



Monitoring and Accountability in Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH)¹

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Questions

- *What are the key reproductive, maternal, newborn, child, and adolescent health (RMNCAH) monitoring bodies globally?*
- *How do each of these say they link with country level monitoring for RMNCAH?*
- *Is there consistency of indicators for RMNCAH between all of these and, if not, where are the differences?*

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¹ This report is a part of a series of three reports related to reproductive, maternal, newborn, child and adolescent health (RMNCAH).

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1. Summary

This rapid review is an update on the key mechanisms monitoring RMNCAH globally and at low- and middle-income country level. The key bodies include global health actors (World Health Organization [WHO]), as well as monitors in maternal and child health (United Nations e.g. UNICEF), sexual and reproductive health (Gutmacher Institute, Partnership for Maternal, Newborn & Child Health [PMNCH]), Track20), RMNCAH services (WHO Universal Health Coverage Portal) and supply chains (PMNCH). These key bodies link with country-level monitoring through direct contact with governments, e.g. Ministry of Health officers (Track20, UNFPA), or via their collaborators (PMNCH).

For the purposes of this rapid review, the focus is on global level monitoring and accountability; any relation to country-level monitoring is presented where possible. Data was mainly obtained from grey literature and online health management sources. The evidence found, albeit limited, was 'gender-blind'. Disability was not a focus of this rapid review.

Key points include:

- No consistency of indicators for RMNCAH were found between mechanisms (Moller et al., 2018). Differences were found in the use of high-priority sexual and reproductive health indicators (Countdown, Gutmacher Institute, Track20), maternal (WHO), adolescent (Countdown, WHO/UNICEF), newborn and child health (UNICEF), and service inequality (Countdown). From 2017, *Countdown to 2030* included more analyses on nutrition, effective coverage, early childhood development, and conflict settings.
- The *Lives Saved Tool (LiST)* is a mathematical modelling tool which allows users to estimate the impact of coverage change of health and nutrition interventions on mortality in low- and middle-income countries (LMICs) using WHO Mortality Database data. Successful results are shown in Burkina Faso (Murray et al., 2018), Mozambique (Macicame et al., 2018), Palestine (Friberg et al., 2019), Tanzania (Niyeha et al., 2018), and Uganda (Bukusuba et al., 2018).
- Whilst the maternal death review component of WHO's Maternal Death Surveillance and Response (MDSR) is well established, 'surveillance' in MDSR emphasises the need for more accurate and complete data on number of maternal deaths, e.g. from Civil registration and Vital Statistics (CRVS) systems (Smith et al., 2017a). Data from Guinea (Millimouo et al., 2019), Kenya (Smith et al., 2017b), and Nigeria (Bhattacharya et al., 2019) highlight the gaps in the MDSR data.
- eRegistries have been used to monitor real-time health coverage (Frøen et al., 2016), including electronic Logistic Management Information Systems (eLMIS) for births in Bangladesh. However, some countries have failed to provide the collection, analysis, and notification of health data, resulting in incomplete and fragmented information (Santana et al., 2018). Countries within Africa are at different stages in the development and implementation of electronic immunisation registries (EIRs) (Namageyo-Funa et al., 2018).
- Although research has mapped the spheres of influence between academic institutions, NGOs, etc. (Hoffman & Cole, 2018; Moller et al., 2018), there is no available evidence mapping of the crossover of indicators between the mechanisms (expert comment).
- In terms of accountability, WHO and UNICEF have strengthened regional and country data collection and analysis for women's, children's, and adolescent health (Costello et al., 2018). There is also a role for civil society via the Global Financing Facility (GFF)

(Guttmacher/IPPF partnership). However, a systemic review highlighted a complex 'accountability ecosystem' with multiple actors with a range of roles, responsibilities and interactions across levels from the transnational to the local in Sexual and Reproductive Health and Rights (SRHR) (Van Belle et al., 2018). New 'no name, no blame' service audits have proved successful in sub-Saharan Africa.

2. Key approaches in global monitoring of RMNCAH

There are a number of bodies and mechanisms currently used to monitor reproductive, maternal, newborn, child, and adolescent health (RMNCAH) globally. The key bodies, and their links with country-level data, are listed below:

1. Countdown to 2030

Countdown to 2030 monitors and measures health **with a focus on intervention coverage and inequality**. The *Countdown country profiles* present in one place the latest evidence to assess country progress in improving women's, children's and adolescents' health.

Links with country-level data:

Countdown states that it "adds value by forging an evidence-based consensus on priority interventions and associated coverage indicators; producing country profiles; analysing coverage trends, equity patterns and key drivers of coverage; developing and validating new and innovative methods for collecting data on RMNCAH and nutrition, and linking science and action along the continuum of care."²

Website: <http://countdown2030.org/about/data>

2. Guttmacher Institute

Guttmacher is a non-governmental organisation (NGO) that monitors **sexual and reproductive health and rights** (SRHR) in the US and globally. It is a primary source of research and policy analysis on abortion, contraception, HIV and STIs, pregnancy and adolescents.

Links with country-level data:

Data is from surveys³ of reproductive healthcare providers and clients, both female and male, from the US and other countries. Its online 'Data Centre' allows users to "build, download and share custom tables, graphs and maps utilising data on key sexual and reproductive health

² <http://countdown2030.org/about/data>

³ Many countries rely on externally funded, population-based surveys such as UNICEF's Multiple Indicator Cluster Survey (MICS), and the Demographic and Health Surveys (DHS) to collect service related data by asking women to remember the care received during their most recent pregnancy, often up to 2–5 years in the past (Friberg et al., 2019). During the era of the millennium development goals, monitoring the progress of maternal and child health interventions relied heavily on **national household surveys**. These are conducted about once every five years and provide data on national-level trends and differentials in maternal and child health indicators (Victora et al., 2016).

indicators from the Guttmacher Institute and other trusted sources.”⁴ For example, *Guttmacher* and the IPPF⁵ have worked together for the past five years to create a series of data-rich online tools focused on adolescents’ needs for sexual and reproductive health services and information across the Global South. In 2016 they introduced the *Demystifying Data Workshop Toolkit*, the final feature of the *Demystifying Data: A Guide to Using Evidence to Improve Young People’s Sexual Health and Rights* series. The toolkit works as a supplement to the guide, which uses nontechnical language to define 70 indicators that measure need for adolescent sexual and reproductive health information and services.

