

Using Measurements of Unmet Need to Inform Program Investments for Health Service Integration

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Demographic and Health Survey (DHS) data could potentially inform optimal strategies to reach women having unmet need with contraceptive services through integrated service delivery. Using 2010–11 DHS data from Nepal, Senegal, and Uganda, we estimate the proportion of married or cohabitating women of reproductive age (MWRA) having unmet need for family planning (FP) who have accessed selected health services and therefore could be offered FP services through integrated service delivery. We find substantial missed opportunities to reach MWRA having unmet need for family planning (FP) in the three countries examined. We also find considerable variation within and between countries in the potential for integrated services to reach women having unmet need. Between 4 percent and 57 percent of MWRA having unmet need in these countries could be reached through integration of FP into any single-service delivery platform we explored. This analysis has the potential to provide program managers with an evidence-based road map indicating which service-delivery platforms offer the greatest potential to reach the largest number of women having unmet need for contraception. (STUDIES IN FAMILY PLANNING 2014; 45[2]: 263–275)

Despite the availability of highly effective contraceptive technologies, more than 80 million unintended pregnancies occurred worldwide in 2012 (Singh and Darroch 2012). Most of these unintended pregnancies (79 percent) occurred among women having unmet need for family planning (FP) (Singh and Darroch 2012). Married or cohabitating women of reproductive age (MWRA) who are fecund and want to space or delay childbearing are considered to have unmet need for FP if they are not using any contraceptive method or if their current pregnancy was mistimed or unwanted. In addition, MWRA are considered to have unmet need for FP if they are postpartum amenorrheic for

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a period of up to two years following a mistimed or unwanted pregnancy and they are not using a contraceptive method. In 2012, an estimated 222 million women had unmet need for FP (Singh and Darroch 2012). Although some women who are defined as having unmet need may have no intention of practicing contraception even if contraceptives are accessible, unmet need for FP is a useful starting point for identifying women who may desire contraceptive education or services.

Integrated service delivery is a common strategy used by FP programs to reach women having unmet need. During the past several years, countries, donors, and multilateral organizations have increased their focus on and resources toward integrated service delivery (IPPF, UNFPA, UNAIDS, et al. 2005; US Government 2012). The global movement for integrated reproductive health services first gained momentum as a rights-based approach to women's health with the launch of the 1994 International Conference on Population and Development (ICPD) Programme of Action. To safeguard women's right to decide the number and timing of their children (UN 1995), ICPD highlighted the importance of ensuring access to FP for all. In 2004, the Glion Call to Action on Family Planning and HIV/AIDS in Women and Children furthered this effort by advocating for FP as one of the four essential elements in its HIV-prevention strategy (WHO and UNFPA 2006). In 2011, the largest funders of HIV/AIDS programming worldwide jointly launched the 2011–2015 Global Plan towards the Elimination of New HIV Infections among Children by 2015 and Keeping Their Mothers Alive. The global plan calls for action to strengthen "linkages" among HIV, maternal health, newborn and child health, and FP programs at the national, regional, and global levels (UNAIDS 2011). At the national level, Kenya, Namibia, Rwanda, Tanzania, and Uganda have incorporated explicit language concerning the integration of HIV and family planning service delivery into their National Health Strategies and related policy documents (Johnson, Varallyay, and Ametepi 2012).

Despite the recognition that FP is critical to improving maternal and child health, advocacy and policy change regarding the integration of FP with maternal and child health services have been more disjointed and slower to gain momentum. The Partnership for Maternal, Newborn and Child Health (2006) advocates for FP as part of an essential package of services for girls and women prior to pregnancy, during intrapartum care, and as part of postnatal care. Some countries, such as the Philippines, have already introduced guidelines for providing integrated prenatal, immunization, and FP services (DOH [Philippines] and RTI International 2012).

