the practice of effective communication skills among resident doctors of the Obstetrics and Gynecology department of RIMS from existing baseline to 50% within a period of 6 weeks.
2.	Administration of injection oxytocin 10 IU IM within 1 minute of birth of baby in all delivery patients at labour room of Sadar Hospital, Ranchi from 50% to 80% within 6 weeks.
3.	Initiation of breastfeeding within 1 hour of caesarean delivery in low-risk pregnancies from 0% to 60% in maternity OT, RIMS, within 6 weeks.
4.	Establish the use of surgical safety checklist in maternity OT/LR of dept of obstetrics and gynaecology in RIMS in 6 weeks from 0% baseline to 50%.
	Cuttack
1.	To increase the percentage of early initiation of breastfeeding within 30 minutes of delivery in all eligible neonates from the current baseline to 80% within 4 weeks.
2.	To increase the percentage of plotting of real-time partograph in all eligible patients in labour from baseline to 80% in labour room of SCB medical college and hospital by one month. (1–31 December 2019).

Annex 4
India: QI projects for maternal and newborn care supported by NQOCN

Delhi: Kalawati Hospital	
1	Improving IV cannula capping practice.
2	Effect of application of Developmentally Supportive Care (DSC) on neurobehavioral outcome of preterm VLBW neonates.
3	Decreasing average patient wait time in OPD over a period of 6 weeks.
4	Use of education program in improving antibiotics prescription in pediatric department.
5	HEADSS assessment in adolescent inpatients.
Delhi: Dr RML Hospital, New	
1	Increasing EBM intake in newborns in NICU.
2	Initiation of early skin-to-skin contact in c-section babies.
3	Increasing handwashing practices in NICU.
Delhi: UCMS, GTB Hospital	
1	To increase the percentage of partograph filled for the vaginal deliveries in LR-1 from 10% to 60% in 4 weeks.
2	To increase the % of mothers receiving IM10 U oxytocin within one minute of delivery from baseline 50% to 95% in 4 weeks' time in LR1 & LR2 during AMTSL.
3	To increase the percentage of early initiation of breastfeeding (within one hour) in mother undergoing uncomplicated caesarean sections in maternity OT from the baseline by 30% in 4 weeks.
4	To initiate near-miss event recording and audit in the department of ObGyn from current baseline of 0%.
5	Prevention of hypothermia in babies during transfer to NICU.
6	Initiation of breastfeeding within 1 hour of birth.
7	Improving ROP screening rate among NICU graduates.
Himachal Pradesh	
1	To reduce the number of urine C/S samples reported as containments from Female surgery ward from 25% to 10% by improving sample collection by 2 months.
2	To improve the quality of presentation of post-graduate students from 60% to 80% in 4 weeks.
3	To decrease the proportion of neonates admitted with hypothermia from current level to 10% over 3 weeks.
4	To increase the proportion of health care workers following correct hand hygiene steps from 20% to 60% over 4 weeks.

	Karnataka
1	Prevent Central Line bloodstream infections.
2	Improve NICU pain management.
3	Prevent neonatal hypoglycemia.
4	Newborn X-ray exposure.
5	Prevent neonatal hypothermia.
6	Patient transport time reduction.
7	Reducing cost of radiological examination.
8	Practice hand hygiene.
9	Scale up KMC.
10	Promote early breastfeeding.
11	Practice hand hygiene.
12	Promote delayed cord clamping.
13	Promote immediate skin to skin care.
14	Promote early breastfeeding.
15	Manage neonatal asphyxia.
	Karnataka: GMC, Thrissur
1	To increase the percentage of deliveries conducted using safe delivery checklists from 30% to 70% in two weeks.
2	To increase the percentage of normal vaginal deliveries in which breastfeeding was initiated within 1 hour from 30% to 70% in two weeks' time.
	Kerala
1	To increase the utilization of safe childbirth checklist to >90% at labour room, GMC, TVM within 4 weeks.
2	To increase rate of initiation of breastfeeding within 1 hour of birth to >80% from the existing rate, by 8 weeks.
3	To introduce and ensure completion of filling the patient satisfaction feedback form in Unit II from 0% to 30% in the next 6 weeks.
	Madhya Pradesh
1	To improve administration of antenatal corticosteroids (ANCS) among identified preterm labour/delivery cases (GA 24–34 weeks) coming to Sheopur district hospital from 25% to 90% in one month.
2	To increase the practice of respectful maternity care for pregnant women delivering at CHC Pichhore from existing baseline of 0% to 80% over a period of 4 weeks.

