Experience from a multi-country initiative to improve the monitoring of selected reproductive health indicators in Africa

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Abstract
Universal access to sexual and reproductive health remains part of the unfinished business of global development in Africa. To achieve it, health interventions should be monitored using programmatic indicators. WHO’s Strengthening Measurement of Reproductive Health Indicators in Africa initiative, implemented in Ghana, Nigeria, Kenya, Uganda, and Zimbabwe, aimed to improve national information systems for routine monitoring of reproductive health indicators. Participating countries developed action plans employing a two-pronged strategy: (1) revising, standardizing, and harmonizing existing reproductive health indicators captured through routine information-systems; and (2) building data-collection capacity through training and supervision at select pilot sites. Country teams evaluated existing and new indicators, and outlined barriers to strengthening routine measurement. Activities included updating abortion-care guidelines (spontaneous and induced abortions), providing training on laws surrounding induced abortions, and improving feedback mechanisms. The country teams updated monitoring and evaluation frameworks, and attempted to build recording/reporting capacity in selected pilot areas. Barriers to implementing the initiative that were encountered included restrictive induced-abortion laws, staff turn-over, and administrative delays, including low capacity among healthcare staff and competing priorities for staff time. The areas identified for further improvement were up-scaling programs to a national level, creating scorecards to record data, increasing collaborations with the private sector, conducting related costing exercises, and performing ex-post evaluations.

KEYWORDS
Capacity building; Family planning; Health systems strengthening; Monitoring and evaluation; Reproductive health indicators; Safe abortion

1 | INTRODUCTION

Globally, progress towards improving maternal health, especially universal access to sexual and reproductive healthcare, has been slow and uneven.¹ Reaching universal access to sexual and reproductive healthcare remains a key factor in achieving UN Sustainable Development Goal 3, “[t]o ensure healthy lives and promote well-being for all at all ages”, and, particularly goal 3.7 of ensuring, by 2030, “universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes”.²

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To reduce maternal mortality rates and improve maternal health, women must have access to high-impact interventions and quality reproductive services. Health-service interventions with the aim of reducing unmet need, preventing unsafe abortion, and managing complications due to abortion, contribute towards meeting these targets, particularly universal access to reproductive healthcare. However, to ensure these goals are met, interventions—established and implemented at a national level—should also be monitored and strengthened through the use of programmatic indicators. Global, regional, and national monitoring of carefully selected programmatic indicators would help in detecting periodic changes, identifying gaps to achieving goals, and directing actions toward achieving success.

Maternal mortality (and its causes) and unmet contraception needs were among the key monitoring indicators for assessing progress in achieving Millennium Development Goal 5, improving maternal health. Global and national monitoring can help detect changes in these indicators, aiding understanding of progress toward Millennium Development Goal 5 and its two targets: (1) reducing maternal mortality, and (2) achieving universal access to reproductive health (Figure 1). For almost all indicators, the slowest progress rates have been in African countries. Despite the continent having experienced a notable decrease in unmet family-planning needs (~1.9% between 2000 and 2015, second only to ~2.0% in Latin America and Caribbean regions), 24% of women in Africa remain without access to family planning; this is the highest percentage worldwide.

In 2007, to assist countries in this endeavor, WHO and the United Nations Population Fund developed a guide for national-level monitoring of progress toward universal access to reproductive health. The guide provided a framework (hereafter referred to as the 2007 framework) to monitor progress toward universal access to sexual and reproductive healthcare, consisting of a set of indicators supporting the collection of reproductive healthcare data. The 17 indicators presented in the 2007 framework underwent a rigorous consultation process with the goal of ensuring they addressed the main aspects of sexual and reproductive healthcare and could be used to monitor progress in terms of removing barriers, improving health systems, and positively addressing needs and risks within this area. Additionally, the 2007 framework was intended to help guide decision-making to identify and implement activities that could accelerate progress toward universal access to reproductive healthcare.

This underscores the increased need for quality indicators—crucial for intervention programs—particularly, in Sub-Saharan Africa. The 2007 framework, which remains relevant owing to renewed global commitment to reducing maternal mortality and morbidity, formed the basis for the initiative described in the present manuscript.

