PMA COVID-19 Study Design

I. **Aims of the Study**: Describe the aims/objectives of the research and/or the project’s research questions or hypotheses.

The goals of this study are to collect and analyze data on COVID-19 in four countries, the Democratic Republic of Congo (DRC), Kenya, Burkina Faso, and Nigeria. To do so, the study builds on the Performance Monitoring for Action (PMA) Project, which has been collecting data in these countries since 2013-14. This research will inform effective and appropriate outbreak response interventions, policies, and messages in each of these four countries.

Our research questions are:
- What are the levels of COVID-19 awareness and knowledge, risk perceptions?
- What factors are associated with correct knowledge of COVID-19? Are there social inequalities in access to COVID-19 information (e.g., lower economic status, urban poor or rural communities)?
- What are the levels and correlates of social distancing and other preventive strategies related to COVID-19? What are the barriers to social distancing; does this vary by sociodemographic measures (e.g., wealth, family structure, children, etc.)?
- What are the economic impacts of COVID-19 for women and their households?
- Has COVID-19 impacted MCH and FP health service utilization and for what reasons? Who has been affected the most (according to wealth, area of residence, etc.)?
- Has COVID-19 had any impact of SRH behaviors, including family planning outcomes, such as contraceptive use, birth/fertility intentions etc.?
- Has COVID-19 adversely impacted primary health care seeking and access?

The Bill & Melinda Gates Institute for Population and Reproductive Health launched the Performance Monitoring and Accountability (PMA2020) program for tracking progress in family planning program indicators in 11 countries, beginning in 2013. The project implemented an innovative survey design, recruiting women from or near selected enumeration areas and training them to use smartphones to collect data in near real-time from face-to-face interviews with women and health service providers. The data are then transmitted to cloud servers for rapid analysis and production of key data briefs for stakeholder use. The Gates Institute has received an additional grant from the Bill & Melinda Gates Foundation to partner with Jhpiego for the next phase of the PMA project, now entitled Performance Monitoring for Action (PMA). The core survey is designed to monitor change in contraceptive availability and use in selected geographies through annual survey rounds.

II. **Background and Rationale**: Explain why this study is being done. Summarize briefly what is already known about the issue and reference previously published research, if relevant.

Despite the broad scope and profound impact of COVID-19, there are critical gaps in knowledge about the virus, particularly in low- and middle-income settings. As stated in a recent publication in the New England Journal of Medicine, “we face an urgent need to expand public health activities in order to elucidate the epidemiology of the novel virus
and characterize its potential impact.”¹ What are the main risk factors of infection? Have people heard about COVID-19, and how? Are people practicing social distancing and other behaviors to reduce the spread? How is the epidemic disrupting regular primary care access? Does the impact of COVID-19 differ across sub-populations, by wealth and education? Little is known about these critical issues.

The PMA Project is well-positioned to address these questions. In each country, PMA uses a multi-stage stratified cluster design to draw a probability sample of households and females of childbearing age. For data collection, PMA recruits women from selected enumeration areas within each country to collect data in their communities, called “Resident Enumerators” (REs). These REs collect data on smart phones using Open Data Kit (ODK) software and are positioned to collect data on a routine basis. REs have also been trained and have successfully collected data by phone. This means that PMA is one of the few sources of representative data on COVID-19, with the capacity to collect this data remotely in many geographies. Moreover, the PMA sample is designed as a panel, meaning that the REs interview the same women repeatedly over time. We plan to use the PMA experience and infrastructure to collect data on COVID-19. The fact that we have already interviewed the PMA sample households once and will do so again in a year, allows us to situate the COVID-19 data within a broader context and to follow up on impact on the households over time.

In 2013, PMA2020 was designed as a rapid monitoring tool, to collect key FP indicators to track progress of global and national family planning goals and principles. Relying on an innovative survey design that uses mobile technology and recruits resident female enumerators from the selected enumeration areas, PMA2020 has provided reliable, largely nationally representative data on a regular basis across 11 countries in sub-Saharan Africa and Asia. Selected countries have made an explicit commitment to FP2020 and where data for monitoring progress are valued and needed.

As 2020 approached, study design and programmatic changes to PMA2020, renamed to Performance Monitoring for Action (PMA), will help ensure that the platform better responds to country-specific data needs and explores underlying factors of contraceptive dynamics and use. With the addition of Jhpiego as a global partner, PMA will expand beyond its existing role as a key source of regular cross-sectional estimates in family planning and reproductive health in target geographies in order to meet four overarching and strategic objectives:

1. High-quality surveys, including the addition of a panel feature, are conducted with a focus on actionable programmatic data on contraceptive use dynamics in targeted geographic areas;
2. PMA data are actively used for decision-making by an increased range and number of stakeholders;
3. A viable, long-term, sustainable, costed PMA platform is created that buyers easily access to purchase additional surveys; and
4. PMA establishes state-of-the-art business management and accountability standards and practice.