3	To improve the plotting of real-time partograph from current (30%) to 50% at CHC Kolaras over a period of 4 weeks starting from 18 February 2020.
4	1. To improve the percentage of newborn babies who are eligible for early initiation of breastfeeding from 90% to 100% within four weeks.
5	2. Pediatrician, gynaecologist, staff nurse on duty and doctor on duty in DH Alirajpur to increase the percentage of delayed cord clamping in eligible live newborns from baseline to 60% to 100% in 6 weeks.
6	1. To correctly fill the delivery register in labour room from baseline 0% to 30% over
4	1. To improve the percentage of newborn babies who are eligible for early initiation of breastfeeding from 90% to 100% within four weeks.
7	2. To increase KMC hours for hemodynamically stable (eligible) babies in SNCU from 3 hours to 8 hours over 2 months from 12 March 2020 to 11 May 2020.
8	To increase the early initiation of breastfeeding within 1 hour of NVD in labour room of JP Hospital from 60% to 90% in 3 months.
9	To increase the percentage of newborns receiving skin-to-skin contact at time of birth from current 0% to 70% in 4 weeks starting from 19 February 2020 to 19 March 2020.
10	Increase Vit – K injection administration coverage at birth.
11	Reduction in hypothermia in babies admitted to SNCU from 40% to < 10% in 2 weeks.
12	Promote immediate skin to skin care in the labour rooms
13	Increase KMC among eligible inborn neonates admitted to SNCU from 50% to 70% in 03 months.
14	Promote initiation of early breast feeding among NVD.
15	Avoid unnecessary admissions to decongesting SNCUs.
16	Increase hand hygiene in newborn unit- increase use of alcohol-based hand rub from 44ml per baby per day to 100 ml.
17	Reduction in hypothermia at 01 hour after birth.
18	Reduce severe Birth Asphyxia among Inborn admissions to SNCU.
19	To decrease hypothermia among babies admitted to SNCU from (50-90%) to 30% in 6 weeks.
20	To reduce surgical site infection post LSCS from ~50%-10% from Dec. 18 to March 19.
21	Increase KMC duration 3 hrs. to 5 hrs. in 01 month.
22	Improve birth asphyxia management in labour room
23	To increase the duration of KMC (at least 3hrs/day) in eligible neonates from current level to at least 60% over 8 weeks.
24	To decrease the proportion of neonates admitted with hypothermia from current level to 10% over 3 weeks.

25	To increase the initiation of breast feeding within 1 hour in mothers delivering by LSCS from x% to y% over 8 weeks.
26	To increase the proportion of health care workers following correct hand hygiene steps from 20% to 60% over 4 weeks.
27	To increase the proportion of health care workers following correct hand hygiene steps from 20% to 60% over 4 weeks.
28	To increase the duration of KMC at least 4 hours per day in eligible neonates from 25% to 60% over 4 weeks.
29	To increase the duration of KMC rates in eligible neonates from 30% to 60% over 4 weeks.
30	To decrease the use of oxygen cylinders in eligible neonates from 7-8 per day to 5 per day over 3 weeks.
31	To decrease the incidence of hunger cries from 100% to 50% over 3 weeks.
32	To increase the duration of KMC rates in eligible neonates from 13% to 50% over 8 weeks.
33	To improve the rate of KMC among eligible preterm infants from current 10% to at-least 50% over a period of 6 weeks.
34	To increase the duration of KMC from baseline of 2 hour to 4 hours in eligible preterm infants in 6 weeks.
35	To decrease proportion of babies at any given time on oxygen from 70% to 50% over 8 weeks.
36	To increase proportion of eligible preterm infants initiated on expressed breast milk from 20% to 70%.
37	To decrease initiation of antibiotics from 60 to 40% over a period of 6 weeks.
38	To decrease the proportion of babies admitted to SNCU Dhar who are initiated on oxygen from 50% to 30% in six weeks.
39	To increase KMC rate from 20 to 40% by 4 weeks.
40	To increase the duration of KMC from baseline of 2 hour to 4 hours in eligible preterm infants in 6 weeks.
41	Early initiation of breastfeeding and skin to skin contact immediately after birth in labour room and labour OT (indore)
Madhya Pradesh: NSCB Medical College, Jabalpur	
1	To improve the utilization of the safe childbirth checklist in all the deliveries in labour room from 0% to 90% in 2 months.
2	To increase the percentage of deliveries monitored using real-time partograph in labour room from 70% to 100% in two months.

