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CONTRACEPTIVE DISCONTINUATION: REASONS, CHALLENGES, AND SOLUTIONS

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FP2020 is an outcome of the 2012 London Summit on Family Planning and is based on the principle that all women, no matter where they live, should have access to lifesaving contraceptives. Achieving the FP2020 goal is a critical milestone to ensuring universal access to sexual and reproductive health care services by 2030, as laid out in Sustainable Development Goal 3. FP2020 is in support of the UN Secretary-General's Global Strategy for Women's, Children's and Adolescents' health. For more information visit:

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EXECUTIVE SUMMARY

Analyses of Demographic and Health Survey (DHS) data indicate that 38% of women with an unmet need for modern contraception have used a modern method of contraception in the past but have chosen to discontinue use. This phenomenon, called contraceptive discontinuation, is defined as starting contraceptive use and then stopping for any reason while still at risk of an unintended pregnancy. Discontinuation for reasons other than wanting to become pregnant contribute to unwanted fertility and can lead to pregnancies that may be terminated through unsafe abortion. Not all discontinuation is necessarily problematic. Some women discontinue a particular method because it is difficult to use or its use is unacceptable to the woman or her partner (for example, due to side effects) and subsequently switch to another method—one that is more suitable to them and oftentimes more effective. This evidence review focuses on the incidence of and reasons for discontinuation, on interventions to reduce discontinuation and/or enhance switching, and on the measurement and monitoring of discontinuation.

On average, over one-third of women who start using a modern contraceptive method stop using within the first year, and over one-half stop before two years. More than half of discontinuations are among women experiencing contraceptive failure or have method-related problems with its use, and so are still in need of effective contraception to prevent an unintended pregnancy. The likelihood of discontinuation is fairly similar across all methods except IUDs and implants, for which lower rates of discontinuation (other than for pregnancy or no further need, and for failure) are likely due to their greater contraceptive efficacy and the need for removal by a health care professional. A lack of robust longitudinal studies and limited qualitative research, however, limits our understanding of individual and couple decision-making that contributes to discontinuation, especially in developing countries.

The majority of women who discontinue for reasons other than wanting a child or no longer needing protection report that they do so due to "method-related concerns." These primarily comprise side effects such as prolonged bleeding or amenorrhea, which can concern or frighten women (and their partners), especially if they are unexpected and experience problems with using the method, expressed by the woman or her partner. Side effects may also have adverse sociocultural consequences. In some cases discontinuation occurs when abnormal bleeding or spotting limits a woman's ability to pray, prepare food, or have intercourse when bleeding or spotting, especially among clandestine users. Myths and rumors (e.g., causing infertility or cancer) also contribute to discontinuation.

Concerns around side effects or myths can be reduced through interventions such as:

1. **Enabling women to discuss potential side effects:** When women are given the opportunity to discuss side effects with their providers and with members of their social networks, continuation can increase and switching can be facilitated through better understanding of the nature of side effects.

2. **Engaging male partners:** Enhancing couple communication about method characteristics can be effective in supporting continued use, particularly in the postpartum period.

3. **Ensuring client confidentiality:** In some settings, male opposition to family planning may cause discontinuation of any method, thus ensuring client confidentiality is a priority intervention.

4. **Dispelling misconceptions:** Service providers need to dispel misconceptions about the timing of initiating a method, especially when switching, through the pregnancy checklist or testing, and also for the perceived need for occasional "rest periods" from using hormonal methods.

5. **Counseling women who experience prolonged amenorrhea:** Knowing that their menses will return and the average time for this to happen can reassure women who want to plan to become pregnant in the future.

DHS data indicate that between seven and 27% of women stop using a contraceptive method for reasons related to the service environment, including service quality, availability of a sufficient choice of methods, commodity stock-outs, and ineffective referral mechanisms. Interventions to address these include:

1. **Increasing the number of methods available:** Broadening the method mix available to women during consultations or through referrals is crucial. Adding one method or its equivalent to a program is associated with an eight-percentage-point decrease in contraceptive discontinuation.

2. **Enabling women to switch immediately:** Women must be able to continue protection against unintended pregnancy by starting use of a more acceptable and effective method immediately if they experience problems.

3. **Ensuring effective partnerships between alternative sources of supply and/or providers:** For example, through task sharing, to facilitate wider options for selecting an acceptable method and/or switching to another.

4. **Improve follow-up mechanisms:** Reminding women of appointments for resupply methods, for example through mobile technology, can reduce unintentional discontinuation due to missing the clinically allowable grace period for resupply.

5. **Bringing the methods to women:** Women can incur significant time and transport costs for resupply leading to discontinuation or late resupply; community-based, workplace-based, or outreach services that take the method to the woman can enhance continuation.

Adolescents have higher rates of discontinuation than older women, but the obstacles to consistent use are poorly understood and often context-specific. For example, providers may have negative views about premarital sexual activity or erroneous perceptions about the suitability of long-acting methods for nulliparous women. Discontinuation among adolescents has significant personal and societal consequences, especially for countries with burgeoning youth cohorts, as high levels of adolescent unwanted fertility will impede young people's participation in the education and employment opportunities needed to achieve a demographic dividend. Moreover, frequent starting and stopping of contraceptive use may reflect the sporadic nature of many adolescents' sexual activity that could be protected through pericoital methods (e.g., condoms, emergency contraception pills [ECPs]).

Individuals' and couples' motivation, intentionality, and ambivalence for desiring or avoiding a pregnancy and its influence on discontinuation remains poorly understood. Incorrect understanding about physiology and the perceived meaning and significance of regular menstruation may govern women's use of contraception over and above providers' medical advice about a method. Better understanding of how women perceive whether they have discontinued is crucial, therefore, to inform appropriate counseling and information so that women do not completely stop using contraception when they do not want to conceive. Lessons can potentially be learned from approaches for enhancing adherence with other preventive commodities, for example to antiretroviral medication, to support women who are ambivalent about continued use of a method.

Despite discontinuation being what Jain and colleagues have termed the "leaking bucket" that reduces the impact of family planning programs, FP2020 does not track a dedicated indicator that measures all-method or method-specific continuation rates (Jain 2014a). Several program indicators, including those used by Family Planning 2020 (FP2020) and Performance Monitoring and Accountability 2020 (PMA2020), do measure the various factors associated with discontinuation (usually through DHS-type surveys), but capturing client-specific information about method use over time is challenging because data need to be collected prospectively. Most current measures of discontinuation and switching are retrospective through questionnaire surveys and contraceptive calendars, and health and demographic surveillance systems (HDSS) have rarely measured contraceptive use dynamics. Health management information systems that follow clients longitudinally do exist (e.g., DHIS2, CLIC) and could be adapted to measure, detect, and potentially reduce discontinuation and/or facilitate switching, but mainstreaming such systems, especially in public sector programs, would require a major investment and reorientation of existing client registration systems. Given the significant influence of discontinuation on achieving FP2020's goal, however, such investment would seem to be not only warranted but an urgent priority.

We propose a theory of change that identifies several pathways through which interventions addressing heath systems, service quality, and the sociocultural environment could reduce unnecessary discontinuation. Although many of these are based on evidence demonstrating their feasibility and effectiveness in certain contexts, implementation research is needed urgently to determine their utility in specific national settings and among various subpopulations. Social science research is also needed to better understand fertility intentions and contraceptive use within specific contexts.

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PART 1

BACKGROUND

The desire for smaller families and the capacity to time pregnancies and space births have increased dramatically in developing countries over the past three decades. Considerable inter- and intra- country variation exists, however, in both use of and unmet need for effective contraception (Ali, Cleland, and Shah 2012). Despite these increases, many women using family planning discontinue their contraceptive method and without switching to another method, despite their desire to avoid pregnancy.