Additional public-use datasets are available in the ‘Guttmacher Population Centre.’

Website: <https://www.guttmacher.org/population-center/datasets>

3. Partnership for Maternal, Newborn & Child Health (PMNCH)

PMNCH is a multi-constituency collaboration hosted by the WHO. It provides universal access to reproductive, maternal, newborn, and child health care. The specialised ‘1500+ Partner search’ - in their online ‘Knowledge Centre’ - produces results for resources for RMNCH from more than 1,500 *PMNCH* members, partners and journals.

Links with country-level data:

In order to enable countries to identify the best optimal solutions to scale up the continuum of care for maternal, newborn and child health, *PMNCH*, with financial grants by the Bill & Melinda Gates Foundation, has been supporting countries in **identifying priority high-impact interventions** in their own national contexts.

Website: <https://www.who.int/pmnch/knowledge/search/en/>

4. Track20 Project

The *Track20 Project*, implemented by Avenir Health, monitors progress towards achieving the goals of the global FP2020 initiative: to add an additional 120 million **modern family planning method users** between 2012 and 2020 (FP2020) in the world’s 69 poorest countries.

Links with country-level data:

The cornerstone of *Track20* is working **directly with Governments** via Ministry of Health officers, building their capacity to improve the quality of data being collected and how the data is being used, to inform regular monitoring and strategic decision making.

Website: http://www.track20.org/pages/our_work/country_support/dedicated_officers.php

5. World Health Organization (WHO)

This global institution collects a vast amount of RMNCAH data:

⁴ <https://data.guttmacher.org/regions>

⁵ International Planned Parenthood Federation is an important international civil society organisation. Their latest Annual Performance report (2017) is at https://www.ippf.org/sites/default/files/2018-07/APR2017_WEB.pdf

- The *WHO/UNICEF Estimates of National Immunization Coverage (WUENIC)* holds multiple data from maternal, newborn, child, and adolescent **health interventions** (UNICEF & WHO, 2017: 245-250). WHO and UNICEF jointly review data on immunisation coverage annually to estimate national coverage with routine service delivery of important vaccines⁶ (Burton et al., 2009).

Links with country-level data:

Country-level data is from reports submitted by Member States, regarding national immunisation coverage, finalised survey reports, as well as data from published and grey literature. WHO and UNICEF estimates are country-specific; that is to say, each country's data are reviewed individually, and data are not borrowed from other countries in the absence of data.⁷ Estimates are not based on ad hoc adjustments to reported data; whenever possible they consult with local experts - primarily national Expanded Programme on Immunisation (EPI) managers and WHO regional office staff - for additional information regarding the performance of specific local immunisation services.

The next estimates will be available from 15 July 2019.⁸

Website: https://www.who.int/immunization/monitoring_surveillance/en/

- The *WHO Mortality Database* is a compilation of **mortality data** by age, sex and cause of death. Number of deaths and age-standardised death rates by country, year, cause, sex and age are also presented. Cause-of-death data coded according to the ICD-9 and ICD-10⁹ are provided from 1979 to date. Population and live births are also provided.

Links with country-level data:

Data is reported annually by Member States from their civil registration systems.¹⁰ However, the files available here do not constitute a user-friendly data collection which

⁶ Estimates were made for BCG, the first and third doses of diphtheria and tetanus toxoid and pertussis containing vaccine (DTP1 and DTP3), the third dose of polio containing vaccine - either oral polio vaccine or inactivated polio vaccine (Pol3) - the first and the second doses of measles containing vaccine (MCV1 and MCV2), the third dose of hepatitis B containing vaccine (HepB3), birth dose of hepatitis B vaccine (HepBB), the third dose of Haemophilus influenzae type b containing vaccine (Hib3), the third dose of pneumococcal conjugate vaccine (PcV3), the second or third dose of rotavirus vaccine depending on number of doses recommended in national schedule (RotaC), yellow fever vaccine for countries at risk where vaccination is recommended (YFV). In 2015, estimates for the first dose of rubella containing vaccine (RCV1) and first dose of inactivated polio containing vaccine (IPV1) were added.

⁷ Annual estimates matter irrespective of whether the perspective is global or local. There is demand for estimates that Governments can rely on to produce consistent signals, as much as those that donors and global actors can usefully compare across countries and time.

⁸ https://www.who.int/immunization/monitoring_surveillance/data/mli.pdf

⁹ International Classification of Diseases, 9th and 10th revisions.

¹⁰ Statistics provide routine signals on coverage – new acceptors, total and repeat visits, commodities distributed, which are used to programme funds and human resources. But their lack of accuracy remains a serious constraint. Another constraint is that measurements vary of common indicators, both within and across countries. For example, measurement of stock-outs in a country can be at the national or at the facility level, on the day of assessment or over the last six months. Measurement of improved coverage at the local administrative level may

the average user can download and access. These are the basic underlying raw data files, together with the necessary instructions, file structures, code reference tables, etc. which can be used by institutions and organisations which need access at this level of detail AND have available the required information technology (IT) resources to use this information.¹¹

Website: <http://apps.who.int/healthinfo/statistics/mortality/whodpms/>

- The *WHO Universal Health Coverage (UHC)* data portal was launched in 2016 to help track progress towards UHC by 2030. Data includes that on **coverage of essential health services and financial protection**.

Links with country-level data:

The portal features the latest data on access to health services globally and in each of the WHO's 194 Member States, along with information about equity of access. In 2017, WHO added data on the impact that paying for health services has on household finances. Health service coverage is measured by the UHC index (a summary measure that combines 16 tracer categories). It has four main categories, namely: (1) RMNCH; (2) infectious diseases; (3) non-communicable diseases (NCDs), and (4) service capacity and access.

Website: <http://apps.who.int/gho/portal/uhc-overview.jsp>

- The *Global Health Observatory* monitors various health related indicators, including reproductive, maternal and child health.

Links with country level data:

Many of these datasets represent the best estimates of WHO using methodologies for specific indicators that aim for comparability across countries and time; they are updated as more recent or revised data become available, or when there are changes to the methodology being used. Therefore, they are not always the same as official national estimates.

Website: <https://www.who.int/gho/en/>

6. United Nations

Like WHO, this global institution collects a vast amount of RMNCAH data:

- *UNICEF* data monitors the situation of children and women in a number of countries. **Health and morbidity data** is taken from datasets and displayed in interactive data visualisations.