Despite overall increased investment in integration, little evidence is available to guide strategic decisionmaking regarding which services would be best to integrate in order to serve clients' interests and achieve health and development goals. In our study, we do not assess the feasibility or effectiveness of particular models of integration. (For a comprehensive discussion of these issues, see Kuhlmann, Gavin, and Galavotti 2010; Kennedy et al. 2011; Johnson, Varallyay, and Ametepi 2012.) Rather, we begin with the fact that countries and donors have explicitly prioritized policies and programs regarding integration and that these investments can be better informed by using available data.

Data drawn from Demographic and Health Surveys can inform strategic decisionmaking regarding optimal strategies to reach women having unmet need for FP and help policymak-

ers estimate the potential effect of integration efforts. We found only one study that used data concerning unmet need in this way. The authors estimated that integrating FP into immunization services had the potential to reduce unmet need by between 3.8 and 8.9 percentage points in the countries reviewed (Gavin, Otten, and Pujari 2011). Our objective is to analyze DHS data to inform strategies to integrate FP with key health services, including HIV testing, STI treatment, prenatal care, skilled delivery attendance at birth, postnatal care for women, and childhood immunization.

METHODS

We selected three countries—Nepal, Senegal, and Uganda—having (1) unmet need that was greater than 20 percent, (2) a recent Demographic and Health Survey (2010 or later), and (3) diverse social and economic environments. Unmet need for FP among MWRA is 28 percent in Nepal (DHS 2011), 30 percent in Senegal (DHS 2010–11), and 34 percent in Uganda (DHS 2011). For all analyses, we applied sampling weights and used methods appropriate for subpopulation estimation (Cochran 1977).

First, we estimated the potential to reach women having unmet need through the health system by calculating the proportion of MWRA having unmet need for FP who visited a health facility for any reason within a 12-month period. Next, we estimated the proportion of MWRA having unmet need for FP who used a specific health care service within the past 12 months (including HIV testing, treatment of sexually transmitted infections [STIs], prenatal care, skilled delivery attendance at birth, postnatal care, or infant vaccination), to provide information concerning service-delivery platforms having the potential to reach the largest proportion of women having unmet need for FP. Finally, we estimated the levels of unmet need among MWRA who accessed selected services, and, using United Nations population projections for 2012, we estimated the number of MWRA having unmet need who could be reached annually through integration with each of the selected service-delivery platforms (UNDESA 2011).

The indicators described below were used to estimate use of selected services.

- *HIV testing in past 12 months.* We assessed the percentage of MWRA having unmet need who reported obtaining an HIV test in the past 12 months, among all MWRA having unmet need.
- *STI advice/treatment in past 12 months.* We assessed the percentage of MWRA having unmet need who sought advice/treatment for the care of STIs in the past 12 months, among MWRA having unmet need who experienced an STI symptom in the past 12 months.
- *Prenatal care for a birth in past 12 months.* The DHS asks women who gave birth in the past 3 to 5 years (depending on the country) whether, for their most recent birth, they had at least one prenatal visit with a skilled attendant (doctor, nurse/midwife, medical assistant/clinical officer). We assessed the percentage of MWRA having unmet need who received prenatal care, among MWRA having unmet need who gave birth in the past 12 months.

- *Skilled delivery attendance at birth in past 12 months.* The DHS asks women who gave birth in the past 3 to 5 years (depending on the country) whether they had a skilled delivery attendant (doctor, nurse/midwife, or medical assistance/clinical officer). We assessed the percentage of MWRA having unmet need who had a skilled delivery attendant at birth, among MWRA having unmet need who gave birth in the past 12 months.
- *Postnatal checkup for mother within 2 days of a birth in past 12 months.* Whether delivering at home or in a facility, WHO recommends that the first postnatal checkup take place within the first week, preferably within 2 to 3 days (WHO 2006). The DHS asks women who gave birth in the past 3 to 5 years (depending on the country) whether they had a postnatal checkup (for the mother) within 2 days after the last live birth. We assessed the percentage of MWRA having unmet need who had a postnatal checkup within 2 days, among MWRA having unmet need who had a birth in the past 12 months.
- *Vaccination with first dose of diphtheria, pertussis, and tetanus (DPT1) among women having a child aged 6–18 months.* Immunization programs are one of the most widely accessed public health services for children (Schuchat and De Cock 2012). We focus on the first dose of DPT vaccination (DPT1), which is usually offered when an infant is 6 weeks of age or older (WHO 2013). For women, this timing is generally considered a good opportunity to discuss and potentially begin the practice of contraception if delaying the next birth is desired. DHSs record the percentage of women who report (either by health card or mother's recollection) that their child received the DPT1 vaccination. For comparability with the 12-month time frame and to allow sufficient time for mothers to access immunization services, we assessed, among MWRA having unmet need whose most recent child is aged 6–18 months, the percentage whose child received DPT1.