3	To initiate the utilization and filling of complete and correct Safe Surgery Checklist (SSC) in surgeries in maternity OT from 0% to 80% in 8 weeks.
4	To increase near-miss audit from 0% to 60% in obstetric ICU.
5	To improve the percentage of newborn babies attended to by paediatrician from 50% to 100% in labour room in next two months.
	Maharashtra
1	Increasing use of growth chart in ELBW babies.
2	Increasing use of sucrose analgesia in neonates during invasive procedures.
3	Increasing use of preterm monitoring growth chart.
4	Developmental supportive care.
5	Increasing number of babies receiving KMC.
6	Increasing high risk clinic follow up.
7	Increase hand sanitizer use in NICU.
8	Improving normothermia in healthy newborns.
9	To reduce dropout rate of pregnant women for receiving prescribed doses of iron sucrose injection to manage anaemia.
	Maharashtra: MGIMS, Wardha
1	To increase the KMC sessions for the LBW babies in postnatal ward from 0% to 50% in next six weeks' time.
2	To increase the duration of STS (60 minutes) and early breastfeeding in healthy late preterm and term babies after normal vaginal delivery to more than 90% in the next six weeks' time.
3	To increase the usage of partograph in eligible mothers from existing 90% to 95% in the LR in the next six weeks.
4	To increase duration of KMC for stable babies weighing less than 1.8 kg in NICU from the current 1–2 hours to more than 6 hours/day/baby in the next six weeks.
5	To initiate skin-to-skin contact and early initiation of breastfeeding in healthy term neonates born by caesarean section between 8 a.m. to 2 p.m. from 0% to 50% in next six weeks.
6	To increase the use of feedback forms (specific to maternal and neonatal health care) at the time of discharge in the PNC ward to more than 90% in next four weeks.
7	To estimate blood loss during delivery using V drape and to increase the usage of V drape from current 0%–5% to more than 50% during vaginal deliveries in next four weeks.
8	Reducing decision to delivery time in LSCS for 90 minutes to 30 minutes
9	Decreasing hypothermia among admitted newborns.
10	Increase exclusive breast milk feeding in sick neonates.

11	Reducing phlebitis from 50% to 25% among admitted children.
12	Improve partograph use in all eligible women in labour.
13	Improving exclusive breastfeeding from 65% to 90%.
14	Reducing incidence of pressure ulcers among elderly patients.
15	To Establish Systematic Good Practice Labour Delivery Protocol from existing 5 % to 25% in vaginal deliveries within 6 weeks.
Maharashtra: BJ Medical College, Pune	
1	To initiate and improve the utilization of safe surgery checklist in LSCS patients in the maternity OT from 0% to >90% in 1 month.
2	To increase the percentage of deliveries monitored using real-time partograph in the labour room from baseline (0%) to >90% in 4 weeks.
Maharashtra: Aurangabad	
1	Increasing use of growth chart in ELBW babies.
2	Increasing use of sucrose analgesia in neonates during invasive procedures.
3	Preterm monitoring growth chart.
4	Developmental supportive care.
5	Increasing number of babies receiving KMC.
6	Increasing high risk clinic follow up.
7	Increase hand sanitizer use in NICU.
8	Improving normothermia in healthy newborns.
Rajasthan: SN Medical College, Jodhpur	
1	To improve communication between the pregnant women and labour room staff for respectful maternal care.
2	To Improve use of safety birth checklist from existing 0% to 50% in 15 days in all normal vaginal deliveries.
3	To improve initiation of breastfeeding within 1 hour in all normal vaginal deliveries from a baseline of 40% to 80% in one month.
4	To chart a simplified partograph in real time for all high-risk deliveries in labour room in night shift.
5	To increase hand hygiene compliance in emergency obstetric OT.
Rajasthan: SMS Hospital Jaipur	
1	To improve the filling of the surgical safety checklist (SSC) in emergency/elective CS in maternity OT from existing 10% to 50 % in 3 weeks.
2	To improve increase giving pitocin (oxytocin) within one minute in normal delivery patient from current 60% to 90% in one month.