### 2 | PROGRAM DESCRIPTION

Between November 2012 and May 2015, the WHO’s Department of Reproductive Health and Research led the Strengthening...
Measurement of Reproductive Health Indicators in Africa initiative, providing implementation support to the Ministries of Health of Ghana, Nigeria, Kenya, Uganda, and Zimbabwe. Each country developed an action plan to strengthen information systems through the inclusion of selected reproductive health indicators (regarding family planning and safe abortion) to better monitor actions taken to reduce maternal mortality and improve maternal and reproductive health.

Technical teams from the Ministry of Health in each study country and WHO developed plans to strengthen national information systems by: (1) revising existing reproductive health indicators, (2) incorporating new family-planning and safe abortion care indicators, including post-abortion contraceptive use by method, (3) piloting both revised and new indicators at a sub-national level (through training and supervision), and (4) strengthening feedback mechanisms at both the sub-national and facility level.

Each country’s plan outlined context-specific activities that supported the two main aims of the initiative: to strengthen reproductive health indicators (their definition, collection, and monitoring) and to ensure that efforts yielded improved information for decision making.

3 | PROGRAM PLANNING

In November 2012, a multi-country workshop was convened in Nairobi, Kenya, to introduce the reproductive health-program monitoring indicators (based the 2007 framework) related to family planning and safe abortion. Country teams were comprised of Ministry of Health program officers, monitoring and evaluation officers, and WHO reproductive health technical staff (from both country offices and headquarters). During the meeting, participants received an overview of program implementation, monitoring and evaluation frameworks, and reproductive health indicators—including their characteristics, data sources, quality, and analysis (both quantitative and qualitative).

The countries present at the workshop were Ethiopia, Ghana, Kenya, Nigeria, Sierra Leone, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe. Based on the aforementioned discussions, countries conducted systematic evaluations of the status of existing reproductive health indicators (Appendix S1). This assessment was based on data sources, data quality, and strategies for improvement. At the same workshop, countries also identified and prioritized new indicators (drawn from the 2007 framework) that were based on data sources, feasibility, and requirements for routine reporting. Additionally, the country teams outlined barriers to strengthening the routine measurement of those indicators deemed to be high priority during the evaluation process.

All country teams present at the workshop were invited to submit a concept note and five countries were selected to submit full proposals for the initiative (implemented between August 2013 and December 2015). These countries were Ghana, Kenya, Nigeria, Uganda, and Zimbabwe. Across these five countries, the main objective of the proposals was to apply country-specific strategies aimed at improving the monitoring of reproductive health services and related indicators. Once the proposals were finalized and approved, the country teams conducted activities and prepared programmatic updates approximately every 6 months using a standardized reporting form (Appendix S2). A mid-point review meeting was held in Kampala, Uganda, in September 2014, where countries were able to present and share learning experiences from their strategies, update work plans, and to prepare for the final implementation phase.

Finally, in December 2015, WHO held a meeting in Accra, Ghana, to finalize and disseminate the results of the project. Of the original 10 countries invited to participate in Kenya in 2012, nine were present at the final meeting (Tanzania was absent). Countries that had implemented initiatives shared results and insights, whereas those that had not, shared their ongoing work and progress regarding reproductive health indicators.

4 | RESULTS

Based on the activities at the Kenya workshop in 2012, country teams prepared proposals that prioritized indicators and identified data sources. The majority of the core indicators prioritized, such as unmet need for family planning, adolescent birth rate, total fertility rate, and contraceptive use, were already collected as part of Demographic Health Surveys, and countries relied on these surveys to measure these indicators. The prioritized indicators that were not collected as part of Demographic and Health Surveys were identified (Table 1), and country teams identified major barriers to tracking these indicators. These barriers were grouped under the three main areas: (1) policy, national standards, leadership (including financial costs), and inadequate commitment to monitoring and evaluation activities at the sub-national level; (2) weaknesses in data collection and information systems, including inadequate distribution logistics for data collection tools, a lack of systematic feedback mechanisms, low data quality, and weak linkages among data sources; and (3) issues related to health workers, including excessive staff reporting obligations, inadequate staff numbers, and high staff turn-over.

The country teams also highlighted the importance of additional indicators for tracking the financial commitments of both internal and external sources. Based on systematic evaluations conducted in each country, a single conceptual framework was developed for strengthening the measurement of reproductive health indicators. This framework was then adapted by the country teams from Ghana, Kenya, Nigeria, Uganda, and Zimbabwe, and the individual frameworks were included in the country proposals (Figure 2).