High levels of discontinuation can adversely affect the impact of family planning programs. An analysis of 34 Demographic and Health Surveys (DHS) by Anrudh Jain and colleagues (2013) estimated that of women with an unmet need for family planning, 38% had discontinued using a modern method; this figure rose to 50% or more in 16 of the countries analyzed, primarily in sub-Saharan Africa. Moreover, almost one-fifth of women who had ever used a modern method had discontinued its use yet still had an unmet need. This level of discontinuation means that up to 49 million of the 258 million women currently using modern contraception in the 69 poorest countries (i.e., the focus countries for FP2020) could stop doing so, thus increasing the number of women with an unmet need for family planning and adding a further challenge to FP2020's ambitious goal.

It is important to bear in mind that discontinuation is not necessarily negative; some level of method-related discontinuation is to be expected if a woman starts using a method and then finds that it is not suitable for her needs or preferences. However, if such women do not immediately switch to using another method and do not want to become pregnant, then they are at risk of an unintended pregnancy. Half of all unintended pregnancies in developing countries are terminated (Sedgh et al 2014), most of which are carried out in illegal or unsafe circumstances with consequent morbidities or mortality. Moreover, children born from pregnancies that are reported as "unwanted," as well as those who are born after short birth intervals, may risk developmental and psychosocial delays as well as growth challenges (Rutstein 2005, Crissey 2005, Crowne et al 2012).

Addressing discontinuation can therefore have an impact on a woman's fertility and health, as well as on infant and child well-being and maternal mortality and morbidity. Moreover, discontinuation has implications for demographic growth: Blanc, Curtis, and Croft (2002) estimated that, on average, a country's total fertility rate would decrease by 20%–48% if discontinuation were to be eliminated. Thus, if FP2020 is to reach an additional 120 million women with an unmet need for family planning by 2020, contraceptive discontinuation needs to be better understood and more effectively addressed to avoid family planning programs becoming a "leaking bucket" (Jain 2014a).

Initiatives to address discontinuation have policy and human resource implications that require coordinated responses between service delivery organizations, providers, and governments. The evidence reviewed here sheds new light on important and innovative ways to encourage sustained use and to lessen discontinuation within a context of informed choice and high-quality care.

PART 2

OBJECTIVES AND METHODOLOGY

This review seeks to answer the following questions:

1. What are the reasons for discontinuation, other than a desire for pregnancy, and how can we understand their underlying meanings in order to address discontinuation effectively?
2. How much do these reasons vary by user characteristics and by cultural contexts, and why?
3. Are there specific service delivery or method attributes that are associated with lower discontinuation rates?
4. What are the best practices for preventing unnecessary contraceptive discontinuation that can be synthesized and shared?

The evidence presented in this report is drawn from a rigorous review of the literature, including published and academic papers, policy documents, and programmatic briefs from international agencies. Our literature search spanned 25 years, but most sources are from 2000 onward. The majority is from developing country contexts where unmet need is highest, but a small number of studies from the United States and other developed countries were reviewed as similar issues

emerged, for example, relating to clients' understanding of reproductive physiology and its association with discontinuation. Documents were identified by searching Popline using keywords such as discontinuation, family planning, side effects, and service quality, and searching PubMed and Google Scholar, as well as the Population Council's online database. While we believe the review is comprehensive, the literature searched is not exhaustive and conventional systematic review procedures (e.g., Cochrane reviews) were not followed due to resource constraints.

It should be noted that the review revealed remarkably few documents on the reasons for discontinuation, or on programmatic interventions explicitly designed to reduce discontinuation and/or increase switching. For this reason, knowledgeable sources at leading agencies in the field of family planning were contacted for additional information, including Marie Stopes International, Population Services International, and USAID. The authors of two significant analyses of Demographic and Health Survey data (Sarah Bradley, John Cleland, and Iqbal Shah) were contacted personally for their opinions. A preliminary version of the report was shared with members of FP2020's Performance Monitoring & Evidence Working Group for further inputs and insights.

PART 3

TIMING OF AND REASONS FOR DISCONTINUATION

Considerable attention has been paid to analyzing rates of discontinuation and their correlates using existing DHS datasets. This review does not replicate these quantitative analyses but refers the reader to the two most comprehensive analyses, by Bradley, Schwandt, and Khan (2009) and Ali, Cleland, and Shah (2012). Selected tables from these papers are reproduced here and serve as a basis for an in-depth exploration of the contextual issues and decision-making processes that frame discontinuation.

Table 1, Figure 1, and Annex 1 present data collected using the DHS calendar method that self-reports a woman's contraceptive use in the five years preceding the survey. There are likely to be respondent biases associated with these data due to being collected retrospectively, as women may reclassify "method failure" as a "desire for pregnancy" if conception occurs, even if the pregnancy was unintended. Curtis, Evens, and Sambisa (2011) note that contraceptive discontinuation may be associated with low motivation to avoid pregnancy and, if this is the case, a substantial proportion of pregnancies that follow discontinuation will be reported as intended. In addition, dissatisfaction with a method may not be articulated as such if there is a culture of providing positive responses during interviews (Williams, Schutt-Aine, and Cuca 2000). Furthermore, as discontinuation may occur for multiple and concurrent reasons, these cannot be easily captured by existing data collection methods used by DHS and similar surveys (Vitzthum and Ringheim 2005). Moreover, it is important to note that although a woman may continue using a method she may not be satisfied with it and would prefer another method if available.

Table 1: Median duration of method use (months) for users in 19 countries

Method	Median Duration of Use (months)
Modern methods	
IUD	40.0
Condom	16.0
Pill	14.7
Injectable	11.9
Traditional methods	
Periodic abstinence	17.5
Withdrawal	15.2
All methods	**19.7**

Source: Ali, Cleland, and Shah (2012)

On average, a woman will use a contraceptive method for almost 20 months, with women using the IUD having the longest duration (over three years) and those using injectables the shortest (less than one year). There are similarities across all methods, modern and traditional, in the mean duration of use (12–18 months (Table 1.) and the all-reason probabilities for discontinuation[1] (Annex 1), with the exception of the IUD and implants. For all methods, over one-third (38%) of women discontinue by the 12th month, over

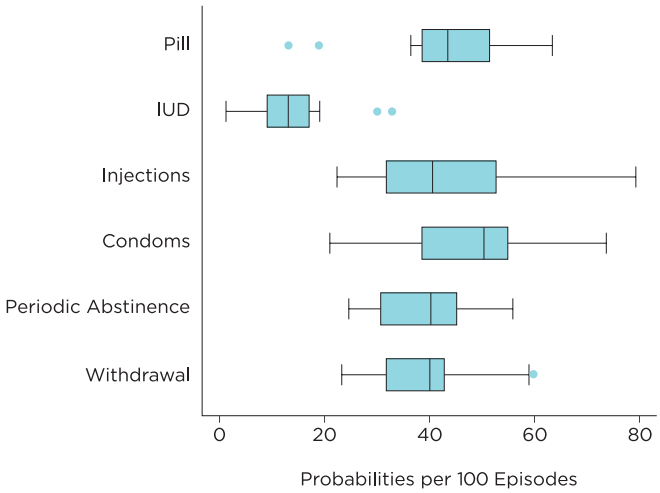
1. These probabilities do not sum because they are single decrement estimates that represent the hypothetical probability of discontinuation for a specific reason in the absence of other reasons for stopping; this is appropriate when estimating competing risks that affect each other.

half (55%) by the 24th month, and almost two-thirds (64%) by the 36th month; when IUD users are excluded, these median rates are much higher at each time period (i.e., 40%–50% at 12 months). Moreover, at 36 months, IUD users are twice as likely to be using their method as users of other methods, most likely because IUDs are an appropriate method for women wanting a long duration between pregnancies or no more children. Implants were not included in the DHS datasets analyzed by Ali et al (2012) and Bradley et al (2009). Analyses from other published studies note that continuation rates for implants range from 78%–96% at one year to 50%–86% at three years (Jacobstein and Polis 2014) and are therefore similar to rates for IUD users.