Links with country-level data:

be inferred from a couple years of protection, from new acceptors data, and from sub-national survey data on contraceptive prevalence. Policy makers not only face a lot of noise in their annual data but also multiple signals on presumably the same broad indicators.

¹¹ <https://www.who.int/healthinfo/statistics/morttables/en/>

Nationally representative estimates of child mortality are derived from several country-level sources, including civil registration, censuses, and sample surveys. Demographic surveillance sites and hospital data are excluded because they are rarely nationally representative.

Website: <https://data.unicef.org/topic/child-survival/neonatal-mortality/>

- Under the leadership of WHO and UNICEF, and the Inter-Agency Task Team (IATT), the *Prevention of mother-to-child transmission (PMTCT) M&E* was formed in 2005. It plays a major role in reviewing methodologies and technical issues, and providing guidelines related to monitoring of PMTCT and paediatric HIV care and treatment.

Links with county-level data:

The United Nations General Assembly Special Session on Drugs (UNGASS) monitoring framework included two indicators related to PMTCT: the proportion of women living with HIV receiving antiretroviral medicines to prevent transmission of HIV to their children, and the proportion of children born to women living with HIV infected with HIV (modelled). Paediatric antiretroviral therapy (ART) access is captured by disaggregating the HIV treatment coverage indicator by adults and children (under 15 years and over 15 years).

Website: <https://www.avert.org/professionals/hiv-programming/prevention/prevention-mother-child>

- The United Nations Population Fund (UNFPA) works in more than 150 countries and territories that are home to the vast majority of the world's people. Its mission is "to ensure that every pregnancy is wanted, every childbirth is safe and every young person's potential is fulfilled."¹²

Links with country-level data:

It provide data and analysis to show where countries are falling short, by mobilising resources and expertise, by advocating directly with Government officials or in public forums and through training and monitoring.

Website: <https://www.unfpa.org/data>

3. Country-level monitoring tools

Country capacity for monitoring and evaluation (M&E) is critical, alongside strengthening of national structures and processes for review and action (Costello et al., 2018).

Free tools and frameworks exist to facilitate progress in health information for women and children (Frøen et al., 2016). The following section includes a summary of RMNCAH monitoring tools used, supported by country evidence where available:

¹² <https://www.unfpa.org/data>

Maternal and newborn mortality

1. The Lives Saved Tool (LiST)¹³

LiST, developed by the Institute for International Programmes at Johns Hopkins Bloomberg School of Public Health and funded by the Bill & Melinda Gates Foundation, is a mathematical modelling tool that estimates the impact of scaling-up health and nutrition interventions on maternal, newborn, and child health, and stillbirths in low- and middle-income countries (LMICs). LiST is a part of Spectrum, a software package maintained by Avenir Health. The model has been used for over 10 years and is regularly updated to incorporate the latest evidence from the scientific literature and household survey data. It is a commonly used policy-planning tool for women and children's health.

The following countries used mortality data obtained from the WHO Mortality Database:

Burkina Faso

LiST was used to estimate the number of under-five lives saved and the percent reduction in child mortality that might have resulted from increased health service utilisation (Murray et al., 2018). Evidence from a cluster-randomised trial shows that a child health radio campaign increased under-five consultations at primary health centres for malaria, pneumonia and diarrhoea (the leading causes of post-neonatal child mortality in Burkina Faso), and resulted in an estimated 7.1% average reduction in under-five mortality per year. These findings suggest important reductions in under-five mortality can be achieved by mass media alone, particularly when conducted at national scale.

Mozambique

A retrospective analysis of available household survey data was conducted using LiST (Macicame et al., 2018). Baseline mortality rates, cause-of-death distributions, as well as coverage of child, newborn, and maternal interventions were entered as inputs. Changes in mortality rates, causes of death, and additional lives saved were calculated as results. All analyses were performed at national and provincial level. The modelled estimates showed that increases in intervention coverage from 1997 to 2011 saved an additional 422,282 child lives (0-59 months), 85,450 newborn lives (0-1 month), and 6,528 maternal lives beyond those already being saved at baseline coverage levels in 1997. Results concluded that increases in coverage of delivery management were responsible for most additional newborn and maternal lives saved (Macicame et al., 2018).

Palestine

Friberg et al. (2019) evaluated four existing sources of antenatal care data in Palestine to discuss the implications of their use in LiST. LiST requires health status indicators (such as mortality and morbidity), effectiveness data (impact of interventions on health status), and coverage indicators (levels of utilisation of health interventions). Maternal lives saved over seven years ranged from 5 to 39, with reduction in the maternal mortality ratio (MMR) ranging from 1 to 6%. The study concluded that clinical data collected directly in an electronic registry during antenatal contacts

¹³ <http://livessavedtool.org/>

might provide the most reliable and complete data to populate currently unavailable but needed indicators around specific antenatal care interventions.

Tanzania

Niyeha et al. (2018) used data from six nationally-representative household surveys conducted between 1999 and 2015 to examine trends in coverage of 22 lifesaving maternal, newborn, child health and nutrition (MNCH&N) interventions, nutritional status (stunting; wasting), and breastfeeding practice across mainland Tanzania, and sub-nationally in seven standardised geographic zones. LiST was used to model the relative contribution of included interventions which saved under 5 lives during the period from 2000-2015, compared to 1999 on a national level and within the seven zones (Niyeha et al., 2018).

Uganda

Bukusuba et al. (2018) examined coverage trends of key MNCH&N interventions and nutrition outcomes based on data available in nationally-representative household surveys. LiST was used to estimate the impact of stunting on child mortality and cases of stunting averted. The high impact LiST model estimated that 1,297 children under 5 years would be saved and 24,850 cases of stunting averted in the study district in southwest Uganda. LiST demonstrated that prevention of stunting would reduce child mortality in rural Uganda.

2. Maternal Death Surveillance and Response (MDSR)

MDSR, which enables a more robust collection and use of information for action, was introduced by the WHO and partners in 2012. MDSR represents a continuous cycle of identification, notification and review of maternal deaths followed by interpretation of review findings, response and action that links the health information system and quality improvement processes from local to national levels (Millimouno et al., 2019). It includes the routine identification, notification, quantification and determination of causes and avoidability of all maternal deaths, as well as the use of this information to respond through actions that will prevent future deaths (Millimouno et al., 2019). Whilst the maternal death review component of MDSR is well established, 'surveillance' in MDSR emphasises the need for more accurate and complete data on number of maternal deaths, and the 'response' involves formulating and implementing targeted recommendations. The continuous cycle provides a means for countries to aggregate and link information on cause of and factors associated with maternal death and to examine these data to develop and implement a coordinated local and national response to prevent future deaths (Smith et al., 2017a).