To overcome the barriers identified above, the following approaches were systematically included in the proposals: (1) country consultations were performed to build consensus among key stakeholders; (2) high- and low-performing pilot districts (based on their performance according to existing reproductive-health indicators) were selected to use revised data-management tools prior to up-scaling; and (3) monthly/quarterly statistical bulletins on reproductive health indicators were prepared to facilitate the implementation of feedback mechanisms. Each country team tailored the implementation
of these approaches in line with their own experience, and the programs derived from the workshop are summarized below.

### 4.1 | Ghana

At the district level, new tools were developed to map the number of facilities providing reproductive-health services and to capture monthly reproductive health information summaries. The Ghana team also created new facility-level data ledgers with the intention of ensuring tools existed for capturing comprehensive abortion care data, as well as clarifying definitions for reproductive healthcare indicators. These updated data ledgers included a section (or column) for healthcare providers to record patients’ most common sources of reproductive health information. This information was considered important to the efforts of the Ministry of Health in terms of identifying the most popular means of disseminating and harnessing reproductive health messages them. This program was piloted in the Akuapim North and Atiwa Districts in the Eastern region, and Sagnarigu, East Mamprusi, and West Mamprusi in the Northern region. In these districts, the country team provided intensive training on the use of the new data ledgers and tools to healthcare workers before a pilot phase began at facilities in these five districts; the

| Country | Indicator |
|---------|-----------|
| Ghana  | Number of family planning service delivery points per 500 000 population |
|         | Number of other sources of family planning information, services, and supplies per 500 000 population |
|         | Proportion of induced abortions managed using medication (e.g. using mifepristone/misoprostol) and not surgery |
|         | Health providers trained to provide safe induced-abortion services within the full extent of the law |
| Kenya  | Number of primary health facilities providing family planning services |
|         | Number of health facilities using manual vacuum aspiration to manage induced abortion |
|         | Proportion of service-delivery points that experienced a stock-out of any induced-abortion method during a given 3-month period |
|         | Proportion of maternal deaths caused by abortion-related adverse events (spontaneous or induced) |
|         | Proportion of health facilities using revised data management tools |
|         | Number of new reproductive health indicators integrated into the National Health Information System |
| Nigeria| Number of deaths of women related to pregnancy |
|         | Number of maternal deaths attributed to abortion (spontaneous or induced) |
|         | Number of facilities offering safe induced-abortion services |
|         | Contraceptive use by method per 500 000 population \(^a\) |
|         | Number of facilities providing at least three family planning methods |
| Uganda | Proportion of hospital admissions to obstetrics/gynecology unit that were due to abortion (spontaneous or induced) |
|         | Proportion of maternal deaths attributed to abortion |
|         | Number of health providers trained to provide safe induced-abortion services within the full extent of the law |
|         | Proportion of health personnel with accurate knowledge of the legal status of induced abortion |
|         | Proportion of service-delivery points adequately prepared (with stocks and trained providers) to provide at least three contraceptive methods |
|         | Proportion of service-delivery points that use manual vacuum aspiration for management of abortion complications |
|         | Contraceptive use (including post-abortion contraception use) by method |
| Zimbabwe | Number of sexually active women aged 15–49 years who are at risk of pregnancy, not pregnant, not using contraception, and not lactating, who report trying to become pregnant for ≥2 years |
|         | Maternal deaths attributed to abortion |
|         | Abortions per 1000 live deliveries |
|         | Proportion of service-delivery points adequately prepared (with stocks and trained providers) to provide at least three contraceptive methods |
|         | Proportion of service-delivery points that experienced a stock-out of all induced-abortion methods at any one point during a 3-month period |
|         | Country funding for family planning |
|         | Donor funding for family planning |
|         | Presence of a multi-year plan for the procurement of family-planning commodities |
|         | Presence of financial commitment by stakeholders to the procurement plan |

\(^a\) Contraceptive use refers to intra-uterine devices, other long-acting reversible contraception, oral contraception, and condoms.
country team conducted joint-supervision visits every 3 months. At the time of writing, the Ghana team was in the process of planning the national dissemination of the district-level and updated comprehensive abortion care tools.