RESULTS

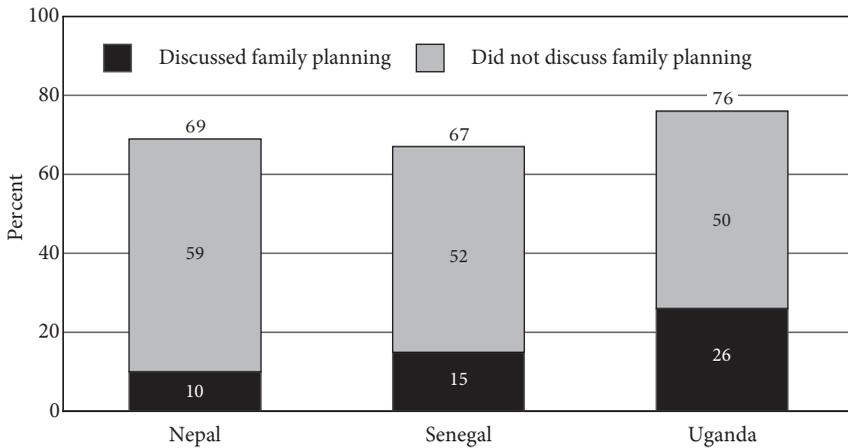
Assessing Intention

Although unmet need in our selected countries is high, this measure cannot be interpreted as an estimate of intention to practice contraception. In Nepal and Uganda at the time of the survey, the majority of MWRA with unmet need reported intending to practice contraception in the future (87 percent and 74 percent, respectively). In Senegal, intention to use in the future among MWRA having unmet need was much lower (40 percent).

Estimating “Missed Opportunities”

A large proportion of MWRA having unmet need reported visiting a health facility for any reason in the past 12 months: 69 percent in Nepal, 67 percent in Senegal, and 76 percent in Uganda (Figure 1). Only a small proportion of MWRA having unmet need reported discussing FP during this visit—10 percent in Nepal, 15 percent in Senegal, and 26 percent in

FIGURE 1 Percentage of married women of reproductive age having unmet need who visited a health facility for any reason in the past 12 months, Nepal, Senegal, Uganda, 2011