Guinea

An innovative digital approach (District.Team) was used to assess the organisation and functioning of the MDSR system at the local (health district) level (Millimouno et al., 2019). The evaluation highlighted weaknesses, namely insufficiency of human resources, lack of financial resources, and the need for continuous training of health care providers on emergency obstetric and neonatal care.

Kenya

Despite the MDSR tools—notification and review forms—being integrated into the District Health Information Service (DHIS) database, the system has gaps. The DHIS and Civil Registration and Vital Statistics system do not yet adequately capture all maternal deaths in Kenya (Smith et al., 2017b).

Nigeria

Of 14 priority maternal and neonatal health indicators that could be tracked through facility-based data, 12 were included in Gombe State's DHIS2.¹⁴ During July 2016-June 2017, facility-reported data in DHIS2 were incomplete at least 40% of the time, under-reported 10-60% of the events documented in facility registers, and showed inconsistencies over time, between related indicators, and with an external data source. The best quality data elements were those that aligned with Gombe's health programme priorities, particularly older health programmes, and those that reflected contact indicators rather than indicators related to the provision of commodities or content of care (Bhattacharya et al., 2019).

3. Prevention of mother-to-child transmission of HIV (PMTCT)

Since 2011, *PMTCT Progress Reports* have been published to track progress toward the Global Plan. The impact indicators selected for monitoring the Global Plan—new HIV infections among children 0–14 years and MTCT rate—were highly reliant on models, with little emphasis on developing routine monitoring systems to directly measure the impact of PMTCT programmes.

Country links

Idele et al., (2017) reviewed annual reports of comparable data on a set of core indicators by countries to UNAIDS, UNICEF and WHO, to assess progress towards achieving global and national goals and targets, as well as, data availability and quality. Many countries have not developed routine systems to longitudinally monitor children who are born to HIV positive mothers. Overall, coverage for all of the relevant interventions was low among children

4. Family planning and Track20

At the country level, surveys have filled important gaps in information on critical family planning indicators. However, their periodicity and lack of granularity make them less useful for programme monitoring. Countries must rely on less accurate, but more frequently available data from routine systems to provide information down to the local administrative level. Most countries have substantially devolved political systems and survey data cannot provide the granularity needed for monitoring.

Track20 provides tailored methods and tools to respond to highly varied decentralised environments that range from states with powerful budgets and governments like India, to

¹⁴ District Health Information Software 2 (DHIS2) is a free and open source health management data platform used by multiple organisations worldwide. More information can be found in Tull (2018): <https://www.gov.uk/dfid-research-outputs/designing-and-implementing-health-management-information-systems>

counties in Kenya with strong governments and emerging administrative and budgetary capacity:¹⁵

Country links

- Engaging with provinces in **Nigeria** on selecting priority interventions and analysing routine data;
- Collaborating with the **Zimbabwe** Ministry of Health on improvements to DHIS2 for data capture;
- Supporting the use of multiple indicators to increase efficiencies in the use of supervision resources in **Kenya**; and
- Supporting provinces to develop strategies for contraceptive growth in **Pakistan**.

Newborn and child morbidity and mortality

Routine measurement of foetal intrapartum deaths and newborn deaths that occur in health facilities can help to evaluate efforts to improve the quality of intrapartum care to save lives. However, few examples exist of readily available indicators on perinatal mortality in the facility setting (Plotkin et al., 2018). The following are examples of tools and indicators used to monitor newborn morbidity and mortality:

1. Every Newborn Tracking Tool

The *Every Newborn Tracking Tool* maps the ability of countries to determine whether four high-impact interventions (newborn resuscitation, treatment of serious newborn infection, kangaroo mother care, and antenatal corticosteroids) are monitored by the Health Management Information System (HMIS) (WHO & UNICEF, 2018: 29). The Every Newborn 2018 annual report, *Reaching Every Newborn National 2020 Milestones* (WHO & UNICEF, 2018), provides an up-to-date account of country progress reported by the 75 countries and territories who used the Every Newborn Tracking Tool in 2017 (WHO & UNICEF, 2018). The report provides an in-depth look at progress towards the eight Every Newborn Milestones,¹⁶ identifying common areas of progress and challenges. The results show overall improvement across all national milestones demonstrating country level commitment to achieving the milestones in the Every Newborn Action Plan (WHO & UNICEF, 2018).

2. Birth registries

A well-functioning Civil Registration and Vital Statistics (CRVS) system registers all births and deaths, issues birth and death certificates, and compiles and disseminates vital statistics, including information on cause of death. CRVS systems are complex adaptive systems involving multiple stakeholders in different Government agencies (at a minimum, Ministry of Health, civil registration authority, and national statistics office) (Cobos Muñoz et al., 2018).

¹⁵ http://www.track20.org/pages/our_work/country_support/data_needs.php

¹⁶ The eight national milestones by 2020 with tracer indicators results: National plans; Quality of care; Investment in health workforce; Health workforce and support; Community engagement; Parents' voices and champions; Data; and Research and innovation.

Electronic health registries - *eRegistries* - are electronic information systems for vital health data storage.¹⁷ They represent integrated systems that secure a triple return on investments: first, effective single data collection for health workers to seamlessly follow individuals along the continuum of care and across disconnected cadres of care providers. Second, **real-time public health surveillance and monitoring of intervention coverage**, and third, feedback of information to individuals, care providers and the public for transparent accountability (Frøen et al., 2016). Birth eRegistries are specifically aimed at unifying information on individuals from preconception to the postpartum period and including newborn and child health data. Such records are an emerging opportunity for maternal healthcare researchers. However, LMICs have failed to provide the collection, analysis, and notification of health data, resulting in information that is often incomplete and fragmented (Santana et al., 2018).

Bangladesh

Recently, technology has been incorporated to transition from paper-based systems towards **electronic Logistic Management Information Systems (eLMIS)**, which can range from a simple database to web-based platforms. Research from LSHTM show that Bangladesh is at the forefront of eLMIS, implementing a web-based platform for tracking commodities.¹⁸ Logistics support officers use the eLMIS to identify low performing facilities and target them for supportive supervision visits.

