Measuring Results in a Challenging Environment: Maternal Mortality in Afghanistan

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1 Introduction

Cross-cultural research raises ethical and practical concerns stemming from differing perspectives and sensitivities across a range of situations, groups, genders, and social and political cleavages. Gathering research data in the context of ongoing or recurrent violent conflict heightens respondent sensitivities, which may be further exacerbated when topics explored include personal reproductive health choices or life-and-death family decisions.

This paper focuses on key data collection challenges encountered in evaluating program impact in the context of a specialty maternity hospital in Kabul, Afghanistan (2007-2009). We present processes followed and problem-solving tactics employed in this case through evaluation design and implementation, highlighting useful lessons learned on effective approaches to quality evaluation data collection in a context of high stress and uncertainty. Though working in a conflict environment such as Afghanistan presents many challenges, we found it both possible and imperative to develop a solid methodological approach to ensure scientifically sound results. Our paper includes recommendations for others needing to collect evaluation data in similar environments.

2 Background

The United States Department of Health and Human Services (DHSS) awarded a competitive contract to RTI International (RTI) to conduct a retrospective evaluation gauging impact over time of two DHHS-funded project interventions. These two projects were funded and implemented under the umbrella of the Afghanistan Health Initiative at Rabia Balkhi Hospital (RBH), a specialty maternity hospital in the Afghan capital, Kabul. One project focused on building clinical staff skills and quality of care and the other focused on strengthening hospital management systems and capacity. Some areas of activity overlapped between the projects, with other donor-funded activities in the hospital and Ministry of Public Health (MoPH) activities at different points throughout the period of project activities.

RTI led the evaluation overall, including design, implementation, analysis, and reporting. In the field RTI partnered with specialists and clinical consultants through the Afghanistan Centre for Socio-Economic and Opinion Research (ACSOR), a company founded by D3 Systems with whom D3 has worked to develop local research capacity, to collect, process, manage, and securely store qualitative and quantitative evaluation data.

Contemporary efforts to expand quality healthcare for Afghan citizens include a mix of goal-oriented projects funded primarily via foreign aid.[1] Understanding the value of these programs requires embedding evaluation strategies from their design or beginning implementation, assessing both positive and negative outcomes,[2] plus unintended consequences. Where evaluation pre-planning did not occur or plans were not followed, evaluators can operate strategically to partially reconstruct needed information, using various proven methods. Evaluation of these two AHI projects used a retrospective approach to gauge their impacts over time. While the projects focused on improving quality of care, the retrospective evaluation design also had to incorporate Afghanistan's specific cultural and security factors within an evidentiary structure defined by the principles of representative and rigorous evaluation.

2.1 Cultural Context: Mortality and Morbidity

Maternal mortality and morbidity are extremely high throughout the country, which has one of the world's highest estimated maternal mortality rates (MMR), 1,600/100,000 live births.[3] The MMR in one of Afghanistan's provinces, Badakhshan, is the highest ever estimated in the world at 6,500/100,000.[4] Complications preventable in most other circumstances cause large proportions of these maternal deaths; Bartlett, et al. considered 87% of the maternal deaths in their study preventable. Preeclampsia, placenta previa, fistula, and abruptio placenta are also unusually common. The United Nations Children's Fund (UNICEF) website reports Afghanistan figures for under five mortality as 257 in 2006 (260 in 1990), infant mortality (under one year) as 165 in 2006 (168 in 1990), and neonatal mortality as 60 in 2000.

Factors yielding these high national and regional figures include lack of access to health facilities and skilled providers, poor nutrition and education, cultural barriers such as mother-in-laws and traditional birth attendants competing with professional health providers, male preferring women to give birth at home, war and internal violence through at least the past 25 years, low status of women in major Afghan populations, poor water and sanitation, and other infrastructure deficits. In addition, very few women seek or receive antenatal care. The World Health Organization's (WHO) currently recommended standard is a minimum of four antenatal care visits during a pregnancy, but only 16% of Afghan women receive even minimal antenatal care from a trained provider, at the lowest standard of at least one visit during pregnancy (2003-2008).[5]

2.2 Cultural Context: Attitudes toward Women

Afghan culture presents special challenges to conducting reliable research on many issues, particularly those that involve females. Cultural traditions strongly influence the options and roles open to women, which results in limiting some basic opportunities, including women's access to and choices concerning healthcare. Consent is complicated, for instance, when it is not locally acceptable for a married woman to consent to her own treatment. Consent to treat must instead come from her husband or father-in-law. These and related perceptions of women and their status also hinder prioritizing women's health issues as vital social concerns.