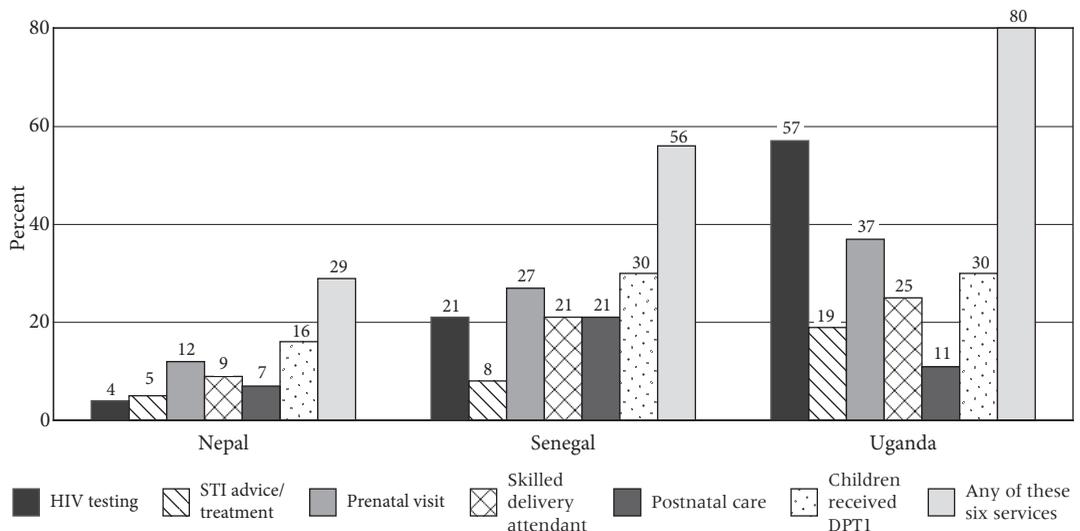


Uganda—indicating substantial “missed opportunities” to discuss or provide FP during health facility visits.

Assessing Relative Potential of Selected Service Delivery Platforms for Reaching MWRA Having Unmet Need

Next we examined service delivery platforms to determine which were used most by MWRA having unmet need and thus offer the best opportunity to reach the largest proportion of that population. Results are displayed in Figure 2 and described below.

FIGURE 2 Percentage of married women of reproductive age having unmet need and receiving health care services, Nepal, Senegal, Uganda, 2011



HIV Test in Past 12 Months

Rates of HIV testing varied substantially between countries. The proportion of MWRA having unmet need for FP who had been tested for HIV in the past 12 months was 4 percent in Nepal, 21 percent in Senegal, and 57 percent in Uganda (Figure 2).

Some of the reported HIV testing likely occurred as part of prenatal care services. For example, in Uganda 68 percent of MWRA having unmet need who reported being tested for HIV in the past year also reported being tested for HIV as part of a prenatal care visit (7 percent had a prenatal visit but did not test there, and 25 percent did not have a prenatal visit) (not shown). Similarly, in Senegal 77 percent of MWRA having unmet need who tested for HIV in the past year also reported being tested for HIV as part of a prenatal visit (6 percent had a prenatal visit but did not test there, and 16 percent did not have a prenatal visit) (not shown). This information is not available for Nepal. Because these women could have received HIV testing more than once during the 12-month period and in a setting other than prenatal care, we are unable to clearly describe the context of HIV testing. Interpretation of this data should be made with specific knowledge of the organization of HIV-testing services within each country.

STI Advice/Treatment in Past 12 Months

Among MWRA having unmet need for FP who reported experiencing an STI or an STI symptom, 38 percent in Nepal, 64 percent in Senegal, and 71 percent in Uganda sought advice or treatment in the past 12 months (not shown). Among MWRA having unmet need for FP, regardless of their experience with an STI or STI symptom, 5 percent in Nepal, 8 percent in Senegal, and 19 percent in Uganda accessed STI care.

Prenatal Care for a Birth in Past 12 Months

The majority of MWRA having unmet need for FP who delivered in the past 12 months reported receiving skilled prenatal care for their most recent birth: 71 percent in Nepal, 94 percent in Uganda, and 98 percent in Senegal (not shown). Among MWRA having unmet need for FP, regardless of whether they had experienced a pregnancy in the past 12 months, the proportion accessing prenatal care in the 12 months prior to the survey was 12 percent in Nepal, 27 percent in Senegal, and 37 percent in Uganda.

Skilled Delivery Attendant at Birth in the Past 12 Months

Among the three countries examined, more than half of births to MWRA having unmet need for FP who delivered in the past 12 months were attended by a skilled provider: 53 percent in Nepal, 64 percent in Uganda, and 73 percent in Senegal (not shown). Among MWRA having unmet need for FP, regardless of whether they delivered in the past 12 months, 9 percent in Nepal, 21 percent in Senegal, and 25 percent in Uganda accessed skilled delivery services at birth in the 12 months prior to the survey.

Postnatal Checkup for Mother within Two Days of a Birth in Past 12 Months

Among all MWRA having unmet need for FP and experiencing a pregnancy in the past 12 months, Senegal had the highest rate of use of postnatal services, with 71 percent of women

receiving a postnatal checkup within two days of delivery. Nepal and Uganda had lower rates of postnatal service use (39 percent and 27 percent, respectively) (not shown). The proportion of MWRA having unmet need for FP, regardless of whether they delivered in the past year, that this model of integration would reach was 7 percent in Nepal, 11 percent in Uganda, and 21 percent in Senegal.