The reasons for discontinuation vary considerably by method, although these reasons are fairly constant for each method over time. For all methods apart from the IUD, 6%–11% of users discontinue after 12 months because they want to get pregnant; similar proportions (6%–13%) discontinue because they feel that they no longer need protection against pregnancy. Very few IUD users discontinue for these reasons at 12 months (1.3% and 0.8% respectively), and even by 36 months the main reason for IUD discontinuation is method-related, not because of wanting to become pregnant or no longer needing protection; this suggests that most IUD users are using contraception to achieve long birth intervals or no more births. At 12 months, 7% of all users report failure as the reason for discontinuation, although this is largely among users of withdrawal and periodic abstinence (15%–17%) and pill and condom users (6%–8%); failure rates among IUD and injectable users are just over 1%.

The major reasons for IUD discontinuation are method-related, including side effects and health concerns. Given the small probabilities of discontinuing an IUD in order to become pregnant, no longer needing protection or method failure at 36 months, the fact that over one-third of IUD users have discontinued primarily for method-related reasons indicates a clear need to understand which types of IUDs are associated with which reasons, and whether the way in which they are provided could reduce the likelihood of these adverse experiences. DHS data on continuation rates for LNG-releasing Intrauterine Systems (LNG-LUS) are not available due to the small number of users in developing countries. Studies comparing the Mirena® LNG-IUS with the Nova-T copper IUD[2] indicate similar continuation rates at five years, although in one study the LNG-IUS had a higher discontinuation rate, mainly attributable to women

Figure 1: All reasons discontinuation probabilities at 12 months per 100 episodes, by method: box and whiskers plots for 19 countries



Source: Ali, Cleland, and Shah (2012)

experiencing unwanted amenorrhea. The newly registered LILETTA® LNG-IUS has a similar 12-month discontinuation rate (about 10%) as the IUD.

Users of pills and injectables have similar rates of discontinuation over time, but with substantially higher proportions of pill users citing failure (probably due to poor compliance with regular use) and higher rates for method-related and side effects among injectable users. Indeed, as Figure 1 shows, the level and range method-related 12-month discontinuation of the injectable are by far the highest for any method. Given the rapid increase in injectable use in sub-Saharan Africa, there is a clear need for improved counseling on potential side effects, rigorous follow-up and referral mechanisms to facilitate switching, and the market for an injectable product with fewer side effects.

Data from DHS surveys in six countries are presented in Annex 3 that calculate odds ratios of married women discontinuing contraceptive use while not wanting to become pregnant within the first three years. In every country except Egypt (where most women use the IUD), the odds of discontinuing after six months or more are lower or no different than the odds of discontinuing within the first five months. In

2. www.mirena.com/en/professional/counselling/tolerability/index.php#

general, however, this study and similar analyses of DHS data suggest that there tends to be high discontinuation within the first five months, probably due to women experiencing unanticipated side effects or similar problems. However, if women use a method for at least 6 months, they are more likely to continue to use it for an average of 20 months. This suggests that women should routinely be informed about side effects during counseling and offered the possibility to switch methods if necessary during counseling.

PART 4

DISCONTINUATION, CONTRACEPTIVE PREVALENCE, AND METHOD MIX

Whether discontinuation changes as contraceptive prevalence and method mix increase is a critical issue, especially for programs that are starting to accelerate their coverage and reach. The association between contraceptive prevalence and 12-month all-method, all-reason discontinuation rates has been analyzed using longitudinal data from two rounds of DHS for eight countries (Bradley, Schwandt, and Khan 2009). The results (see Annex 2) are inconclusive. For example, in Indonesia and the Dominican Republic, prevalence increased and discontinuation decreased. In Bangladesh and Zimbabwe, prevalence increased and discontinuation did not change, and in Egypt both prevalence and discontinuation increased. In Armenia, a decrease in prevalence was accompanied by a decrease in discontinuation. In Kenya, little change in prevalence was associated with an increase in discontinuation, whereas in Colombia little change was accompanied by decreased discontinuation. This is important information, as investments that successfully increase contraceptive prevalence cannot be assumed to also reduce discontinuation. Additional efforts will be needed to complement those initiatives that do increase prevalence to ensure that discontinuation rates decrease with increased prevalence, or at least do not increase.

More research is needed, however, to control for whether there is a change in the method mix as prevalence increases, and if so, whether this change influences discontinuation rates overall, and for individual women. Evidence suggests that a greater variety of methods can facilitate switching rather than stopping after discontinuation. Jain et al (2013) have estimated that by adding one additional method or its equivalent to the number of methods available, there is an 8-percentage-point decrease in contraceptive discontinuation. Moreover, improving the method mix was associated with a six-percentage-point decrease in discontinuation. A broader choice is particularly important if side effects with a method are the main reason for discontinuation (Barden-O'Fallon and Speizer 2011), although responsive and effective mechanisms to enable switching must be in place.

Recent analyses have shown that the mix of contraceptives available is severely imbalanced in many countries, where just one or two methods account for over half of all use (Bertrand et al 2014, Ross, Keesbury, and Hardee 2015). For these countries in particular, understanding the role of method mix in discontinuation and switching is particularly important.

The widespread increase in use of injectables in sub-Saharan Africa has been accompanied in some countries by a reduction in the method mix because virtually all new users choose this method, even when other methods are available. Ensuring that women using injectables have the opportunity to easily switch to an equally or more effective method requires particular attention for several reasons: (i) discontinuation for method-related reasons and side effects is the highest for injectables; in South Africa, Baumgartner et al (2012) found that between 29%–42% of injectable users were up to 2 weeks late for their resupply and a further 16%–25% arrived 2 to 12 weeks late, and Dasgupta et al (2015a) found that only 51% of new users in Malawi had their follow-up injection within 13 weeks; (ii) their use has been associated with shorter birth intervals than other methods or even no method (Ngianga-Bakwin and Stones 2005); and (iii) ongoing uncertainty about their potential role in HIV acquisition (e.g., Polis et al 2014) may motivate existing injectable users to switch to another method.

PART 5

DISCONTINUATION BY PROFILE OF USER

Annex 3 uses data from DHS surveys between 2002 and 2006 to calculate odds ratios of married women discontinuing contraception while still not wanting to become pregnant within the first three years of use, by selected socio-demographic variables. Interestingly,

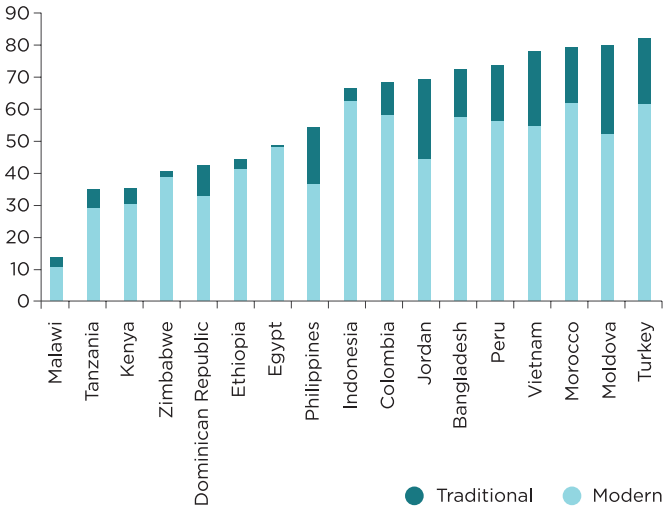
women are more likely to discontinue modern methods than traditional methods in Kenya, Armenia, Bangladesh, Indonesia, Dominican Republic, and Columbia, whereas in Zimbabwe and Egypt women are less likely to discontinue modern methods. National programs can, therefore, play a role in influencing (positively or adversely) women's use of modern compared with traditional methods.