According to the 2007 Women in Muslim Countries study sponsored by D3 Systems, one in three Afghan women report they have been denied healthcare due to their gender at some point in their lives. Of these women, a plurality (33%) are between the ages of 18 and 24 years old, and 29% of 25-to-34 year old women, reported they have been denied healthcare due to their gender. Furthermore, when asked if they could change one thing to make their life happier, 19% of Afghan women surveyed mentioned "better health".[6]

2.3 Security Situation

Political instability, economic limitations, and unreliable security all challenge public sector management capacity. Specific to maternal and newborn care, war and insecurity combine with local cultural perspectives to contribute significantly to women's lack of access to female doctors around the country, affecting the priority and standard of reproductive health care Afghan women receive. The Ministry of Public Health does not

assign women to public sector facilities in areas of the country where officials expect they may be unsafe, for instance, including areas where the dominant local culture and prevailing norms resist the practice of medicine by women.

Working with a project funded by a foreign government in Afghanistan is another risk factor that exacerbates challenges in local recruitment and staff retention—not only for development or assistance projects but also for evaluation of these projects. Security issues vary by region in Afghanistan and dynamically over time, and tracking, analyzing, and using security incidents data adds costs to project and evaluation implementation. All of this information must be factored on an ongoing basis into data collection planning and activities to minimize the risk to those who agree to participate, data collection staff, and others who could be affected.[7]

3 Processes & Challenges: Collecting Data in Insecure Situations

3.1 Evaluation Design and Approach

Our evaluation covered two AHI projects from 2003 through 2007.

1) International Medical Corps (IMC) implemented work for DHHS from 2003–2007. IMC provided in-service and refresher training in obstetrics and gynecology for RBH attending physicians, residents, and midwives.
2) CURE International (CURE) implemented work for DHHS from 2005–2007. CURE provided technical assistance and systems-focused mentoring for RBH leadership, management, and administrative personnel.

The evaluation design was structured by 20 questions composed and included in the RTI contract by DHHS. The 20 DHHS questions, however, raised issues and indicators that were not mandated in the two AHI project proposals or scopes of work (SOWs). Our team's evaluation design therefore began with a comprehensive study of the topic areas covered in the questions, aiming to ensure that data collection would be sufficiently methodologically broad and inclusive to capture the two projects' effects while also fairly responding to the 20 DHHS questions.

Through stakeholder relationships, documentation, and field visits establishing realistic parameters for the data needed and feasible within reasonable standards of quality, the initially proposed data collection plan was revised, and further revisions were tailored to field circumstances. Our design incorporated mixed methods: *quantitative* where analysis could help reveal some of the specific successes or limits to progress linked to project tasks and goals; and *qualitative* to complete the picture for analysis of the experiences, key decision points, and additional contributions or missed opportunities throughout the evaluation period. Documented program evidence factored strongly into the evaluation, informing evaluation findings on how the projects operated and allowing notation of self-reported accomplishments with qualitative caveats (e.g., both projects or other stakeholders might claim a single achievement).

Sensitive and private information was gathered from health care providers and other leaders both through semi-structured (qualitative) interviews and in key informant open discussions. Interviews drew a sample across RBH staff stratified by position and role, including residents, midwives, attending doctors and management, all of whom had been

recipients of IMC and CURE AHI trainings or other interventions. Evaluators observed provider-client interactions and scored the quality of care delivered during clinical procedures to assess end-of-project provider skills and practices. In addition, attending doctors acting as trainers were observed during training events (including lecture and practical exercises). Given the constraints on field time for data collection, the evaluation team was still able to cover most consenting RBH staff in targeted categories who were available during the data collection period.

3.2 Evaluation Introduction at RBH

Repeated and consistent explanations of choice and confidentiality for individuals were central features of EAHI's informed consent system, approved by the Institutional Review Boards of RTI, the United States Government (USG), and the Ministry of Public Health in Afghanistan. We found that informed consent explanations and training in the field nonetheless took more time and repetition than initially anticipated. RBH management and IMC and CURE managers and staff provided collaborative support for the informed consent explanations and throughout implementation of other evaluation processes. RTI and ACSOR staff provided multiple introduction sessions at RBH for all RBH staff with opportunities for questions, plus individual information sessions so further questions could be asked in private. Evaluation staff (RTI and ACSOR) consistently promoted the message that all data gathered for the evaluation would be kept confidential and not shared with anyone at an individual level.