Vaccination with First Dose of DPT among Women Having a Child Aged 6–18 Months

Reported DPT1 coverage among MWRA having unmet need for FP whose most recent child is aged 6–18 months was 96 percent in Nepal, 91 percent in Senegal, and 91 percent in Uganda (not shown). Among MWRA having unmet need for FP, regardless of having a child in this age range, integration of FP services with DPT1 provision could reach 16 percent in Nepal, 30 percent in Senegal, and 30 percent in Uganda.

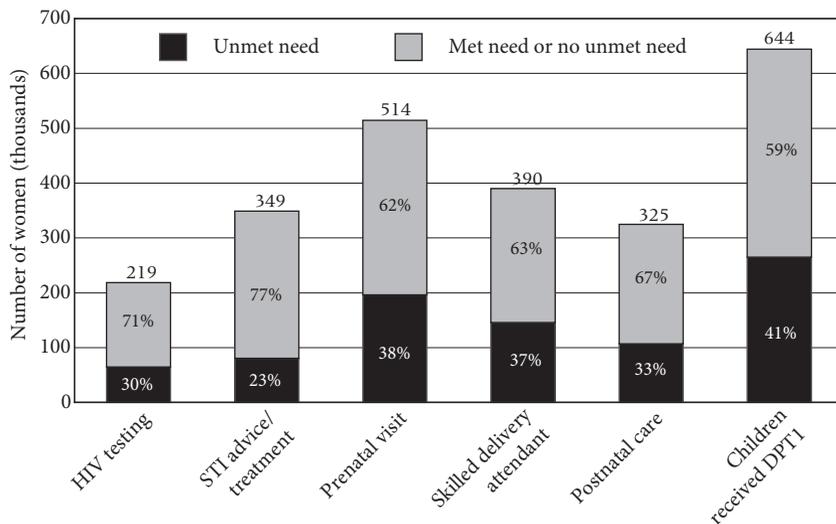
Received Any of These Six Services in a 12-Month Period

The proportion of MWRA having unmet need for FP who received any one of these services in a 12-month period was 29 percent in Nepal, 56 percent in Senegal, and 80 percent in Uganda.

Accessing Selected Services

We next estimate the level of unmet need among MWRA who accessed selected services, and the potential number of those women who could be reached through integration with each of the selected service-delivery platforms. Figure 3 displays the result of this analysis for Nepal for all indicators. Among MWRA who accessed select services in a 12-month period, unmet need for FP ranged between 23 percent of clients receiving STI care and 41 percent of those seeking DPT1 immunizations for their child. Using the United Nations population estimates for 2012,

FIGURE 3 Estimated number of married women of reproductive age and estimated percentage accessing health care services, according to type of service accessed and need status, Nepal, 2011



NOTE: Percentages may not sum to 100 because of rounding.

we estimate that in Nepal about 265,000 MWRA who have unmet need could be reached if the integration of FP with DPT1 services was fully implemented nationally, of whom approximately 230,000 indicated a future intent to practice contraception (see Table 1).

In Senegal, between 31 percent (for STI care) and 44 percent (for DPT1) of MWRA who accessed select services in a 12-month period have unmet need for FP (see Figure 4). Using the United Nations population estimates for 2012, we estimate that nearly 180,000 women with unmet need could be reached if integration of FP with DPT1 immunization services were fully implemented nationally in Senegal, of whom more than 71,000 indicated a future intent to practice contraception.