3	To initiate breastfeeding within one hour of uncomplicated normal delivery in labour room over 4 weeks.
	Telangana
1	To Increase the duration of KMC (in Hours) in LBW Babies < 2000gm admitted to L-II / Inborn care from existing duration of 2 hr. to 8 hr. over a period of 2 months.
2	To Improve rate of Hand Hygiene (at entry) compliance in SNCU level III by 50% over baseline over a period of 2 months among the health care workers.
3	To reduce the incidence of hypothermia (T<36.5 C) at admission from existing proportion of around 80% to 40% within 6 weeks among Neonates transferred from ER of MGM Warangal to Level III NICU.
4	To increase the duration of KMC from 1 hr. to 6 hr. in babies less than 2 kgs who are haemodynamically stable.
5	To reduce the incidence of admission hypothermia (T<36.5 C) in neonates over a period of 2 months.
6	We aim to lower the incidence of hypothermia as defined by core temperature < 36.5 C as measured on digital thermometer in axilla in neonates visiting SNCU OPD and still admitted in maternity ward from 50% to 25 % in SNCU, Nalgonda by 6 weeks.
7	We aim to improve the first follow up visit of low birth infants discharged from SNCU, Khammam by 50% from baseline by next 3 months.
8	We aim to improve the coverage of vitamin K administration within 24 hrs after birth in neonates born in MCH, Sangareddy from 50% to 80% in the next 6 weeks.
9	To increase the hand hygiene compliance by every person entering the SNCU from 15%to 50% at point of time daily over a period of 4 weeks.
10	We aim to improve the coverage of vitamin K administration within 24 hrs after birth in neonates born in MCH, Sangareddy from 50% to 80% in the next 6 weeks.
11	To Increase the duration of KMC (in Hours) in LBW Babies < 2000gm admitted to L-II / Inborn care from existing duration of 2 hrs to 8 hrs over a period of 2 months.
	Telangana: Osmania Medical College, Hyderabad
1	To increase the percentage of deliveries conducted using safe childbirth checklist in labour room from the current 0% to 50% by 6 weeks.
2	To decrease the incidence of birth asphyxia in newborns of SNCU, Niloufer Hospital, Hyderabad, by 20% from baseline within 6 weeks.
3	To increase the percentage of deliveries monitored using real-time partograph in all normal vaginal delivery in labour room from current 0% to 100% within 4 weeks.
	Uttar Pradesh
1	Percentage of women satisfied with the processes of care specifically directed to ensuring adequate privacy during active phase of labour.

2	Percentage of deliveries monitored using real-time partograph recording of labouring women in labour room.
3	To reduce fall in temperature from emergency room to SNCU.
	Uttar Pradesh: IMS BHU, Varanasi
1	To decrease the incidence of neonatal sepsis attributed deaths from 6.8 deaths/1000 patient days to 4.76 deaths/1000 patient days, i.e. 30% reduction from baseline in an interval of 8 weeks in the NICU/SNCU of IMS BHU.
2	To increase the percentage of NVD attended by birth companion of choice at LR, IMS, BHU from 20% to 70% within 8 weeks of time.
3	To improve the percentage of biomedical waste management compliance from 0% to 50% in LR BHU within 8 weeks.
4	To increase the percentage of mothers and babies identified using tags in labour room and Mat. OT of IMS, BHU from 0% to 50% within 8 weeks.
5	To improve the percentage of the early initiation of breastfeeding rates in vaginally delivered neonates of IMS BHU from 70% to 90% in 2 weeks.
	Uttarakhand: GMC Haldwani
1	To increase the percentage of early initiation of breastfeeding (within 1 hour) in all the babies born to mothers with normal vaginal delivery from 50% to 80% by 4 weeks.
2	To increase the percentage of newborns delivered on mother's abdomen in normal vaginal deliveries (except those which require immediate resuscitation) from current 0% to >50% within four weeks.