4.2 | Kenya

Owing to high staff turnover in 2013, the Kenya team faced many administrative obstacles in project implementation (including administrative changes at the province, district, county, and sub-county levels), causing significant delays. Despite these factors, the Kenyan team, in conjunction with partners (national and international non-governmental organizations working in the health sector), updated reproductive health indicators, including the provision of training on the International Classification of Diseases-10th Revision (ICD-10) for maternal deaths and cervical cancer. A national monitoring and evaluation framework was finalized, and the Kenyan team worked with partners and stakeholders (including relevant funding agencies and professional associations) to adapt safe induced-abortion care guidelines. Further, the team implemented a pilot program in the Kakamega and Kiambu districts to introduce new, and updated existing indicators from the finalized framework. Results from this pilot will be used to inform a national revision of reproductive health indicators.

4.3 | Nigeria

As part of the initiative described in the present manuscript, the Nigerian team revised sexual and reproductive health indicators, updated existing data collection tools, and worked to support the coordination mechanisms of the Nigerian health management information system. At the start of this initiative, Nigeria had a national mobile electronic database for collecting data at the sub-national level and at some healthcare facilities (mostly large hospital facilities, as clinics generally employed paper-based systems). The team and its implementing partners, including UNFPA, FHI 360, and USAID MEASURE Evaluation, held a stakeholder forum to revise the national health management information system tools, with a focus on reproductive health and induced abortion indicators. The updated tools were then presented to the national health management information systems technical working group for validation. The Nigerian team then piloted the updated tools and indicators in two states (Ekiti and the Federal Capital Territory); further, the team trained 45 healthcare providers and monitoring-and-evaluation officers to use the tools and indicators. The Nigerian team went on to conduct six mentoring visits. The pilot training resulted in increased capacity at the state level, demonstrated by improvements in the completeness and timeliness of data reporting. This was measured by the percentage of health facilities in

![Conceptual framework for strengthening the measurement of reproductive health indicators. Abbreviations: DHS, demographic health survey; HMIS, health management information system.](image)
both states involved in the pilot that provided routine data reports (including data on reproductive health and induced abortion indicators) to the national health management information system on a quarterly basis. In Ekiti State, health-facility data reporting rates increased from 18% (July–September 2013) to 67% (July–September 2014), and in the Federal Capitol Territory, rates increased from 41% (July–September 2013) to 60% (July–September 2014). As part of the project activities, the Nigerian team produced and printed 1000 copies of a quarterly reproductive-health statistics bulletin, containing updates on relevant reproductive health indicators, for distribution at national and state levels (usually within the health system but also shared with implementing partners and donors, if appropriate). At the time of writing, the Nigerian Ministry of Health was planning to scale-up the pilot program to other states and to decentralize evidence-based decision making strategies, with the aim of increasing the use of reproductive health data (presented in bulletins and within national health management information systems) at state level. These efforts also focused on improving the quality of data by reviewing the data collected and recorded in the national database. Further, the Nigerian team began to prepare and distribute a semi-annual bulletin (based on the quarterly bulletin produced for this project, but at the national level) with the aim of strengthening feedback at the sub-national level by providing state-level staff access to summarized information collected at the national level.

4.4 | Uganda

Within Uganda, there was a supportive family-planning policy environment that was reinforced by the Uganda Vision 2040 program (a national government-led consultation, launched in 2013 with the goal of, “A Transformed Ugandan Society from Peasant to Modern and Prosperous Country within 30 years”) and an ongoing national review of reproductive health care. The Ugandan team attempted to develop consensus across 15 core comprehensive abortion care indicators (including family planning counseling of mothers during prenatal care, with a particular focus on women with HIV), as well as working with partners from the Center for Health and Human Rights and Development to clarify the legal boundaries surrounding induced-abortion care for the protection of healthcare workers, and to ensure the implementation of new abortion guidelines. Several national stakeholder consultations were performed and included all parties involved in the delivery of health care (professional associations, implementing partners, and donors). The Ugandan team led the consultative process (based on discussions and review of existing indicators) that resulted in the standardization of comprehensive care indicators for patients undergoing induced-abortions and of the 15 indicators to be applied systematically, across all healthcare facilities. Additionally, the Ugandan Ministry of Health recruited legislators to act as champions to improve the policy environment for sustaining comprehensive induced-abortion care services at lower-level health facilities. As part of this initiative, the Ugandan team held a national stakeholders meeting to share up-to-date information on women’s lack of access to comprehensive reproductive health services including family planning and safe abortion services, and its impact on maternal mortality and morbidity. The Ugandan team also reviewed existing sexual and reproductive healthcare data collection tools and indicators, and finalized a comprehensive monitoring-and-evaluation framework for a national sexual and reproductive health program. The indicators were piloted in two districts (Hoima and Iganga) and feedback from health-care professionals who attended the training demonstrated that collecting data for the new indicators was feasible. Furthermore, as a result of this initiative and in co-operation with other national initiatives (Uganda Vision 2040), a costed implementation plan was developed for the national reproductive health program 2015–2020; this plan incorporated performance monitoring of the costed implementation plan, with the goal of establishing a multi-sectorial approach to monitoring said program.