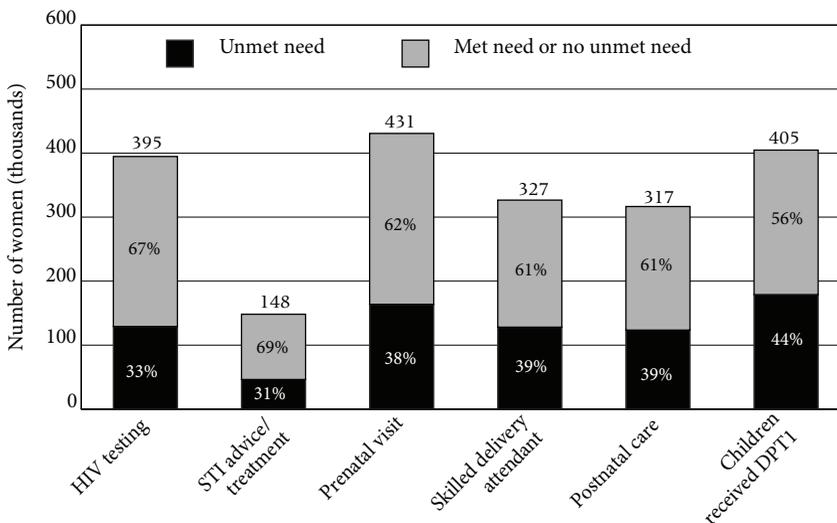
The largest number of MWRA having unmet need could be reached through integrated service delivery in Uganda. Here, between 33 percent (STI care) and 47 percent (prenatal

TABLE 1 Among married women of reproductive age having unmet need for family planning, estimate of number that could be reached annually through integrated service delivery, and number indicating intent to practice contraception in the future, Nepal, Senegal, and Uganda, 2011

Service delivery accessed	Nepal		Senegal		Uganda	
	Number of women having unmet need	Number of women indicating intent to practice contraception	Number of women having unmet need	Number of women indicating intent to practice contraception	Number of women having unmet need	Number of women indicating intent to practice contraception
Percentage among women having unmet need	—	87%	—	40%	—	74%
HIV testing	64,501	56,116	129,055	51,622	896,094	663,110
STI advice/treatment	80,887	70,372	46,254	18,502	301,936	223,433
Prenatal visit	196,391	170,860	163,675	65,470	576,872	426,885
Skilled delivery attendant	145,866	126,903	128,007	51,203	393,758	291,381
Postnatal care	107,255	93,312	123,447	49,379	165,426	122,415
Children receiving DPT1	264,733	230,318	178,868	71,547	472,904	349,949

— = Not applicable.

FIGURE 4 Estimated number of married women of reproductive age and estimated percentage accessing health care services, according to type of service accessed and need status, Senegal, 2011



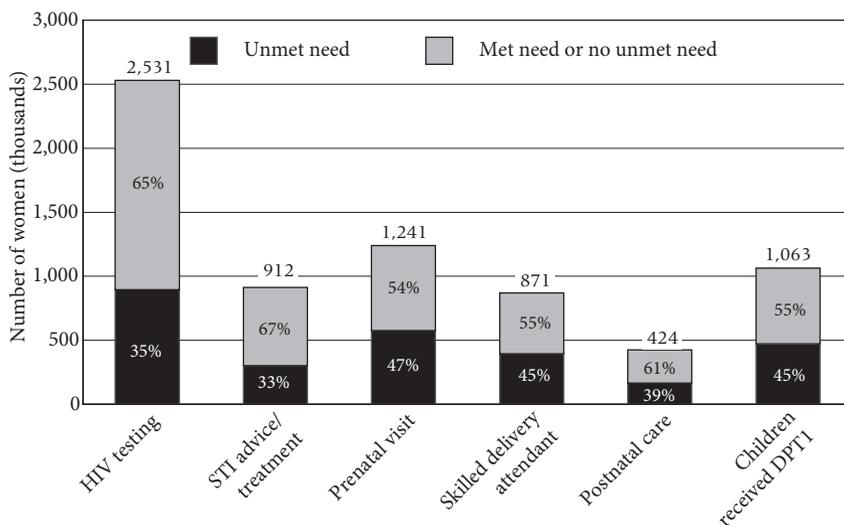
care) of MWRA clients accessing select services in a 12-month period have unmet need for FP (Figure 5). Although the proportion of HIV-testing clients with unmet need (35 percent) is smaller than the proportion of most of the other service-delivery clients (33 percent to 47 percent), the absolute number of women having unmet need who could be reached is greatest through an HIV-testing platform. Using the United Nations population estimates for 2012, we estimate that nearly 900,000 women having unmet need could be reached if integration of FP with HIV testing were fully implemented nationally in Uganda, of whom approximately 663,000 indicated a future intent to practice contraception (see Figure 5 and Table 1).