Women above age 25 are consistently less likely to discontinue than younger women; the odds of continuing are lowest for older women and highest for adolescents (Blanc et al 2009). Women who have worked in the past year are less likely to discontinue than those who have not worked, presumably because they desire to maintain employment rather than have an unintended pregnancy. The odds of discontinuing decrease with each annual increase in women's education, although it is a weak relationship. Discontinuation is not clearly associated with media exposure across these countries, suggesting that using media to address discontinuation may be effective but needs to be well designed and implemented to avoid mixed messages that may not be understood. Living in a community where contraceptive use is high appears to be somewhat associated with reduced discontinuation. Wanting more children than one's partner (which is likely to be indicative of poor spousal communication) is associated with increased discontinuation in some countries (Kenya, Bangladesh, and Indonesia).

PART 6
SWITCHING VERSUS STOPPING

Analyses of DHS data on switching behaviors by Bradley et al (2009) and Ali et al (2012) revealed that at three months after discontinuing because of method-related reasons (i.e., not because of wanting to become pregnant), there was a wide range in the proportions who subsequently switched to another method. Figure 2 shows huge cross-national variations, from around 80% in Moldova, Morocco, Turkey, and Vietnam to less than 40% in the East African countries of Kenya, Tanzania, and Zimbabwe, with Malawi having by far the lowest level of switching at 14%. Between 4% and 20% of the women who had not switched by three months reported becoming pregnant, with the remaining women who did not switch being at risk of becoming pregnant, ranging from 73% of women in Malawi to 12%–17% of women in Moldova, Morocco, Turkey, and Vietnam.

Figure 2: Percent who switched to a modern and to a traditional method within three months of method-related discontinuation, for 17 countries.countries

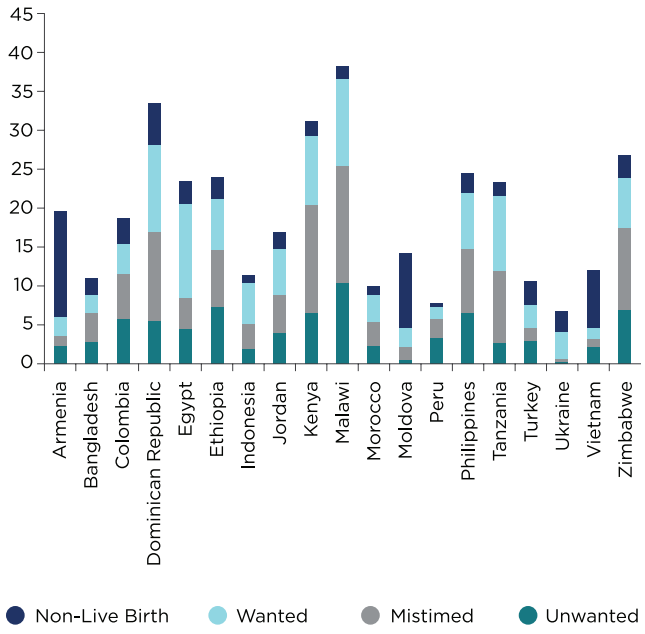


Source: Ali, Cleland, and Shah (2012)

Among those women who do switch, the majority start using a modern reversible method or switch to another modern method, although in some countries (notably many of those with the highest levels of switching), over 20% switch from a modern to a traditional method, and over 10% switch to condoms. This behavior probably indicates method-related problems with hormonal methods or the way they are provided.

An analysis of DHS datasets in 14 countries by Ali, Park, and Ngo (2014) found that the median duration of uninterrupted IUD use was 37 months. Discontinuation at 12 months was 13%, with 9% discontinuing due to method-related reasons. Within three months of discontinuation due to method-related reasons, half of the women had switched to another reversible modern method, 12% to traditional methods, 12% became pregnant, and 25% remained at risk for pregnancy. More educated, wealthy women and those wanting no more children were more likely to switch to another reversible modern method. A study of women who discontinued using an IUD received through a social franchising program in Pakistan (Hameed et al 2015) found that 40% of these women did not switch to another method, and thus were at risk of an unintended pregnancy. Those that did switch used a short-acting

Figure 3: Reproductive outcomes within 12 months of method-related discontinuation, for 19 countries



Source: Ali, Cleland, and Shah (2012)

or traditional method, especially those who had used such methods before starting the IUD. Strategies recommended to increase the likelihood of method switching among IUD discontinuers include immediate post-removal client counseling, follow-up by a health care provider, and ensuring that other long-acting or permanent methods are available and affordable.

For several of the countries with high levels of switching (e.g., Moldova, Turkey, Vietnam), about half of the switching is to the IUD. Conversely, in the four East African countries with the least switching, most women switch to a hormonal method, with very few (3%–6%) switching to traditional methods and virtually none to the IUD; among those who switch to traditional methods, the majority do so because of concerns with their hormonal method. Whether this reflects genuine method preference or a limited range of methods available is difficult to discern. Ali et al (2012) also note that switching between types of hormonal methods is common (i.e., between pills and injectables or vice versa), thus side effects or health concerns may not be barriers to using alternative hormonal options if they exist.

Even women who do not have problems with side effects may try different methods in a sequential manner to find which suits them best. For example, in Burundi, service providers reported that many women tended to 'experiment' with using injectables before switching to implants (APHRC 2013).

Figure 3 indicates the wide variation in reproductive outcomes 12 months after a method-related discontinuation. Ali et al (2012) show that 3%–20% of women who do not switch to another method within three months become (presumably unintentionally) pregnant, and the remainder are still at risk of such a pregnancy. High rates of pregnancy (up to 38% in Malawi) can occur, with substantial proportions (15–25%) of these being reported as unwanted or mistimed (i.e., unintended) (e.g., in Dominican Republic, Kenya, Malawi, and Zimbabwe); these pregnancies likely reflect women's inability to switch to another method or to access abortion services when becoming pregnant. However, in some countries (e.g., Egypt, Indonesia, Moldova, and Ukraine), over half of the women who become pregnant or have had a live birth describe them as wanted. This may indicate that they were planning to stop using a method soon anyway, but more likely reflects a reconsideration of their intentions after the pregnancy has occurred or the baby has been born.

PART 7

WOMEN'S DECISION-MAKING WITH REGARD TO DISCONTINUATION

7. 1. Side Effects

A significant proportion of women who cite method-related reasons for discontinuation have stopped because of side effects, and the highest rates of method-related discontinuation are for hormonal methods, i.e., injectables followed by the pill. The manufacturers of the most commonly used injectable contraceptive, Depo-Provera, note that "as women continue to use Depo-Provera, fewer experience irregular bleeding patterns and more experience amenorrhea. By month 12, amenorrhea was reported by 55% of women, and by month 24, amenorrhea was reported by 68% of women using Depo-Provera" (Pfizer 2013:12). There is increasing evidence to suggest that significant physiological variation may occur worldwide with regard to

women experiencing side effects. Vitzthum and Ringheim (2005) note that there may be a biological basis (perhaps related to diet, nutrition, or other metabolic factors) for variation in women's tolerance of hormonal contraception. They present findings from research among Bolivian women who appear to have normal hormonal profiles that are significantly lower than those of women in the United States, among whom the clinical trials for many hormonal contraceptives are carried out. These findings suggest that there is a "need for more population-specific physiological research linked to an analysis of the possible association between endogenous hormone differences and contraceptive continuation" (Vitzthum and Ringheim 2005:13). For example, women given much lower doses of oral contraceptives in both Latin America and Thailand had lower rates of irregular bleeding and few side effects, leaving them less likely to discontinue (Koetsawang et al 1995).