Annex 5
India: POCQI Projects supported by Alive and Thrive programme

Health facility	QI project
ANMMCH, Gaya	Increase in early initiation of breastfeeding (within one hour) in C-section deliveries from 0% to 50% from April 2019 to December 2019.
ANMMCH, Gaya	Increase in nutritional counselling from 14% to 50% for parents of children aged 0–9 months coming to paediatric OPD/immunization clinic.
AIIMS, Patna	Increase in early initiation of breastfeeding in C-section deliveries in the hospital from 0% to 50% in three months.
DMCH, Darbhanga	To improve the practice of wearing a gown from 0% to 50% and washing hands from 0% to 50% before entering into NICU of DMCH hospital in next three months for infection prevention.
PMCH, Patna	Increase in early initiation of breastfeeding in normal vaginal delivery from 0% (no data available at baseline) to 50% in the hospital in three months.
GSVM Medical College Kanpur	To improve maternal nutrition services such as height, BP, weight measurement & counselling during ANC visit from 0% to 70% and Hb measurement from 58% to 70% in four months.
GMC Kannauj	Improving early initiation of breastfeeding in normal vaginal deliveries in labour room from 20% to 80% within next 3 months.
	Improving exclusive breastfeeding counselling from 15% to 80% in three months to recently delivered mothers in the postnatal ward.
BRD Medical College Gorakhpur	Improve screening of malnourished children in the age group of 6 months to 3 years from 0% to 60% and counselling of parents of MAM children on complementary feeding from 0% to 60% in nine weeks.
Tripolia Social Service Hospital, Patna Bihar	Increase in early initiation of breastfeeding from 0% to 40% in the uncomplicated free C-section delivery in the hospital within two months.
	Increase in early initiation of breastfeeding from 0% to 30% in cases of the normal vaginal delivery in the hospital in two months.

Annex 6
Bangladesh: QI projects

	Cox's Bazar
1	Ensure the use of partograph in all admitted labour women to identify the high-risk mother from 40% to 100% within 2 months in labour ward.
2	To increase percentage of newborns whose temperature is measured at 90 minutes after birth from 20% to 80% in labour ward in 2 months.
3	To increase percentage of newborns whose temperature is measured at 90 minutes after birth from 20% to 80% in special newborn care units- SCANU ward in 2 months.
4	To increase percentage of KMC services to eligible newborns (<2 kg) from 10% to 100% in SCANU within 2 months.
	Jamalpur
1	To improve checking and recording temperature of newborns within 60 to 120 minutes of birth from 0% to 100% within 2 weeks.
2	To ensure KMC of each eligible baby for at least 9 hours a day.
3	To Improve uninterrupted skin-to-skin contact for babies just after birth for at least 90 minutes who were born in a facility from 20% to 80% within 1 month.
	Jamalpur
1	To ensure 24 hour stay of mother at facility after delivery from 10% to 70% within 1 month.
2	To improve uninterrupted skin-to-skin contact for babies just after birth for at least 90 minutes for those born in facility from 40% to 80% within 1 month.
	Kurigram
1	Increased monitoring of temperature for LBW (low birth weight) newborns admitted in special care newborn unit (SCANU) from 0% to 100%.
2	To increase the percentage of KMC services among all low-birth-weight babies for at least 2 hours in our hospital from 10% to 50% within 8 weeks.
3	To increase filling up of neonatal death review form from 0% to 100% within 4 weeks in SCANU.
4	Decrease new infections (acquired and diagnosed after admission) rate at SCANU among admitted newborns who were admitted without infection by half from baseline level by 8 weeks.