Following the careful processes of multiple IRBs took more time than originally anticipated by DHHS. Some of the residents who were at RBH during project implementation and for the initial design of evaluation data collection were no longer assigned to RBH by the time all approvals were in place and data could be collected. Some doctors were no longer in management positions, while others had taken on new or different leadership roles. Finalizing EAHI samples required numerous adjustments for these factors and the iterative task of reconciling multiple or conflicting names[1] when the data collection began. All changes followed a rigorous methodological approach for modifying the sample according to field conditions,

3.3 Project, Evaluation, and Data Collection Staffing

Violence and physical insecurity in and around Kabul affected the CURE and IMC projects, as well as the EAHI project. Through the span of both AHI projects and the evaluation, violent incidents occurred intermittently, generally escalating from 2005 through the end of 2007.[8] This difficult security situation complicates recruitment and retention of qualified professional staff for project work in Kabul.

Instability challenges added to the difficulty of recruiting clinically-proficient women with interest or aptitude in research within a small available pool of doctors available and acceptable to AHI and EAHI stakeholders. ACSOR staff drew on their experience and personal connections to help the evaluation team overcome this challenge. EAHI used a culturally-acceptable snowball method to recruit a team of eleven female doctors with the

[1] In Afghanistan, people have multiple names, which make it difficult to reconcile lists of names, when a person is listed with a different name in two lists.

requisite skills and without conflicts of interest relative to vested interests in RBH or the Kabul public health sector. RTI and ACSOR together undertook intensive training to ensure this clinical team was equipped with principles of research ethics that enhanced our data collection professionalism and managed privacy concerns around motherhood.

Employment or participation in a project funded by a foreign government in Afghanistan is a risk factor in itself which challenges local recruitment and retention. Security challenges affect Afghans as much or more than expatriates, given the ongoing stress of life in a peace-precarious situation with added worries for the safety of families and few viable alternatives. Resource demands to build local skills and capacity, with recurring costs when staff turnover occurs, are correspondingly affected. For example, a project needing local capacity for implementation or support requires ongoing resources (time, personnel, and funds) allocated to capacity-building tasks throughout the project period, whether staff replacement is temporary or long-term (including absences to deal and the loss of family members or friends, personal incapacitation due to stress or trauma, or property damage).[9]

The EAHI team continuously reviewed security risks and other dynamic factors affecting data collection in the Kabul environment throughout the data collection period, and recalibrated activities as needed. For example, during a period focused on intensively collecting clinical observation data, a bomb exploded two blocks away from the hospital. All EAHI team staff (and RBH staff) were granted time to contact their families and the evaluation team adjusted plans and schedules for safety.

4 Processes & Challenges: Collecting Sensitive Private Data

Collecting culturally sensitive data presents many challenges, particularly in an environment as volatile as Afghanistan. To this end, RTI developed processes in consultation with ACSOR staff with degrees from Kabul Medical University and other Afghans in the local medical community in order to accomplish research goals while taking into account cultural norms.

4.1 Local Capacity Building

RTI developed training materials on ethics and confidentiality, informed consent procedures, adverse event procedures, conflicts of interest, roles and responsibilities, observing medical issues, staff and participant IDs, qualitative interviews, observation, case study and exam procedures, training of trainers, and entering data into the data management system. D3 Systems/ACSOR translated all materials and RTI and ACSOR led the training sessions, including significant role-play activities, which worked well for all of the team as an introduction to the hospital data collection environment.

RTI and ACSOR developed a Standards Guide for scoring all observations, case studies, and exams to minimize interpersonal variation across data collectors. RTI and ACSOR field tested all instruments, reviewed scoring by the 11 doctors and updated the Standards Guide to ensure consistent scoring across all activities. RTI and ACSOR followed rigorous procedures to ensure that all staff was adequately trained to ensure consistency across all data collected, and daily checks throughout the data collection period to assure consistency over time.

In addition, the eleven female doctors assisted with review of data collection procedures and made recommendations to ensure that clinical observations were not intrusive for RBH staff (or clients). Our doctors addressed RBH staff in a culturally appropriate manner, and worked consistently throughout the seven-week period of data collection to reinforce RBH understanding of their role as supporting EAHI evaluation of the DHHS projects, and not evaluation of RBH or its staff.

There are few Kabul-based moderators who have experience conducting qualitative interviews, and fewer have experience collecting culturally sensitive private data. Working with the 11 female doctors, RTI conducted test interviews at ACSOR offices, and then later at RBH led the initial interviews with 2 female doctors attending, one assisting with translation and interpretation while the other took notes. This approach allowed the doctors time to build familiarity with the interview subject matter. RTI/ACSOR spent time building their capacity specifically in the sensitive topics related to maternal qualify of care and patient-provider interactions, asking open questions to avoid biasing the responses, and techniques for appropriately exploring relevant or related issues. Given the importance of experience and age in Afghan culture, all senior RBH staff interviews were led by RTI, but some of the evaluation team doctors eventually led interviews with more junior RBH staff.