DISCUSSION AND LIMITATIONS

This analysis provides useful information for strategic decisionmaking concerning the potential for integrated health and FP services to reach MWRA having unmet need. Some limitations to the analysis should be noted when considering the results. We used the revised definition of unmet need presented in the three DHS country reports. This indicator is typically restricted to women who are married or in union. This restriction has little effect among countries where sexual behavior and marriage are closely linked, such as Nepal. In countries where marriage and sexual behavior are more loosely tied, however, our analysis could underestimate the number of women with unmet need and therefore underestimate the potential of select service-delivery platforms to reach women at risk of pregnancy who are not practicing contraception and would like to limit or space their next birth.

According to the current definition of unmet need, women who are pregnant or postpartum amenorrheic at the time of the survey are not considered to have unmet need for FP unless

FIGURE 5 Estimated number of married women of reproductive age and estimated percentage accessing health care services, according to type of service accessed and need status, Uganda, 2011



NOTE: Percentages may not sum to 100 because of rounding.

they report that pregnancy as mistimed or unwanted. Women who did not report their pregnancy as mistimed or unwanted, however, may soon become in need of FP. Our calculations, which do not include women who are pregnant or postpartum amenorrheic and who did not report that pregnancy as mistimed or unwanted, may, therefore, underestimate the potential impact of integrating FP service.

Estimates of unmet need are calculated based on women's fertility desires at the time of the survey; however, we use utilization of health services in the past 12–18 months to estimate the potential “missed opportunities” for integration. An individual's fertility intentions change over time; therefore, a woman who is classified as having unmet need at the time of the survey may or may not have had unmet need at the time she accessed immunization services. Few studies have attempted to estimate the stability of unmet need for FP over time. Based on limited evidence, during a 3–4 year period the vast majority of women are likely to shift out of unmet need status (Westoff and Bankole 1998; Jain 1999; Casterline, El-Zanaty, and El-Zeini 2003; Jain, Mahmoud, and Sathar 2013). During a shorter period, such as that used in this analysis, unmet need status is likely to be more stable and therefore changes in unmet need status probably have a limited effect on the results of our analysis.

As previously mentioned, unmet need does not always indicate intention to practice contraception. In addition, not all future contraceptive users explicitly acknowledge intent for future use. Therefore, we applied the proportion of women having unmet need who indicated future intent to practice contraception to our final estimates in Table 1, but we acknowledge that future intent to use is also an imperfect indicator that does not necessarily indicate that a woman reached with integrated services would become a new user of contraceptives at that particular time.

In settings where seeking services such as STI treatment and care or HIV testing is stigmatized, reported rates of such care-seeking behavior will likely reflect underreporting. Therefore, estimates of the potential of these platforms to reach women having unmet need may be underestimated.

A central assumption of this analysis is that, despite the political will and high profile of integrated service delivery, integration of key services is not being implemented at the facility level. Our findings support this assumption because we found that a large proportion of MWRA having unmet need who reported visiting a facility in the past 12 months did not report having discussed FP. This reporting, however, could be a result of recall bias. Analysis from five country Service Provision Assessments—in Kenya 2010, Namibia 2009, Rwanda 2007, Tanzania 2006, and Uganda 2007—found large discrepancies between the number of facilities that reported offering integrated services and client observations of integrated services. For example, whereas more than 80 percent of facilities reported offering family planning counseling in their prenatal care units, direct observation of service delivery found that less than one-fourth of clients were counseled about FP options during prenatal care visits (Johnson, Varallyay, and Ametepi 2012).