Brazil

The SINASC system (Sistema de Informações Sobre Nascidos Vivos, the Brazilian Live Birth Information System database)¹⁹ provides microdata for live births by sex, birth place, birth weight, age and residence of mother, plus other variables. The Secretariat of Health Surveillance (Ministry of Health) manages SINASC. This electronic registration system, developed by the SUS Computer Science Department (DATASUS), and aimed at gathering epidemiologic information on live newborn infants across the national territory. Data is collected in a cross-sectional manner at the time of birth. Since 1990, it has carried out continuous registration, with monthly consolidation of live-born infants based on completion of the Certificate of Live Birth (CLB) that is distributed in three copies to the whole country (Santana et al., 2018: 2). This nationally standardised document, also known as a 'declaration of live birth', is required for all live births, whether the delivery occurs in the home or hospital. Data from these documents is processed at the municipal level and reported to a national database.

3. Immunisation

According to WHO data, success in reducing vaccine-preventable mortality in mothers and children has been dramatic. The WHO/UNICEF working group on immunisation data quality and use has resulted in the provision of support to countries with tools and processes for improving

¹⁷ Registries are being developed and used in many high burden countries, but their potential benefits are far from realised, as few countries have fully transitioned from paper-based health information to integrated electronic backbone systems (Frøen et al., 2016).

¹⁸ <https://www.who.int/pmnch/knowledge/publications/summaries/ks20.pdf>

¹⁹ <http://datasus.saude.gov.br/sistemas-e-aplicativos/eventos-v/sinasc-sistema-de-informacoes-de-nascidos-vivos>

immunisation data quality. This is mainly via the USAID Maternal and Child Survival Programme (MCSP), currently working in 25 countries.

Country links

Countries within Africa are at different stages in the development and implementation of electronic immunisation registries (EIRs) (Namageyo-Funa et al., 2018). While some countries have EIRs that are stand alone, others have IRs that are integrated as immunisation modules within other parts of an electronic medical records system within a facility (Frøen et al., 2016; Namageyo-Funa et al., 2018).

4. Consistency and differences of data and indicators

In low-income countries, vital statistics systems are insufficient or non-existent. In these cases, population-based samples are used (Santana et al., 2018). Vital statistics are a form of national surveillance for health events, contributing to the creation of diverse **population-based indicators**. The cause of death, associated factors, and knowledge on sociodemographic characteristics of the population allow an analysis of the health situation and guide public health prevention and intervention strategies.

Country capacity for M&E is critical, alongside strengthening of national structures and processes for review and action (Costello et al., 2018). The following key bodies have various indicators when obtaining country level data:

Countdown to 2030

The country profiles used by *Countdown* include monitoring data on demographics, mortality, coverage of evidence-based interventions, nutritional status and socioeconomic equity in coverage, and information on health policies, systems and financing.²⁰

The intervention coverage indicators that *Countdown* tracks span the continuum of care from pregnancy prevention and planning to pregnancy to childbirth to the postnatal period and infancy to childhood, and include equity, nutrition, and environmental factors (UNICEF & WHO, 2017: 1-2). Therefore, the indicators come from standardised population-based surveys, including **Multiple Indicator Cluster Surveys (MICS), Demographic and Health Surveys (DHS), other national surveys and surveillance systems that meet data quality standards** (UNICEF & WHO, 2017: 245-250).

According to progress research from UNICEF and WHO (2017), indicators that did not show large increases in coverage include demand for family planning satisfied with modern methods; four or more antenatal care visits; infant and young child feeding behaviours, including early initiation of breastfeeding and exclusive breastfeeding (used as proxies for indicators of coverage of nutrition programmes); and indicators for the treatment of childhood illnesses (such as care-seeking for pneumonia, and use of oral rehydration salts and zinc for diarrhoea) (UNICEF & WHO, 2017: 2).

²⁰ <http://countdown2030.org/country-and-regional-networks/country-profiles>

Mortality data are provided by **United Nation's sources and academic collaborations**. The *Countdown* relies upon WHO global databases on policies, health workforce and financing indicators for many of the driver-related analyses. Data on availability of emergency obstetric care comes from UNFPA and the Averting Maternal Death and Disability programme; legal status of abortion data is from the UN Population Division database for 2015.²¹ Detailed information on the data sources for each of the indicators tracked by *Countdown* is available in the 'Countdown Report' annexes.

Country level data is obtained from 81 *Countdown* priority countries, which together account for 95% of maternal deaths and 90% of deaths among children under 5 years of age (UNICEF & WHO, 2017: 1). The 2017 equity technical working group is expanding its analyses to include:

1. Large set of new Sustainable Development Goal (SDG) indicators related to RMNCAH and nutrition.
2. Contraceptive use and fertility preservation counselling for modern methods and for sexually active women.

Guttmacher Institute

The majority of country level data is obtained from **DHS and other surveys**. *Guttmacher* relies on country-level partners to help measure what matters, field large-scale research studies, and get the findings to important stakeholders. These stakeholder partners bring frontline knowledge of the social and political context in their countries, expertise in data collection and analysis, and well-established platforms to get information in front of policymakers, journalists and other key audiences.²²

Guttmacher began work on this list of high-priority SRHR SDG indicators in late 2014. The recommendations take into account advocates' picks for the **highest priority SRHR topic areas** and the imperative from the **United Nations** to limit the number of SDG indicators; they also take into account whether reliable, nationally representative data are available from a significant proportion of countries, are comparable across countries and can be tracked over time (Guttmacher Institute, 2015: 2). The recommended indicators cover nine topic areas: contraception; sexual and reproductive health service availability; knowledge about SRHR; adolescent fertility; quality of care (including respect for rights); prevention of STIs; abortion; comprehensive sexuality education, and gender equality in SRHR.

PMNCH

The online database enables the user to search all members according to country, region, constituency and focus of work of *PMNCH* member countries. Country-level data is obtained from a combination of **technological innovations and private sector coordination**. There are now significant opportunities related to initiatives such as *Every Woman, Every Child* for

²¹ <http://countdown2030.org/about/data/technical-review-process>

²² <https://www.guttmacher.org/about/partnerships-collaborations>

stakeholders to engage in building demand, strengthening supply chains, and ensuring sustained availability to family planning commodities, information, and services.²³

Private sector supply chains rely heavily on technology to provide real-time stock monitoring data, indicating a potential role for their appropriate application in a health system context.