5	Improving immediate drying of newborns just after birth at labour room and OT from 7% to 0% within 4 weeks.
6	To improve the identification of pregnancy induced hypertension in ante natal checkup from 0.35% to 5% within 8 weeks.
7	To increase the percentage of breastfeeding with proper positioning and attachment within one hour of delivery in our facility from 60% to 100% in 4 weeks.
8	To increase the percentage of use of partograph during delivery from 0% to 100% within 12 weeks.
9	To increase the percentage of immediate drying of the newborn babies in the labour room from 30% to 100% within 4 weeks.
10	To increase the percentage of proper handwashing with 6 steps of health workers before and after treating mother and newborn from 15% to 80% by 4 weeks.
11	To increase the percentage of detection of high-risk mothers (hypertension and prone to PPH) among ANC mothers attending at our facility from 0% to 10%.
Moulvibazar	
1	Improve the accurate weight checking of newborn LBW delivered in the labour room from 0% to 100% within 4 weeks.
2	Increase the percentage of KMC service in eligible newborns at least 2 hours per shift (total 6 hours per day) from 0% to 80% in 3 months in SCANU.
3	Decrease the average duration of waiting time of ANC and PNC receiving patients from 4 hours to 1 hour by 3 months.
4	Reduction of hospital-borne infection from 15% to 7% by improvement in compliance of attendants with hand hygiene standards while entering SCANU in 3 months in Moulvibazar Sadar Hospital.
5	To improve early initiation of breast feeding (within 1 hour) from 70% to 100% within 3 months in UHC Barlekha.
6	To improve immediate drying of newborn from 70% to 100% and prevent hypothermia within 3 months in UHC Barlekha.
Patuakhali	
1	To reduce surgical site wound infection from 10% to 7% by the next 8 weeks.
2	To provide KMC for eligible babies admitted in the SCANU from 30% to 50% by the next 12 weeks.
3	To increase average daily duration of KMC for each eligible baby admitted to SCANU from 6 hours to 8 hours/day by next 8 weeks.
4	To increase average daily duration of KMC for each eligible baby admitted to SCANU from 8 hours to 12 hours/day by next 8 weeks.
5	Increasing the % of early initiation and ensuring of breast feeding of live births within one hour of delivery within 8 weeks from 20% to 100%.

6	Increasing the accuracy of recording temperature of live births within 120 minutes of delivery within 8 weeks from 0% to 100%.
7	Increasing the accuracy of recording weight of live births after one hour of delivery within 8 weeks from 0% to 100% (to detect LBW babies).
	Rangamati
1	To improve skin-to-skin contact (with body and head covered) with mothers of newborn live babies by NVD for at least 1 hour from 0% to 100% within 8 weeks.
2	To improve early initiation of breastfeeding (within 1 hour) from 50% to 100% within 12 weeks.
3	To improve temperature recording of newborn live babies within 90 minutes (1.5 hour) from 30% to 100% within 12 weeks.
4	To improve average KMC hours/day of stable LBW newborn babies weighing ≤ 2000 gm within 8 weeks from baseline to 12 hours/day.
5	To ensure monitoring the progression of labour of all eligible women by plotting partograph from 35% to 100% within 12 weeks.
	Sirajganj
1	To increase the use of partograph in all the active phases of labour patients in labour room from 0% to 100% by 8 weeks.
2	To increase immediate drying with sterile clothes from 0% to 100% during delivery and baby management in our labour room by 12 weeks.
3	To measure accurate temperature of newborn babies between 60-120 minutes in case of all live births in our labour room delivery from 20% to 80% by 8 weeks.
4	To increase KMC hour in stable LBW weighing <2000gm to >1800gm neonate in neonatal ward from "0" hour/day to 4 hour/day in 2 months.
5	To increase the percentage of women receiving a uterotonic within one minute after vaginal delivery in our labour room from 50% to 100% by 4 weeks.
6	To increase immediate drying 60% to 100% during delivery in our labour room by 8 weeks.
7	To reduce hypothermia, we aim to increase the time of skin-to-skin contact for all newborn stable babies in our facility for first 60 minutes after birth from 30% to 80% within 4 weeks.
8	To reduce hypothermia by improvement of skin-to-skin contact (2 hours) of all live-birth babies delivered in labour room from 30% to 100% by 12 weeks.