Qualitative research indicates that women's concerns about side effects are often dismissed by providers as being unimportant, when in fact, amenorrhea or prolonged bleeding can have a profoundly negative psychosocial and indeed economic impact on many women's lives (Tolley et al 2005, Var et al 2014). If clients are not properly informed about possible side effects during counseling, they may be concerned and even frightened by unanticipated changes in their mood, menstruation patterns, or weight. Most side effects can be managed by simple interventions (for example, by giving oral pills or ibuprofen to injectable, implant, and IUD users who suffer menorrhagia) while others simply require the woman to be given reassurance and correct information by her provider. If providers do not give women support to both expect and manage side effects, discontinuation or unnecessary method switching may occur. Women with higher levels of education appear to discontinue less frequently (Bradley, Schwandt, and Khan 2012) as presumably they may have a better knowledge of their physiology and are better able to seek out and understand information from providers or others when side effects occur.

Providers themselves are often unsure of the physiological effects of contraception and how to manage side effects if they present. Their first reaction may be to advise switching instead of persisting with the method until side effects resolve. Castle and Hardtman (2014) found in Madagascar that clients experiencing breakthrough bleeding while on injectables were often told to switch to implants instead of being reassured that it would settle down over time or offered pills or nonsteroidal anti-inflammatory drugs to control it. In Ghana, the same authors noted that follow-up consultations with women who had concerns about side effects warranted additional costs that they could not afford. It is possible, therefore, that some users discontinue because of side effects that they are unable to discuss with their provider as they cannot pay for an additional visit.

Women who suffer from side effects may also benefit from talking to family members and others in their social networks. Fallon and Speizer (2011) found that more than 4 out of 10 women in Honduras discontinued their initial method during the 12-month study period and that "stoppers" were less likely than "switchers" to communicate their concerns. Among both groups, a higher proportion of women communicated bleeding disturbances than headaches to their health workers, even though over 40% of women experiencing headache said it interfered with their partner relationship. Women who sought help with side effects from a clinic or health worker were significantly more likely to have switched to another method than to have stopped using contraception completely. Moreover, those who had discussed the possibility of discontinuing with their partner were over three times more likely to switch than stop. The authors conclude that the Honduran family planning program should "encourage them to talk with their partners, family members, and others about stopping or switching before making—or acting upon—a decision" (Fallon and Speizer 2011:22).

Side effects may not simply be worrisome or inconvenient; they may also impact upon women's social and sexual relations, religious practices, and economic activity. For example, vaginal dryness associated with injectable use may affect women's sexual relations, leading to spousal discord. In Mali, a qualitative study revealed that menstrual disruption (in the form of amenorrhea or prolonged bleeding) can have dire repercussions, including accusations of witchcraft and immoral behavior, which could result in a woman being divorced or her husband acquiring an additional wife (Castle 2003). In Uganda, Hytell et al (2012) note that side effects, such as bleeding and fatigue, affect women's ability to work in the fields and thus reduce their contribution to household productivity. As noted by a male informant:

"Bleeding becomes a problem because we are always working hard. If she bleeds a lot, gets stomachaches, and starts getting dizzy, that means she will stop working. If she does not harvest my millet, what will she eat tomorrow?"

Side effects are perhaps most serious for women who are using contraception without their husband's knowledge. For example, the main reason for discontinuation among clandestine users in Mali was menstrual disruption, which they feared would make their husbands aware of their contraceptive use (Castle et al 1999). In Islamic societies, a menstruating woman cannot pray, and in other societies menstruating women cannot prepare food or have sexual intercourse. Thus, the menstrual disruption becomes "visible" to spouses and other family members. In low prevalence settings, where opposition to family planning by men and older relatives is often high, discovery of clandestine use can be dangerous and may mean that a woman risks divorce or gender-based violence because of disobeying her husband (Castle et al 1999). In such settings, couples counseling may not be appropriate, and providers may need to actively protect women's confidential and clandestine contraception use. In other cases, couples counseling may result in greater male commitment to family planning and lead to improved communication and sustained use (WHO/PAHO 2002). This reinforces the importance of individualized counseling tailored to women's specific circumstances with regard to male involvement.

7. 2. Rumors and Misinformation

Little research has been undertaken that specifically analyzes the association between rumors about methods and discontinuation and switching. Evidence suggests that, in some settings, myths and rumors about the biological and behavioral consequences of contraception use can lead both to a lack of uptake and to early discontinuation (Castle 2011). The nature of myths and rumors is usually method-specific, yet is remarkably consistent across countries and cultures, comprising a mixture of perceived personal experience and hearsay (Diamond-Smith, Campbell, and Madan 2012). In some settings, there are beliefs that contraceptive use will encourage women to be promiscuous, may make women sterile, or may cause cancer or other diseases; some societies liken contraceptive use to infanticide or believe, rightly or wrongly, that it is against their religion (Sargent 2006). In Nigeria, for example, a study found that women who agreed with the statement that family planning led to female infertility were much less likely (0.14 times) to have ever used a method than those who did not. Similarly, those who believed that contraceptive methods could cause cancer were much less likely (0.19 times) to use a method than those who did not (Ankomah, Anyanti, and Oladosu 2011).

Myths are often created and reinforced by women's social interactions in informal settings, such as in the market place or at the well, where they exchange information. In a study of network exchanges, Kenyan women were found to be ambivalent about family planning, and supplemented providers' instructions with the experiences of women whose bodies and circumstances are similar to their own (Watkins 1997). Family planning programs could improve their effectiveness by viewing clients and providers as individuals as well as members of informal and meaningful informational networks. In Mali, for example, informal exchanges in public spaces informed contraceptive decision -making, often overriding that given by a provider (Castle 2011).

In Cambodia, Samandari and O'Connell (2011) found that long-term use among married women less than 30 years old and with 12 to 14 years of education was

"In one of the markets, where they sell kola nuts, women say that if you take the pill, the pills will stack up in your stomach, and the woman will become sterile — that's why I stopped using the pill. Then I started using injectables, and I haven't had any problems with them."

Pill user, 31 years old, no education, condiment seller

CASTLE (2011)

"The doctor said not to believe their rumours – it's ok. So now I don't feel worried at all."

Continuer, Cambodia

SAMANDARI AND O'CONNELL (2011)

largely related to their ability to reject misconceptions about contraceptives and to endure side effects, as well as receive support from their partners and providers. Although they acknowledged hearing rumors, most continuers rejected them and instead relied on their own judgment and experience. In addition, they consulted their health care providers, discussed the rumors with them, and were put at ease by the providers' explanations (see box). The continuing users exhibited greater confidence and self-efficacy than those who discontinued, which enabled them to dispel the rumors and prioritize their contraceptive wishes. Less educated women in other settings may not have the psychosocial skills to enable them to transcend normative beliefs and may let rumors influence them to discontinue.