4.2 Local Support

Without the engagement and cooperation of IMC and CURE, who had experience at RBH from 2003, EAHI would have faced greater difficulty performing data collection. RBH, IMC, and CURE personnel also facilitated the participation of RBH staff in EAHI activities as needed, helping reduce suspicion or resistance and helping clarify informed consent.

EAHI's 2008 Kabul-based data collection team members were all fluent in local languages and well-educated, including clinical experience. These attributes also facilitated EAHI's success in acquiring informed consent from RBH staff, and even more critically, in getting patients' permission to observe procedures.

4.3 Informed Consent

As data collection began, the EAHI team spent considerable time and effort on informed consent. The concept was unfamiliar to RBH staff and management, and individuals did exercise their right of choice to participate or not to participate. EAHI arranged multiple group presentations and individual meetings to introduce the new ideas and ensure full understanding of confidentiality and other informed consent concepts for staff at all levels. Additional discussions for those requested to consent in different data collection activities required more meetings and more time spent on explanations. Responses in these discussions suggested to the evaluation team that some people may have declined consent in part because of the novelty of having a choice. Staff repeatedly, however, also expressed concerns about confidentiality and questioned the impact of the EAHI study. RTI/ACSOR found in practice that the demonstration effect of others agreeing to participate was a strong factor in gaining informed consent from colleagues and peers.

4.4 Conflicts of Interest

The medical community in Kabul is small and interconnected through personal, family, and professional relationships linking providers, students, facility directors, policy leaders, and decision makers. The OB/GYN community is even smaller. The original evaluation proposal to use four experienced OB/GYN doctors from other Kabul hospitals was not acceptable to stakeholders. ACSOR staff and the 11 consultant female medical doctors were approved by RBH management, and ACSOR staff increased their presence on the evaluation to cover gaps. Consultant medical doctors were vetted for potential conflicts or connections to RBH employees, project staff, or other relationships that could have caused bias or created the appearance of bias. Consultants only observed patients with whom they had no relationship, personal or professional. Any consultant who was related to RBH staff, had worked with RBH staff in the past two years, or had attended training or lectures provided by RBH staff in the past two years, could not observe or score those staff during the data collection for the evaluation. All EAHI team members – staff and consultants – signed confidentiality agreements.

4.5 Data Collection

Data collection in clinical observations, case studies and written exams for the midwives and residents followed capacity-building approaches similar to those described for qualitative interviews (section 4.1) We first familiarized the evaluation team's doctors with the tools to be used and proper procedures in conducting observations. They learned during training and initial field testing the importance of using the correct approach to staff, to encourage their participation in being observed.

Our doctors continued to maintain a positive and open attitude even with staff who initially refused to participate. Through positive demeanors and demonstrated adherence to privacy and conflict of interest guidelines, they built trust with the hospital staff over time. More staff agreed to participate in the evaluation as the data collection period continued, and some staff expressed disappointment when it ended according to schedule, saying they had hoped to be observed for longer periods of time.

4.6 Data Quality and Security

Several rigorous steps designed to ensure the highest data quality possible were implemented. Before data collection began, slight modifications were made to the paper instruments to facilitate converting the data into a usable SPSS file. A section was added at the top of each form for the observer to fill out various management information such as the participant ID, observer ID, and date, and each measure was assigned a data position based on the range of values allowed in the scoring scale.

A computer program based on simple logic functions was created by the ACSOR staff in Kabul for data entry. The program allowed only a specified range of values for each entry, and prevented data entry for the next variable until the preceding entry fit the prescribed range. This basic logic check reduced the potential for simple errors, in turn strengthening overall data quality. D3 Systems processed the ASCII output file in the United States into SPSS format for further review, with transfers via a secure FTP site.

Several layers of security ensured participant anonymity throughout data collection and processing. EAHI assigned each participant a unique four digit numeric code

protecting names, positions, and any other identifying factors. We maintained security for all paper forms used by transporting them daily to the ACSOR office for storage in a secure filing cabinet to which only the designated ACSOR project manager had access. Furthermore, each ACSOR data entry person was assigned a unique username and password to use with the data entry program. Finally, all data files were transferred from ACSOR to D3 to RTI staff via a secure FTP site hosted by RTI.