Annex 7
Nepal: QI projects

Name of Health facility	QI project
Paropakar Maternity and Women's Hospital, Kathmandu, A4:H5Nepal	To reduce the percentage of newborn born with good apgar score with low temperature at one hour (<36.5) in labour room from 35% to 5% by eight weeks.
Bharatpur Hospital, Chitwan	To increase the percentage of early initiation of breastfeeding within 1 hour of birth in all newborn >2 kg birth weight born by uncomplicated vaginal delivery in the labour room from 47% to 90% in 4 weeks.
BP Koirala Institute of Health Sciences, Dharan	Reduce the rate of wound infection in women undergoing caesarean section from 4% to 2% by 12 weeks.
Nepalgunj Medical College, Kohalpur, Nepalgunj	To increase the percentage of skin-to-skin contact after birth in all newborns with good APGAR born by uncomplicated vaginal delivery in the labour room from 0% to 80% in 8 weeks' time.
Nepalgunj Medical College, Kohalpur, Nepalgunj	To increase the percentage of initiation of breastfeeding to all newborns within 10 minutes of admission in postnatal ward from 51% to 80% in 4 weeks.
Paropakar Maternity and Women's Hospital, Kathmandu, Nepal	To increase the percentage of postnatal examination on women delivering by caesarean section who come for dressing and stich removal in OPD from 10% to 60% in four weeks

Annex 8
Sri Lanka: QI projects

Facility name	Improvement project
2017	
DGH Kalutara	To increase the percentage of babies in NICU who receive at least 10ml/kg/day EBM (within 3 hr. after the request), when they were fit enough to be fed, from 32% to 60% in 8 weeks.
De Soysa Hospital for Women, Colombo	To reduce prolonged stay (>48 hrs after birth) in the post-natal ward due to feeding problems in normal term babies delivered vaginally from 30% to-20% within 3 months.
Teaching Hospital Anuradhapura	To increase the duration of skin to skin contact following Normal Vaginal Deliveries in the labour room from a few minutes to one hour from 0% to 100% by the end of September 2017.
District Base Hospital, Dickoya	Improve Kangaroo Mother Care (KMC) in newborns with Low Birth Weight (<2.5kg) from very low level to 50% within six weeks.
Castle street Hospital, Colombo	To reduce the readmission due to infected episiotomy wounds at ward 10, in healthy mothers who underwent episiotomy from current level to zero level within 3 months.
Teaching Hospital, Mahamodara	To improve hand hygiene among staff members prior to handling neonates, by 25% from the baseline in Special Care Baby Unit, within one month.
2018	
Base Hospital, Deniyaya	To reduce the infected episiotomies among mothers who delivered at Base Hospital Deniyaya from (30% to 10%) within one month
Base Hospital, Kamburupitiya	To reduce hypothermia among babies born by LSCS on admission to NICU from 50% to 25% in two months.
Base Hospital, Elpitiya	To increase handwashing/hand rubbing before examination of each newborn in the post-natal ward from baseline to 40% within 2 months.
Base Hospital, Balapitiya	To increase the percentage of mothers who are discharged at the next immediate visiting hour, after discharge decision has been made, in all postnatal discharges from ward-9 from 60% to 80% within 4 weeks.

District General Hospital, Matara	To reduce readmission due to lactation failure for normal babies born through uncomplicated vaginal or caesarean deliveries from in two months.
District General Hospital, Kalutara	To reduce the percentage of hypothermic neonates admitting to NICU from the OT, from 75 % to 25%, over a period of 6 weeks.
Teaching Hospital, Karapitiya	To reduce the incidence of hypothermia among post-surgery babies returning to NICU from OT from 100% to 50% in 6 weeks.
Teaching Hospital, Mahamodara	To improve the percentage of eligible mothers receiving lignocaine injection prior to performing an episiotomy in labour room 1, from estimated 40% to 70% within one month.

World Health Organization

Regional Office for South-East Asia