7. 3. Intent, Motivation, and Ambivalence

Evidence of the contextual reasons for discontinuation is generally limited to qualitative research around method dissatisfaction and the role of rumors and side effects, which implies that women make a conscious decision to discontinue because of these reasons. The reality is more complex, however. For example, women may choose to take a short break in using a hormonal method but report that they are using continuously. This may affect the validity of retrospective data collection methods (such as the DHS calendar) and distort interpretations of findings from studies on hormonal contraceptive use (Smit and Beksinska 2013). There has been little research into the concept of intentionality of discontinuation and scant recognition of the fact that, for many women, discontinuing may not be a conscious or premeditated decision. Women classified in surveys as "discontinuers" may in fact not see themselves as such. Rather, their short- or long-term stopping may be due, for example, to a lack of understanding of the importance of the timeliness of resupply or reinjections or an inability to access a provider due to not having sufficient time or money.

Some women may be ambivalent about continuing to use contraception despite not wanting to get pregnant, while others may feel the need to temporarily discontinue their method use for reasons such as menstrual disruption. For example, in South Africa, a cohort study of 189 injectable users found that 78 women discontinued this method after two years. Of these, 31 reported that they were "taking a break" (Baumgartner et al 2007). Others wanted to be assured that their menses would indeed return. This concern is highlighted by the South African DHS, which found that "wanting to see menses" was a major reason for breaks in contraceptive use (MRC 2001). Beksinska, Rees, and Smit (2001) found that the mean duration of nonuse was seven months (range 2–13 months). The authors conclude that there is a significant need for improved counseling in order to ensure correct and continuous method use. They also note that, in many settings (including The United States), providers often think that women need to take a break in order to "give their body a rest" from hormonal contraception and that some women do not understand that they can still become pregnant even though they are not menstruating (2001:309).

The evidence from Baumgartner et al (2007) on "unintentional discontinuation" among injectable users in South Africa reinforces the need for improved counseling that emphasizes the importance of sustaining continued use, particularly for pill and injectable users who require regular renewal of their commodities, or of facilitating immediate switching to another method. Family planning programs can also make greater efforts to enable clients to overcome logistical barriers to attending their appointments on time, for example, through outreach and the use of mobile phones and texts to remind clients of their appointments. For those who really have difficulty in making regular visits to health facilities or do not live in areas served by community-level or mobile providers, switching to longer-acting or permanent methods may be recommended, especially for those who really do not want to risk becoming pregnant.

Many providers need better training in identifying the possibility of a client being pregnant and to suggest alternative, non-hormonal-methods use, such as condoms, until her pregnancy status is confirmed. It is recognized, however, that in many cases gender and power dynamics may make negotiation for condom use difficult for many women in such settings.

Factors influencing contraceptive discontinuation may be similar to those affecting adherence to therapeutic medical treatments. In a review of reviews of patient adherence to medical treatments (van Dulmen, Sluijs, van Djik et al 2007), technical solutions, such as a simplification of the treatment regimen, were often found to be effective. Smit and Beksinska (2013) note that high-quality counseling improves adherence to antiretroviral therapy and recommend that the same emphasis needs to be incorporated into family planning counseling, particularly for those using resupply methods. Longitudinal research is needed to better understand how hormonal contraception can be used more consistently (Halpern, Lopez, and Grimes et al (2013).

In settings where female education is low, women with perceived low self-efficacy and high degrees of fatalism may consider pregnancy prevention outside of their control (Upadhyay, Gipson, Withers et al 2014). In such contexts, conception may not be desired but is inadvertently (as opposed to deliberately) left to chance as women consider family planning neither a personal responsibility nor an urgent matter. Further qualitative studies drawing on psychosocial notions of agency and intentionality would provide insights into how programs could address such fatalistic attitudes.

PART 8

SUBGROUPS WITH SPECIFIC NEEDS AROUND DISCONTINUATION

8. 1. Adolescents

Blanc et al (2009) analyzed DHS data from over 40 countries to describe contraceptive use dynamics among sexually active 15–19 year olds (Annex 4). Compared with adults, adolescent contraceptive behavior is characterized by shorter periods of consistent use, higher contraceptive use-failure rates, and greater likelihood of stopping for reasons other than the desire to become pregnant. In almost every country, a greater proportion of 15–19 year olds than of 20–49 year olds reported a contraceptive failure within a year of starting a method. On average, failure rates were about 25% higher for adolescents aged 15–19 years than for older women (aged 20–49 years). In all countries except one (Ethiopia) a greater proportion of adolescents than of older women discontinued their method while in need. Younger women may face more obstacles relating to a lack of access or information, inexperience associated with the beginning of their contraceptive careers, or the social stigma often associated with sexual activity among unmarried adolescents.

Young married women in many settings may be under enormous pressure to conceive immediately or early in their marriage. Contraceptive use is often initiated after fertility had been "proven" and early discontinuation may be the result of societal pressure from husbands or mothers-in-law to have a child. In Mali, for example, unmarried sexually active girls and women were scared of using hormonal methods because they worried that the menstrual disruptions would render them infertile. In settings where a woman's status within marriage is measured by her fertility, they preferred to use condoms or no contraception at all in order not to risk "becoming sterile" (Castle 2003). Similarly, in South Africa, qualitative research (Wood and Jewkes 2006) found that girls were under pressure from male partners and family members to have a baby to prove their fertility before marriage.

> "You start by giving them lectures about the dangers of early sex before they can convince you to give them what they want!"
>
> **Health care provider, Limpopo province, South Africa**
>
> WOOD AND JEWKES (2006)

Other barriers to sustained contraceptive use by adolescents include medically inaccurate notions about how conception occurs and providers scolding sexually active girls seeking contraception. Providers' unwillingness to acknowledge adolescents' experiences as contraceptive users undermines the sustained use of contraception by girls; for example, some preferred to share oral contraceptives among friends rather than face a consultation with a provider at a clinic (Wood and Jewkes 2006). Girls also recounted that they were scolded by nurses if they returned late for their follow-up visit or if they had lost or damaged

their cards. In some cases they preferred to stop using contraception altogether rather than face the wrath of the providers.

8. 2. Postpartum Women

Women in the postpartum period who become pregnant within 24 months of giving birth face increased health risks, and so sustained protection during this period is critically important. Discontinuation among postpartum women has not been widely studied, with most analyses focusing on the potential for "redundant" method use when it overlaps with postpartum abstinence and/or amenorrhea because of breastfeeding (e.g., Sambisa and Curtis 1997, Bradley, Schwandt, and Khan 2011). Bradley and colleagues also found that "the probability of failure rose sharply over time among women whose previous episode was a pregnancy/birth, but declined or rose only slightly among other women. This same pattern…was also seen among women who abandoned in need, further suggesting that some women may be experiencing failure and reporting it as abandonment in need" (page 58). Clearly, further research is needed to better understand discontinuation, postpartum amenorrhea, and unintended pregnancy during the postpartum period; sufficient data from DHS datasets exist that could be interrogated specifically to enhance this understanding.

Fortunately, such evidence is emerging. Several studies of postpartum discontinuation were presented at the 2014 International Seminar on Promoting Postpartum and Post-abortion Family Planning (IUSSP), yielding fresh and important insights. In their overview paper, Cleland and Shah (2014) concluded that women who started method use before the return of menses were less likely to have discontinued use by month 12 compared with women who started after the menses return. Although women who started using a short-acting method before their return to fertility had, in effect, "redundant" protection (with the associated cost implications) for that period, which could be over six months in populations with prolonged breastfeeding, this was offset by lower discontinuation rates at 12 months. Cleland, Shah, and Benova (2015, 160) conclude that "advocacy of early uptake of the most widely used methods, injectables, and oral contraceptives, is ill advised for the majority of women because of high rates of discontinuation and low rates of switching to an alternative method." Cleland and Shah also cite studies in which women in populations with prolonged breastfeeding who start postpartum contraception early using reversible methods were more likely to have a shorter birth interval due to the combination of redundant protection and high discontinuation rates, a conclusion supported by Jain using mathematical modeling (Jain 2014b). In short, it is unclear whether women starting use early in the postpartum period have longer continued use than those starting later, given the role of breastfeeding and of population- and method-specific factors that influence discontinuation. What is clear, however, is that women initiating long-acting or permanent methods postpartum are more likely to avert an unintended pregnancy.