If each country integrated FP services with all six services examined in this analysis, approximately 80 percent of MWRA having unmet need in Uganda, 56 percent in Senegal, and 29 percent in Nepal could be reached at least once within a one-year time span. We did not, however, attempt to assess several other service-delivery platforms, such as post-abortion care, nutrition, and food-distribution programs that may offer strategic platforms to reach

this population. We were also unable to assess the “missed opportunities” within community-based programs.

CONCLUSION

Despite the limitations noted above, this analysis provides useful information for strategic decisionmaking. For example, the high levels of intention to practice contraception in the future, coupled with the high rates of some health services among women having unmet need in Nepal and Uganda, imply that increasing access through integrated service delivery may be a useful strategy to reach MWRA having unmet need for FP. Senegal, on the other hand, has similar use of health services with lower levels of intention to use FP in the future. In this case, integration alone may be insufficient to reduce unmet need. Programs in countries having low levels of intention to use FP in the future might explore added investment in social-behavior-change communication, community mobilization, and/or structural interventions to increase or strengthen demand for FP.

Implementing national integration programs for six service-delivery platforms all at once may be impractical or unfeasible. Thus, this analysis, which is broken down across the six service-delivery platforms, provides critical information to inform national integration strategies. The Nepal data show that less than 16 percent of MWRA having unmet need could be reached with FP services through any single health service included in this analysis. This is likely a result of the lower fertility rate among this population, compared with the other two countries, translating into a smaller proportion of MWRA accessing maternal and child health services. Interestingly, 69 percent of MWRA having unmet need in Nepal reported that they visited a health facility in the past 12 months (see Figure 1). In this case, exploring the use of alternative health services to identify other potential integration opportunities may be useful.

In Uganda, for example, 57 percent of MWRA could be reached through HIV-testing platforms, and 19 percent or more of MWRA having unmet need could be reached through any of the other selected services except for postnatal care. High rates of service use combined with high rates of future intention to practice contraception make integration of FP with these services a good strategic option to reach MWRA with unmet need in Uganda.

To be most useful, this analysis needs to be interpreted within the context of each country. Potential benefits of integration must be weighed against the added demands required of the health system. For example, health workers may need more training and support to prepare for and respond to increased client demand for integrated service delivery. Additional financing and investments may be needed for the following: facility preparedness; revising and successfully applying new procedures for innovative management of key resources, client information, and new technologies; and enhancing referral and patient-flow systems (Sharan et al. 2010). In addition, clients and providers may be resistant to integration if their views regarding accessibility and acceptability are not considered (Briggs and Garner 2006).

As discussed earlier, additional evidence is needed to confirm whether integrated programs will contribute to the anticipated results. Systematic reviews of empirical evidence draw from limited, mixed, or weak evidence of the effects of integration on improving FP outcomes (Kuhlmann, Gavin, and Galavotti 2010; Kennedy et al. 2011). Systematic reviews commonly combine integrated service delivery together rather than weighing the potential benefits of

each platform separately. Studies in the Dominican Republic, Haiti, and Nicaragua found that providing FP information during the postpartum period had a greater effect on contraceptive use in the six months following delivery than did information given during ANC. In fact, the studies found that providing FP information during ANC visits did not significantly affect use of contraceptives during the first six months postpartum (Quiterio et al. 2008; Rivero-Fuentes et al. 2008; Solis et al. 2008).

Some service-delivery platforms may offer more optimal conditions for providing FP services. For example, women cannot begin practicing contraception during pregnancy, but they can be counseled regarding various FP options, including lactational amenorrhea (LAM). Skilled delivery at birth can be an opportune time to offer long-acting permanent or reversible methods, which may not be feasible in other service-delivery settings.

Another finding worth additional consideration is that approximately 30 percent of MWRA having unmet need reported that they did not visit a health facility in the 12 months prior to the survey for any reason (see Figure 1). Innovative strategies that work beyond the clinic walls are needed to reach these women.

Additional evidence and experience are needed to help design and implement effective integrated programs and strategies to reduce unmet need. This analysis has the potential to begin to help program managers identify country-specific, evidence-based “best bets” for integrated programming.

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