4.5 | Zimbabwe

Prior to the initiative described in the present manuscript, Zimbabwe had a national integrated data-collection system. It included data-collection using death-notification forms (completed within 7 days of a maternal death), and sexual and reproductive healthcare data sheets and registers (employed at the facility level; data sheets were used to report aggregated information on a monthly basis and registers were used to capture individual patient information). The Zimbabwe team hired a new management and evaluation officer as part of this initiative and conducted a rapid situational analysis to identify weaknesses and strengths in existing data collection systems (including the use of the aforementioned tools), as well as to monitor and evaluate reproductive health indicators. Based on this analysis, the team updated both maternal mortality audit and facility-level sexual and reproductive health data sheets. The Zimbabwe team conducted a pilot program with these updated tools in Mashonaland East, Masvingo, and Matabeleland North provinces. During this pilot, the Zimbabwe team also collected qualitative feedback from health workers in these provinces and, based on the results, produced an updated and finalized national sexual and reproductive health monitoring and evaluation framework that included key indicators. Relevant individuals (in addition to the team members), specifically from the National, Provincial and District Health Information Offices were involved in the planning for this initiative, with the aim of standardizing reproductive health indicators and incorporating revised data-collection tools into existing health management systems. Additionally, the Zimbabwe team were able to include the reproductive health indicators in the existing national quarterly publication, “Health Matters”. At the time of writing, the Ministry of Health was working to disseminate the monitoring and evaluation framework to all stakeholders nationally and was working to convene a national meeting to establish the indicators across all Zimbabwe.

5 | DISCUSSION

The five countries that participated in the present initiative revised and updated national sexual and reproductive healthcare-related
indicators, and monitoring and evaluation plans, with a specific focus on family planning and safe induced-abortion services. Each country team tailored their implementation plans following the initial analysis and discussions. Country teams reported that effective collaboration with relevant stakeholders was important throughout the implementation phase. Pilot programs were implemented in at least two sub-national areas in each of the five countries to investigate the application of updated data-collection tools; alongside this, sub-national and facility-level healthcare workers received training in implementing the data-collection tools.

The work described in the present manuscript aligns with a priority area of the Ouagadougou Declaration on Primary Health Care and Health Systems in Africa. [the] acquisition, generation, sharing and use of information, research evidence and knowledge [which] is crucial so that the system can be adapted to changing circumstances, improve and develop. This declaration sought to recommend strategies for improving the provision of primary health services across nine priority areas, including health information systems. Similarly, the mid-project meeting of the present initiative, in September 2014, served as a platform for the five teams to share their experiences and learn from one another. The country teams stressed the importance of capacity building; universally, the teams reported that when delivering initial or refresher training on existing and new indicators to healthcare staff, the level of knowledge and skill among trainees varied across different facilities. Country teams reported that, in some instances, healthcare workers were unclear on the variables measured for existing indicators. Variations in data-collecting capacity across public and private facilities can also impede data collection. Further, high staff-turnover rates and shortages in human resources at sub-national facilities could present significant problems for the implementation of new indicators.

Some general problems across the participating countries were also illuminated during the project; one such concern was to ensure healthcare workers had a clear understanding of the country’s laws surrounding induced abortions and acted within them, producing an environment conducive to implementing new guidelines. The country teams reported that legal barriers resulted in delays in adapting safe induced-abortion care guidelines and in incorporating related indicators into everyday practice.