Community-level implementation research has tested the impact of public-sector postpartum programs that sought to involve husbands in decision-making about contraceptive use following delivery, and engage male leaders in community sensitization activities. In Egypt, providing birth spacing messages to low-parity women during antenatal and postpartum care and also to husbands through community awareness activities was feasible and acceptable; at 10–11 months postpartum, 43–48% of women living in communities with the male engagement intervention were using a method compared with 31% of women in the control communities (Abdel-Tawab, Loza, and Zaki 2008). In India, a behavior change communication intervention using community workers from the Family Welfare Program to promote postpartum contraception, including the lactational amenorrhea method, with an educational campaign focused on men led to 57% of women using a modern method at nine months (including 41% using condoms), which was significantly higher than the 44% rate in control villages (Sebastian, Khan, Kumari, and Idnani 2012).

8. 3. Men

To date, few studies of matched couples have explored male and female perspectives on the timing and reasons for discontinuation, yet such information could be helpful in promoting gender-inclusive programmatic responses. Although research on contraceptive discontinuation has addressed male perspectives (e.g., Hytell et al 2012, Shattuck et al 2011), few explanations have been provided to account for differences in men's and women's reported contraceptive behavior (Cleland, Harbison, and Shah 2014).

A woman who stops using contraception may do so either in spite of or because of male opinions. In low prevalence settings, many women resort to clandestine use because of male disapproval and consequent adverse outcomes if discovered. However, interventions have shown that if men are made aware of the economic advantages of family planning they may be more ready to support its long-term use by their spouses or partner (Khosla 2009, Gribble, and Graff 2010). In Malawi, for example, emphasizing the financial benefits of using family planning was more convincing for men than were maternal-child health benefits alone (Shattuck et al 2011).

> "Sometimes they complain because of the way they (pills) make you feel tired, bring mood swings, and sometimes you have a low libido. This will make him complain because he will start accusing you that you are being unfaithful to him."
>
> **Family planning user, Mombasa, Kenya**
>
> OCHAKO ET AL (2015)

Programs that encourage communication between spouses and facilitate joint decision-making between spouses have been found to increase sustained use. For example, in Bangladesh counseling husbands about contraceptives was associated with lower discontinuation rates for long-acting methods such as implants (Amartya et al 1994); after 36 months, a 10-percentage-points difference in all-method discontinuation rates was observed between the counseled group of husbands (32%) and the control group (42%); moreover, this intervention had the most impact among clients attending clinics with higher discontinuation rates. As noted above, involving husbands in discussions about postpartum family planning and engaging male leaders in community level mobilization does improve continuation rates during the postpartum period.

Men may also encourage their partners to discontinue use because they perceive the side effects to be harmful or because they think that family planning will change their spouse's behavior, by, for example, making her promiscuous (see box) (Eliason et al 2014, Ochako et al 2015). In such settings, sensitization and education programs need to involve men and provide them with accurate information. Other programmatic approaches may include arming women with negotiation skills so that they can engage in reasoned and fact-based discussion with their male partners if they wish to continue using contraception but their partner wants to stop (Exavery et al 2012, Nanda, Schuiler and Lenzi 2013). Such negotiation skills can also be employed to insist on condom use during periods when they are not protected by contraception. In addition, some women may live separately from their spouses or their partners may regularly be absent due to short- or long-term migration. Thus, women's family planning needs, pressure to avoid pregnancy or to diffuse spousal pressure to discontinue contraceptive use may not be constant. Providers may therefore need to be aware of the changing contexts of use and of couple dynamics that determine the risk of both discontinuation and of pregnancy over time and over the life cycle.

PART 9

PROGRAMMATIC STRATEGIES TO REDUCE DISCONTINUATION

This section reviews the evidence available concerning strategies that have been, or could be used, by family planning programs to reduce the likelihood of discontinuation and/or increase switching. Given the highly negative influence that discontinuation can have on a program's capacity to reduce unintended pregnancy, the lack of investment in interventions that explicitly seek to reduce discontinuation and the concomitant lack of research on their feasibility, acceptability and (cost) effectiveness, present a major challenge to FP2020 that needs to be addressed urgently.

9. 1. Improve Service Quality

Bruce (1990) has articulated a quality of care framework outlining six elements of quality for family planning that still guides programming in many countries: choice of contraceptive methods, information given to clients,

technical competence, interpersonal relations, follow-up/continuity mechanisms, and appropriate constellation of services. With increasing emphasis on the integration of family planning services into other health services, such as child health, maternity services, and HIV/STI services, and broadening of the channels through which family planning services are delivered beyond clinics to include households and communities, outpatient and outreach programs, as well as commercial outlets (Kerber et al 2007), conceptualizing, measuring, and evaluating quality of family planning services is not straightforward.

Clients have a right to expect and receive respectful care with full, correct, and unbiased information in a compassionate manner (WHO 2014a, WHO 2014b, Hardee et al 2014). However, the quality of family planning services has also been shown to have a direct impact on whether a woman continues, discontinues, or switches method. For example, Blanc, Curtis, and Croft (2002) analyzed quality of care using the Family Planning Program Effort score and found that between seven and 27% of women stopped using contraception for reasons related to low quality of the service environment and that between 40–60% of the overall discontinuation rate reflects decisions based on the quality care. The authors conclude that, as contraceptive use increases, family planning programs would benefit from a shift in emphasis from primarily reaching out to new clients, toward greater investment in reducing discontinuation rates. This conclusion is supported by the analyses of Jain et al (2013) described above. The challenge, therefore, is determining how programs can enhance the quality of care so that women's rights are met and discontinuation is reduced.

Our review of the literature revealed few examples of a quality improvement intervention that has been evaluated explicitly in terms of its impact on discontinuation. Jain et al (2014) summarize this evidence, including simulations and cross-sectional and longitudinal studies. For example, women in Indonesia who received the method of their choice continued to use it longer than women who did not receive their preferred method (Pariani, Heer, and Van Arsdol 1991). In the Philippines, quality of care received at the consultation was measured on a 20-point scale (Jain et al 2011); a follow-up interview with these women approximately two years later showed that the quality of care received was associated with continuation rates: continuation among women receiving the lowest quality was 53% compared with 63% among women who received the highest quality. Moreover, unwanted births were twice as high among those receiving low quality compared with high quality of care (16% vs. 8%). In Senegal, Sanogo et al (2003) found an increased likelihood of contraceptive continuation with improved quality of care received at the initial visit. They reported that those women who received good quality care were 1.3 times more likely to be using a method about 18 months later than were those who received poorer quality care. Thus the quality of counseling when a woman starts using a method appears to be linked with the likelihood of greater continuation.

RamaRao and Mohanam (2003) reviewed studies from Niger and The Gambia and concluded that women who felt that they had not been properly counseled were more likely to discontinue their use. The differences were quite striking—for example, in The Gambia, 51% of those who felt that they were not properly counseled stopped using compared with just 14% of those who felt that their counseling had been satisfactory (Cotton et al 1992). Similar findings have been reported in China (Lei et al 1996). In India, IUD 12-month continuation rates improved if women were given counseling that included information about side effects and reproductive physiology through an intervention that improved preinsertion counseling (48% vs. 77%) (Patel, Patel, and Mehta 1999).