5 Recommendations

EAHI's data and direct field observations confirm that, as in many low-resource settings where high percentages of births occur in homes, the number of deliveries in health facilities fluctuates widely over the seasons, through the week, times of day, and specifically in Afghanistan according to the security situation. These fluctuations additionally compound the stress and volatility experienced by RBH staff in processing normal deliveries, obstetric complications, transfer of newborns who need additional care, all while undergoing multiple programmatic efforts to strengthen individual, facility, and system capacities.

These two projects aimed to improve quality of care at RBH through twinned focuses on clinical and management skills. The projects and the evaluation aimed to address the cultural context and security situation in Afghanistan in their design and execution. The evaluation adapted to achieve those goals while building on principles of representative and rigorous evaluation. Three primary recommendations in the area of data collection from the lessons learned through this challenging experience are discussed below.

5.1 Validate or refine the evaluation design through early field visits

The EAHI design team traveled to Kabul as soon after the award as possible to begin building essential partner relationships in the complex environment and gather first-hand field perspectives on relevant aspects of the situation at RBH before establishing the final evaluation strategy and design. Given the structure of AHI project implementation, which did not include field-based DHHS managers, stakeholder and partner meetings also took place in the US, but the first Kabul trip was essential to the development of a fully realistic and functionally feasible evaluation and data plan. Initial field assessment on this trip helped the EAHI design team establish realistic parameters for the data needed and practical to collect within reasonable standards of quality and maintaining evaluation principles of rigor and representativeness. The EAHI design team significantly revised the proposed data collection plan based on discussions and findings in the field. By eliminating some elements determined not to be useful (e.g., client satisfaction survey) and refining other methods or tools (e.g., standards-based management), the team developed a methodologically sound data collection plan and evaluation design still structured by the 20 DHHS questions and within budget, but also reflecting field reality.

Recommendation: While field context is important to consider in finalization of any evaluation design and methods, conducting an evaluation in a dynamically challenging or volatile environment like Afghanistan, including exploring culturally sensitive topics with foreign funding, requires specific field investigation by the evaluation design team

of situational parameters at more than one point. The situation pertaining at the time of the tender may not closely resemble the situation by the time the award is made, and the situation by the time all review board approvals are received may have substantially changed again. Evaluation under these circumstances requires strong methodological skills across a wide range of approaches to data collection and analysis, so that strategies and tactics can be adjusted to prevailing circumstances without sacrificing standards or the robustness of the evaluation's eventual findings, resulting in a rigorous and representative evaluation design that can be conducted in this environment.

5.2 Integrate M&E into program design to strengthen projects and evaluation

Much of the time, effort, and ingenuity required to implement a successful evaluation of the two targeted AHI projects was focused on reconstructing and validating evidence retrospectively that could have been more reliably and much more cost-effectively collected during the life of the projects. Along with the other benefits of having useful M&E as a part of any project's management strategy, M&E data representing progress, successful activity areas, and challenges identified with evidence throughout the projects' implementation periods, captured through locally-appropriate embedded monitoring and evaluation (M&E) systems, usefully informs evaluation strategies. At a minimum, M&E can allow evaluation to focus on questions of attribution and significance rather than determining whether or not results were achieved.

Recommendation: Project design and development should include specific effort dedicated to strategic design of a project M&E system tailored to assess measured progress toward meaningful project results periodically. In the event that this approach is not followed as the project or program moves from proposal to award, incorporating M&E system design and resources in the inception or start-up period should be a priority. One of the first and most important steps in evaluation design, to avoid costly redundant effort or missed information, needs to be meticulous investigation of all claimed or existing M&E data, including validity and reliability checks, and strategic relevance to planned project goals and anticipated results.

5.3 Deploy rigorous approaches flexibly in complex or volatile situations

The two recommendations above dovetail with this third lesson learned. EAHI's evaluation team repeatedly revised our design and methodological implementation from the first version proposed according to changing circumstances, changing constraints, and new or improved information as it became available. Every potential change had to be assessed not only in terms of feasibility and methods, but also the extent to which each change would contribute toward answering the DHHS 20 questions without significant compromise to rigor and representativeness of the findings.

Recommendation: Initial and subsequent development of an evaluation design will be most useful in challenging or volatile situations when an overarching strategic orientation can be established to guide and shape acceptable boundaries for subsequent adjustments to implementation of field data collection and analytical approaches. Whether the scope is determined by the evaluation funder, stakeholder terms of reference, or other factors,

structuring criteria for adjustments in advance, according to evaluation priorities, helps keep the design rationalized along methodological lines appropriate to the goals.

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