Logistic Management Information Systems (LMIS) are the backbone of monitoring supply chain performance, providing critical data for forecasting, quantification, and inventory management.

Track20 Project

Track20 works **directly with governments** in participating FP2020 countries to collect, analyse, and use data to monitor progress annually in family planning indicators, and to actively use data to improve family planning strategies and plans.

Track20 works with FP2020 pledging countries to recruit and train family planning M&E officers placed in the country Ministry of Health, Office of Population, or other relevant offices. These M&E officers serve as point persons for family planning data from both the **public and private sectors**. They collate, analyse, and disseminate family planning data for reporting, programme improvement, and strategic decision-making. These officers play a leading role in building consensus around estimates for annual reporting on family planning progress to FP2020.²⁴ *Track20* is currently supporting M&E officers in 35 countries.

WHO and UNICEF

Immunisation estimates are based on **Government reports** submitted to WHO and UNICEF and are supplemented by **survey results from the published and grey literature**. **Local experts**, primarily national immunisation system managers and WHO/UNICEF regional and national staff, are consulted for additional information on the performance of specific immunisation systems.

Estimates are derived through a country-by-country review of available data; no statistical or mathematical models are used. Draft estimates are made, sent to national authorities for review and comment and modified in light of their feedback. While the final estimates may not differ from reported data, they constitute an independent technical assessment by WHO and UNICEF of the performance of national immunisation systems. These country-specific estimates, available from 1980 onward, are updated annually (Burton et al., 2009).

Countries deliver vaccines either through routine health services or supplementary immunisation activities (SIAs), usually community-based or door-to-door immunisation campaigns. Data on the number and timing of SIAs conducted in various countries is compiled by WHO and obtained through UNICEF. Information on the coverage of vaccines not targeted by SIAs (e.g., DPT) is extracted from **DHSs** (Chakrabarti et al., 2019).

²³ <https://www.who.int/pmnch/knowledge/publications/summaries/ks20.pdf>

²⁴ http://www.track20.org/pages/our_work/country_support/dedicated_officers.php

Countries usually submit data to WHO within 12-18 months after the closure of their records for the calendar year. Data checking, compilation and verification takes considerable time at the country level, therefore sometimes the latest years of data for a country can be missing.²⁵

The WHO Global Health Observatory brings together country data in an open and accessible database for countries (Costello et al., 2018). Since 2012, the same 11 indicators on reproductive, maternal and child health, disaggregated for gender and other equity considerations, are being used for the purpose of monitoring progress towards the goals of the Global Strategy. At least 50 countries use and have up to date accurate data on the core indicators, disaggregated, as part of their M&E systems.²⁶

Of the 44 indicators used by UNICEF, linked to nine SDGs specific to children, 39 were assessed for data availability and progress. On average, 75-80% of indicators in countries either have insufficient data or show insufficient progress.²⁷

Consistency and differences in tools

The most common health facility assessment tools are the DHS Programme's Service Provision Assessment (SPA)²⁸, the WHO Service Availability and Readiness Assessment (SARA)²⁹, and the emergency obstetric and newborn care (EmONC) assessments, currently managed by Averting Maternal Death and Disability (AMDD)³⁰ in collaboration with UNFPA. The content of these tools with regards to service readiness specifically for inpatient care of small and sick newborns has not previously been systematically evaluated (Moxon et al., 2018).

For service readiness to provide inpatient care for small and sick newborns, a matrix by Moxon et al. (2018) detailed over 600 structural characteristics. Their review of the SPA, the SARA and the EmONC assessment tools identified several measurement omissions to capture information on key intervention areas, such as thermoregulation, feeding and respiratory support, treatment of specific complications (seizures, jaundice), and screening and follow up services, as well as specialised staff and service infrastructure.

²⁵ <http://apps.who.int/healthinfo/statistics/mortality/whodpms/help/faq.htm>

²⁶ https://www.who.int/woman_child_accountability/progress_information/recommendation2/en/

²⁷ <https://www.unicef.org/press-releases/nine-things-you-didnt-know-about-sdgs-and-how-they-impact-lives-children>

²⁸ Program DHS. Service Provision Assessments Calverton, MD, USA: ICF Macro; 2014. Available: <http://www.measuredhs.com/What-We-Do/Survey-Types/SPA.cfm>

²⁹ World Health Organization. Service Availability and Readiness Assessment (SARA): an annual monitoring system for service delivery: Reference Manual. 2015. http://www.who.int/healthinfo/systems/sara_reference_manual/en/

³⁰ Averting Maternal Death and Disability (AMDD). 2017. <https://www.mailman.columbia.edu/research/averting-maternal-death-and-disability-amdd>

Consistency and differences in indicators

Moller et al. (2018) aimed to compile and synthesise recommended indicators in order to document the landscape of maternal and newborn measurement and monitoring.³¹ The authors compiled, mapped and categorised existing maternal and newborn indicators proposed by or reported by different agencies, academia and professional groups. Indicators pertaining to pregnancy, childbirth, and postpartum/postnatal and newborn care were extracted and included in the indicator compilation, together with key indicator metadata.

The authors found that although considerable efforts have been made to harmonise indicator recommendations, there are still relatively few indicators shared across key monitoring initiatives, and some of those that are shared may have definitional variation (Moller et al., 2018). Rapid, wide-ranging work by a number of multi-stakeholder groups has resulted in a substantial number of indicators, many of which partially overlap and many are not supported with adequate documentation or guidance. The volume of indicators, coupled with the number of initiatives promoting different indicator lists, highlight the need for strengthened coordination and technical leadership to harmonise recommendations for improved measurement and monitoring of data related to maternal and newborn health (Moller et al., 2018).

Improving quality of indicators

Despite efforts to use facility surveys to measure the quality of family planning programmes, routine, reliable measurement and monitoring of national-level quality has not been possible (Jain, 2018). A new composite index to measure national-level quality, the National Quality Composite Index (NQCI), is proposed and has been used to compare programme quality in 30 developing countries. Index scores represent the unweighted average of scores from indicators of three different dimensions of quality: structure, process and outcome. The structural indicator, the Method Availability Index, used data from the 2014 Family Planning Effort survey, while the process indicator (the Method Information Index) and outcome indicator (the Method Success Index) used data from the most recent DHSs conducted in the included countries. Correlations between these and other indicators were examined. Overall NQCI scores were correlated with existing measures of national-level quality, but not with total fertility rate and modern contraceptive prevalence rate. The NQCI and its three components³² use data routinely collected through national surveys, and can be used to measure and monitor national-level quality of family planning programmes.