During the implementation phase, country teams highlighted the harmonization of data-collection tools as a priority. This harmonization was reported as being important, not only nationally, but also across partner organizations to ensure that data collected at the facility level were then included in higher level databases. Efforts to synchronize data collection were necessary to avoid overlap and superfluous collection, trends that can occasionally be propagated by donors and other stakeholders. Population-based surveys (such as the Demographic Health Surveys) are important but they should not be used as the sole source for core reproductive health indicators. During the implementation phase of the present initiative, the feasibility of using routine health information systems to track indicators and progress toward targets was highlighted. The development of more robust feedback loops is also crucial for improving data collection, accountability, and support to staff in the implementation of monitoring and evaluation activities to improve service provision. This could be initiated through the implementation of a bulletin, as was reported by some country teams in the present initiative, and/or the inclusion of indicators in the Reproductive, Maternal, Neonatal, Child and Adolescent Health scorecard, which is currently produced quarterly in a number of countries in the African region.

In the present initiative, effective co-ordination between country teams and other stakeholders through consensus-building meetings was important to avoid what has been described by AbouZahr and Boerma as the development of separate, parallel mechanisms responding to a donor’s requirements and not the needs of a country itself. As part of the present initiative, workshops and follow-up consultations were convened that included country teams, representatives from a country’s Ministry of Health, relevant partner organizations in the country, and academic institutions, to discuss the relevance of indicators to a country’s needs; this enabled the prioritization of indicators based on national, rather than international, requirements. Additionally, it was hypothesized that collaborating with national stakeholders to tailor the initiative to the local context and other ongoing reproductive healthcare initiatives would support stronger, more sustainable outputs compared with what could have been achieved individually.

During the course of the initiative, some limitations were encountered. Although participating countries used a two-pronged approach in implementing the project (working at the national level to build consensus, and at the sub-national level to implement changes), it was difficult to draw comparisons across the five countries. Each participating country had its own priorities and activities that were dependent upon national political conditions (particularly in terms of policies surrounding induced abortion), and interventions during the implementation phase varied depending on national-level circumstances. Additionally, high staff turnover, particularly in monitoring and evaluation positions (owing to personal reasons or, elections within higher levels of government) made it difficult to sustain field activities. During the initiative, elections in Kenya resulted in delays to activities of longer than 6 months and high staff turnover in Ghana resulted in training at sub-national facilities having to be repeated. Finally, another limitation was a lack of knowledge regarding the impact of indicators themselves; although the initiative aimed to improve data collection and use, country teams did not track changes in specific healthcare measures such as contraceptive-use rates.

The conceptual framework developed (Figure 2) provided a standard approach to measuring the outcomes of reproductive health programs in Africa. Effective implementation was facilitated by basing projects on a common protocol with a clear conceptual framework that allowed countries to tailor programs to specific settings. In terms of future steps, it was intended that country teams could: (1) scale up the intervention nationally; (2) conduct a national family-planning costing exercise (including a monitoring and evaluation plan); (3) complete an ex-post evaluation to ensure indicators are implemented; and (4) build sub-national-level capacity to ensure the generation of local reports and the use of data.

The need for robust health information systems is highlighted by the momentum and political will surrounding the sustainable
development goals. Specifically, there is a need to strengthen existing national health information systems to routinely collect complete and accurate data to enable the timely implementation of decisions, particularly in terms of induced-abortion and family planning services in Sub-Saharan Africa, where demand for limiting births is increasing. The collection and monitoring of data and indicators at the local, national, and global level would also present the necessary tools for increasing accountability. A two-pronged strategy to standardize reproductive health indicators, including stakeholder support at the national level, and increased data-collection capacity and supervision at the sub-national level, could strengthen the routine gathering of information on family planning and safe induced-abortion services.

AUTHOR CONTRIBUTIONS
MB, ÖT, and LS guided the conception, design, and implementation of the project, and prepared the manuscript. NM and AAA assisted in the conception and design of the project, provided technical assistance, and edited and revised the manuscript. All authors approved the final manuscript and agreed to be accountable for all aspects of the work.

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CONFLICT OF INTEREST
The authors have no conflicts of interest. The views expressed in this article are those of the authors and do not necessarily represent the views, decisions, or policies of the institutions with which they are affiliated.

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SUPPORTING INFORMATION
Additional Supporting Information may be found online in the supporting information tab for this article.

Appendix S1. Evaluation of reproductive health indicators.
Appendix S2. Standardized reporting form.