The panel design employs an innovative approach to collect data among an open cohort of households and women within these households, while ensuring that cross-sectional, representative data are still available annually. The panel survey data will advance knowledge on causal factors of contraceptive dynamics and women’s fertility intention, beyond conventional metrics available from cross-sectional surveys, which family planning programs can address. Our project will at the same time address government and NGO stakeholders’ data needs to monitor the levels and trends of key FP metrics from a representative sample, by constructing an augmented cohort sample through listing and weighting techniques.

In 2013, PMA2020 was deemed by the Johns Hopkins University Institutional Review Board to be “Public Health Practice, Not Research”. Subsequently in 2019, the continuation of the project as Performance Monitoring for Action (PMA) was deemed “Public Health Surveillance”.

III. Study Design:

A. Provide an overview of your study design and methods.

PMA baseline data collection description
This study builds on recent data collection by PMA in these four countries (DRC, Kenya, Burkina Faso, and Nigeria). In 2019, PMA started the first year a new phase of longitudinal panel data, a change from the repeated cross-sectional design used by PMA from 2013 to 2018. PMA completed the baseline round of data collection in these four countries by February 2020.

For COVID-19 data collection, PMA will use two features of this baseline data collection. First, as part of the baseline round of longitudinal panel data collection, PMA collected phone numbers from consenting women. The availability of these phone numbers provides the possibility of conducting phone interviews of women from the baseline survey. Second, PMA will combine information from the baseline survey (e.g., sociodemographic information like marital status, household size and age structure, household economic status, etc.) with COVID-19 measures, thereby reducing the number of questions required for a COVID-19 survey.

Questionnaire/instrument development
The focus of our COVID-19 survey instrument is on the most important epidemiological features of COVID-19, including questions on:

- Awareness of the COVID-19 pandemic;
- Exposure to COVID-19 messages in the media;
- Knowledge of COVID-19 symptoms and transmission modes;
- Perceived risk of COVID-19 infection;
- Behavior change resulting from COVID-19 (e.g., social distancing, work closure);
- Economic impact of COVID-19;
- Impact of COVID-19 on health care seeking and access;
- Impact of COVID-19 on family planning (e.g., fertility intentions, access to contraception).

After translation and distribution of the survey instrument, the instrument was reviewed by all in-country PMA partners, to ensure that it captures (1) the way...
COVID-19 is referred to in each country, (2) all recommended behavior change techniques (e.g., touching elbows instead of shaking hands); and (3) all relevant media modes for COVID-19 messages (radio, text, etc.).

All protocols for training, oversight, and fieldwork follow the previously approved PMA2020 model and are under the responsibility of in-country implementing partners/institutions who apply for IRB oversight and approval within their own organization. Interviews will be conducted over the phone and responses entered into an Android smartphone using Open Data Kit (ODK) software provided by PMA to the RE. Following the interview, data are submitted to a secure cloud server using either Wi-Fi or mobile data networks, where they are instantly aggregated. Data are monitored daily by in-country data management and quality assurance teams, with technical assistance provided by the JHU data management support team. Fieldwork will be completed in about 2 weeks, with preliminary tabulations from the data prepared into short briefs for publication within another 2-4 week period.

B. Provide a sample size and a justification as to how you arrived at that number.

PMA COVID-19 Survey

The PMA COVID-19 survey will take place in the four countries – including Kinshasa, DRC; a national sample in Kenya; a national sample in Burkina Faso; and Kano and Lagos in Nigeria.

Eligible women for the PMA COVID-19 survey will be those who were interviewed by the PMA baseline survey in 2019-2020 and consented to and provided phone numbers for follow up. Sample size estimates are provided in Table 1, below.

Not all women who provided phone numbers will be interviewed, of course. Based on previous experience from PMA phone interviews, some numbers will be false, expired, or mistyped. Not all women will agree to the interview, and others may not complete the full interview. However, PMA can adjust for these biases by weighting based on the probability of having a phone and completing the interview, thereby providing reasonably representative estimates for PMA geographies.

Women who participate in the phone interview will receive a small incentive to compensate them for their time. This incentive will be sent to the respondent by the RE via Mpesa (or similar mode) after the interview is completed.

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<th>Table 1: PMA COVID-19 Sample Size</th>
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PMA Cross-Sectional and Longitudinal Surveys
The sampling approach for PMA overall has three objectives:

- To generate point estimates of core indicators with acceptable reliability with available resources;
- To support the statistical power needs for analyses of contraceptive dynamic change and cause factors using panel data; and,
- To monitor changes in core indicators over time.

The target sample of households for Year 1 was determined based on estimating modern contraceptive prevalence rate (mCPR) among all women, with 3% margin of error at the national or the state level and 5% margin of error for urban and rural areas, and for subnational areas of Burkina Faso, Kenya, Nigeria, and DRC (Kinshasa and Kongo Central).

Estimated design effect (DEFF) from the most recent PMA2020 survey was used in all countries except Nigeria and DRC where average DEFF and intraclass correlation from all rounds were used to provide reasonable sample size estimates.

The most recently measured mCPR from PMA2020 surveys was used as a benchmark to determine the required sample size at the national level (or sub-regional level, depending on geography). Sample size requirements were inflated assuming 10% non-response/refusal. The take size was set to 35 households per EA and the required sample size was determined using the Wilson method.