Mapping the crossover of indicators between mechanisms

Although research has mapped the spheres of influence between academic institutions, NGOs, etc. (Hoffman & Cole, 2018; Moller et al., 2018), consultations with experts for this rapid review confirmed that there is no available mapping of the crossover of indicators between the mechanisms, such as those used by PMNCH, Countdown, Guttmacher, Track 20, UHC, and WHO.

³¹ The 9 global monitoring initiatives reviewed were: Countdown to 2030; Every Newborn Action Plan (ENAP); Ending Preventable Maternal Mortality (EPMM); Global Reference List of 100 Core Health Indicators; Global Strategy for Women's and Children's Health; Quality, Equity, Dignity Network; SDGs; Technical consultation on indicators of adolescent health, and United Nations Commission on Life Saving Commodities.

³² Index scores represent the unweighted average of scores from indicators of three different dimensions of quality: structure, process and outcome.

The evidence has highlighted several challenges: Global and national investment into health monitoring and evaluation systems has been insufficient, with a notable lack of training, supervision, and funding for officers (Diaz et al., 2018). Surveillance, monitoring, and evaluation of malaria, HIV, TB, nutrition, and immunisation are usually done through separate donor funded programmes, with global disease specific guidance and reporting forms and single disease monitoring systems. This has further increased fragmentation as shown by uncoordinated parallel data collection systems, analysis of multiple data sources focusing on only one disease, and the lack of resources provided to other non-donor funded M&E programmes. More recently, in alignment with the SDGs, a set of indicators and a M&E framework have been developed specifically for maternal, newborn, and child health (UNICEF, 2016; Diaz et al., 2018) but large gaps in data remain (WHO, 2016b; Diaz et al., 2018). In part, this may be because these indicator frameworks are intended for global reporting.

5. Accountability

Accountability is concerned about how countries can monitor, review, and act on what is happening in RMNCAH. Therefore, it is also important to include this in global monitoring frameworks.

Since the Commission on Information and Accountability for Women's and Children's Health made its recommendations in 2011, efforts to strengthen accountability for results and resources for maternal, newborn, and child health have been made at all levels (Costello et al., 2018). However, less attention has been paid to accountability mechanisms for sexual and reproductive health and rights at national and sub-national level. A systematic review by Van Belle et al. (2018) found a complex 'accountability ecosystem' with multiple actors with a range of roles, responsibilities and interactions across levels from the transnational to the local.

WHO and UNICEF

In terms of accountability, WHO and UNICEF have strengthened regional and country data collection and analysis for women's, children's, and adolescent health (Costello et al., 2018):

- At the **regional level**, the WHO Regional Offices are considering the mechanisms for review and reporting to the Regional Committees. Member States need to consider the review and reporting modalities at the country level. It is envisaged that countries will develop a national level M&E/A framework to monitor performance of the programme, as well as a review process to document best practices, identify problems and make recommendations for corrective action.
- At the **country level**, the National Immunization Technical Advisory Groups (NITAGs) and the Interagency Coordination Committees (ICCs) may have important roles to play in this regard.

Accountability for ensuring sexual and reproductive health and rights is increasingly receiving global attention. The United Nations Commission on Information and Accountability for Women's and Children's Health³ resulted in a landmark Accountability Framework (WHO, 2011). This Accountability Framework refers to a cyclical process of monitoring, review and remedy/action to assess progress, document success, identify problems that need to be rectified and take prompt

action as and where needed. This process must occur at the country, regional and global levels.³³

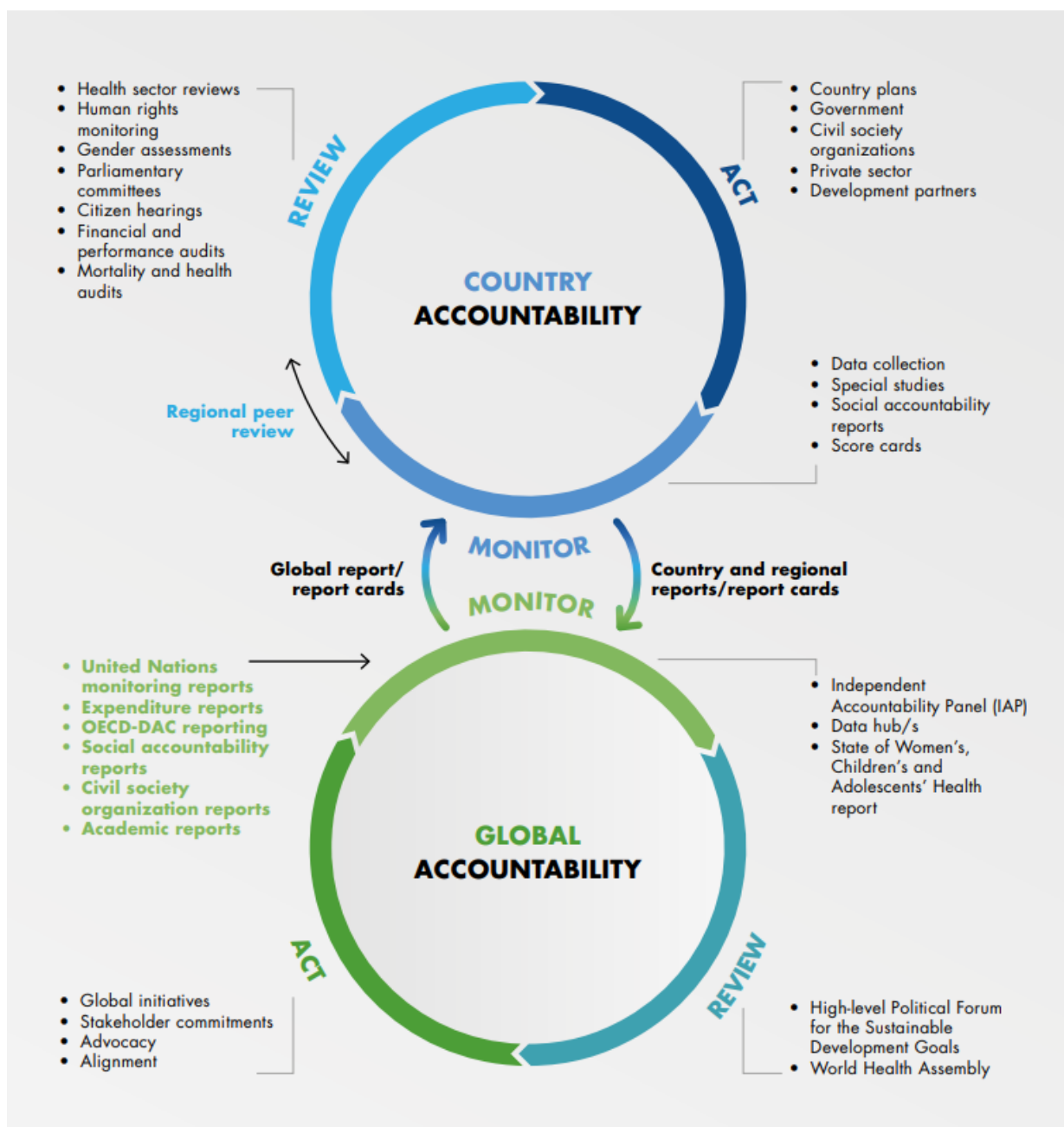
The *Global Strategy for Women's, Children's and Adolescents' Health (2016-2030)* was launched by WHO in September 2015 (WHO, 2016a). This is because the "global community could and should do more to save the lives and improve the well-being of women and children."³⁴ The *Strategy* has pledged to harmonise monitoring and reporting, improve civil registration and vital statistics, and promote independent review and multi-stakeholder engagement (WHO, 2015: 7).

The Accountability Framework (see Figure 1) aims to minimise the burden of country-to-global reporting by aligning with 34 indicators from the SDGs. An additional 26 indicators are drawn from established global initiatives for RMNCAH:

Figure 1: The Global Strategy's Accountability Framework

³³ https://www.who.int/immunization/sage/meetings/2012/november/1_MA_Framework_overview_final.pdf?ua=1

³⁴ Former UN Secretary-General Ban Ki Moon (2015): <https://www.who.int/life-course/partners/global-strategy/globalstrategyreport2016-2030-lowres.pdf>



Source: WHO (2015: 72)

Together these 60 indicators provide sufficient depth and breadth for tracking progress on the *Global Strategy* and for evidence-informed advocacy and accountability for resources, results and rights. This framework can support national SDG and health monitoring, and countries can use additional contextual indicators as relevant.

From the 60, 16 key indicators were selected as a minimum subset to provide a snapshot of progress on the *Global Strategy*. These are ambitious objectives to improve women's, children's and adolescents' health in alignment with the SDGs along three axes: 1) **Survive** (end preventable deaths); 2) **Thrive** (ensure health and well-being); and 3) **Transform** (expand enabling environments). Other subsets of indicators could be used for communication with different audiences and on different topics (WHO, 2016b).

Countdown to 2030

In 2011, *Countdown* agreed to take responsibility for major parts of the follow-up agenda of the Commission for Information and Accountability for Women's and Children's Health, and the seven low-income countries discussed in the first Global Strategy for Women's and Children's Health that were not already included as Countdown priority countries were added to the list. These 75 countries were profiled in the 2012 Countdown report (Building a Future for Women and Children: The 2012 Report), the 2015 Countdown report (A Decade of Tracking Progress for Maternal, Newborn and Child Survival: The 2015 Report) and other reports and analyses (UNICEF & WHO, 2017: 241).

Guttmacher Institute/IPPF

The Global Financing Facility (GFF) is a major funding mechanism for reproductive, maternal, newborn, child, and adolescent health and nutrition (RMNCAH-N). The GFF Investors Group, which includes donors, focus country governments, United Nations agencies, private sector and civil society, adopted the GFF Civil Society Engagement Strategy in April 2017. This Strategy defines the roles and responsibilities of various stakeholders in promoting meaningful engagement of civil society, and provides guidance on their future involvement in GFF processes. If implemented, the Strategy will increase civil society participation, and involve stakeholders working on SRHR and with vulnerable groups. This will result in strengthened country-level GFF processes and ensure increased transparency and accountability.³⁵

PMNCH

As part of its role in coordinating global accountability efforts under a unified accountability framework, *PMNCH* hosts the Secretariat for the Independent Accountability Panel (IAP) established in the updated Global Strategy.

What works

Engaging stakeholders

Danhoundo et al. (2018) assessed whether engaging multiple health and non-health stakeholders resulted in maternal and newborn health services improvements in sub-Saharan Africa. They documented that engaging a broad range of stakeholders, including citizens, in social accountability initiatives targeting local health facilities can lead to improvements in maternal and newborn health services due to a heightened sense of shared ownership. They also identified higher levels of community engagement in districts where the chiefs of maternal and newborn health councils were engaged (Danhoundo et al., 2018).

'No name, no blame' strategy audits

The purpose of the *Advances in Labour and Risk Management (ALARM) International Programme* is to improve the quality of obstetric services in low-income countries, as part of the *QUARITE* (Quality of Care, Risk Management and Technology in Obstetrics) trial. To reassure the staff, they adopted a no name, no blame strategy, and by targeting the failed processes

³⁵ https://www.ippf.org/sites/default/files/2018-07/APR2017_WEB.pdf

rather than the individuals, they succeeded in substantially reducing the mortality rates. Some of the problems that the audits highlighted were surprisingly simple – for example, mothers who went into labour during the night were unable to receive oxytocin because the local pharmacy was closed. The audit brought such issues into the spotlight and a small emergency pharmacy was set up in response.

The initiative successfully reduced overall maternal deaths in hospitals by 15%, and also reduced newborn mortality. There was a substantial impact on rural and remote hospitals in Mali and Senegal, which have extra limitations relating to drug supplies, medical equipment and also training and supervision. In these hospitals, the death rate decreased by 35% as a result of the death audits. *QUARITE* is now expanding its reach to Chad, Niger, and in the future, Burkina Faso.³⁶

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³⁶ <https://horizon-magazine.eu/article/maternal-death-audits-africa-win-1-mn-innovation-prize.html>

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