Nevertheless, some experimental studies that test interventions to improve quality of care and continuity of use have failed to demonstrate a substantial effect of the interventions. Ramarao and Mohanam (2003) suggest that research to date has not adequately determined which particular aspects of service quality (for example counseling, method choice, provider-client interactions, information including improved knowledge about physiology) are most likely to influence continued use, either singly or in combination. For example, the evaluation in the Philippines (Jain et al 2011) described above found that although women receiving higher quality of care were more likely to continue using contraception after three years, and to report fewer unintended pregnancies and unwanted births, the provider training intervention itself did not have a direct effect on continuation, even though it did improve provider knowledge and provider-client interactions. The authors propose that this is because other contextual and logistical factors may also have influenced the quality of care received, such as method choice, access, and cost, as well as addressing the sociocultural environment in which services are

provided. Thus although it is unlikely that a single element of quality of care will influence continuation rates, investments that improve the multiple elements of service quality may have the desired impact.

Halpern et al (2013) reviewed eight randomized controlled trials of interventions to improve adherence and acceptability of hormonal contraception and found that only three showed some improvement. However, several studies had small sample sizes and six had high losses to follow up. The overall quality of evidence was considered moderate, and the intervention type and intensity varied greatly across the studies. The authors concluded that a combination of intensive counselling and multiple contacts and reminders with clients may be needed to improve adherence and acceptability of hormonal resupply methods.

> "Someone spends like two years without going into her menstruation. For that we normally discourage young mothers…someone with one child, to use Depo. We don't provide it."
>
> **Public facility midwife, Kenya**
>
> M. HYTTEL ET AL (2012)

9. 2. Reduce Provider Bias and Improve Technical Competence

Provider bias occurs when service providers believe that they are better qualified to choose the most appropriate method for their client, and/or they have a personal preference toward or against certain methods which they then communicate to the client. Bias may preclude women from using a method appropriate to their circumstances and needs and subsequently may result in early discontinuation (PRB 2002). Providers may be biased when delivering services due to poor training and/or imposing inappropriate personal values and beliefs. They may also be biased if they receive financial or other performance-based incentives associated with providing certain methods (Stanback and Twum-Baah 2001). Reducing provider bias is important because if a woman does not use the method she prefers, or if a shared provider-client decision-making approach is not followed and she does not understand why she is using a particular method, a woman is less likely to use the method in an optimal manner (Dehlendorf, Krajewski, and Borrero 2014).

In Kenya, Tumlinson et al (2014) and Hyttel et al (2012) observed medical barriers such as misinformation and unnecessary requirements to prove nonpregnancy during client counseling as a result of provider bias against nulliparous women using injectables because of a misunderstanding of the time to return to fertility (see box). Hormonal methods pose no medical danger to women or their pregnancy if accidentally used while pregnant (WHO 2004). Providers who wish to be reasonably certain that their client is not pregnant can use the Pregnancy Checklist—a simple job aid developed by FHI 360 (FHI 2002). Training providers on consistent and correct use of the checklist in facilities where pregnancy tests are not widely available has been shown to reduce the denial of contraceptive services because providers suspect a pregnancy (Stanback et al 2005).

Baumgartner et al (2012) found tremendous differences among South African providers in their response to late presentation. In Western Cape, providers followed the national guidelines[3] and virtually all women within two weeks received a reinjection, whereas in Eastern Cape 36% of women did not receive a reinjection; of these, 64% did not receive another method and so were left unprotected. In addition to better counseling women on the need for timely return and the possibility of a grace period, providers should use pregnancy tests or the Pregnancy Checklist with women returning after two weeks to rule out pregnancy and then advise on continuation of the injectable or switching to another method.

If the new generation of health care workers is to be better equipped to reduce discontinuation, preservice nursing and midwifery curricula must include strategies for providing unbiased counseling and supporting women to switch promptly and easily instead of stopping. In Mali, for example, most nurses and midwives are

3. South African guidelines allow a two-week "grace period" after the date for reinjection because for most women the previous injection is still effective and a pregnancy test is not needed.

"Women who experience menstrual disturbances are more likely to discontinue implant use. Thus, effective counseling needs to focus on the practical management of side effects and on the provision of reassurance that common changes in bleeding patterns and that side effects such as headaches, mild abdominal pain, and breast tenderness are easily treated and usually transient. This is critical to ensuring that women make appropriate, informed choices and also helps enhance continued method use. It is important as well to assure a woman that she can come back at any time she wants, for advice, treatment, or removal of the implant."

REPUBLIC OF MALAWI, PRESERVICE FAMILY PLANNING TRAINING AND REFERENCE GUIDE (2010)

trained in private nursing schools that are under jurisdiction of the Ministry of Education. However, there is no supervision by the Ministry of Health of the curriculum content, or of teaching methods or student performance. In 2012, an evaluation of the Malian family planning curricula for both government and nongovernment nursing schools noted that course content on family planning dealt neither with the physiology of reproduction nor the management of side effects. Classroom observations revealed that teachers often gave the same weight to the efficacy of traditional and modern methods (Castle 2011). Many teachers were retired health care workers trained over 30 years ago and were neither familiar with modern hormonal methods nor aware of what to do if side effects occurred.

In Malawi (see box) technical assistance has led to the development of curricula that provide a comprehensive explanation of the physiology behind each method and address discontinuation (Malawi MoH/IntraHealth 2010). This will hopefully lead to new cohorts of health workers being better informed to support their family planning clients with accurate information and reduce discontinuation. As the evaluation (described above) of a provider training intervention in the Philippines found, improving provider performance is only one element for increasing continuation. Other areas of programming need strengthening to reduce discontinuation.

9. 3. Eliminate Stock Outs

A multicountry analysis of DHS data found that up to 5% of discontinuation is due to stock-outs (Futures Group 2013). Hubacher et al (2012: 512) note that "short-acting hormonal methods, such as injectables and pills, are popular in many African countries but consistent use is under threat from commodity stock-outs." They suggest that "improving the availability of all long-acting methods will enable long-term users to shift off short-acting methods and thus alleviate stock-out problems for those products."
A health facility assessment of urban and rural, public and private facilities in Uganda (Hyttel et al 2012) found that combined oral contraceptives and male condoms were available in 80% of the facilities; therefore, stock-outs of these resupply methods was unlikely to be problematic for most users. However, long-acting and permanent methods were available in fewer than 5% of facilities, thus reducing choice for women wanting to use such methods. Commodity stock-outs were attributed to funding shortages, regulatory issues, and forecasting difficulties. Providers and managers suggested that advance planning and ordering needed to be improved because stocks were often left to run low or run out before more supplies were ordered (Mugisha and Reynold 2008). Supportive supervision should therefore include verification of providers' knowledge of when and how to reorder contraceptive supplies, as in many cases they simply do not know (see box).

Stock-outs can also lead to increased costs and inconvenience for the client, which in turn lead to discontinuation. In Kenya, McClain Burke and Ambasa-Shisanya (2011) found when government clinics ran out of injectables, staff asked clients to buy them at the pharmacy and return to the clinic for the injection. Pharmacies charge a much higher price for injectables

"In a rural Rwandan clinic staffed by newly qualified midwives, three weeks had passed since FP services were operational. When assessed, the reason given for lapse in services was that no methods were available at the facility—'The cupboards are empty!' None of the midwives or health center staff knew how they could procure FP methods. An additional group of eight midwives did not know how to replace commodities when stock ran out of the FP clinic and pharmacy. 'If the hospital or HC pharmacy does not have it, we just tell the women to come back.' When further questioned about obtaining commodities from the district pharmacy or central stores in the Ministry of Health, none of the providers was able to demonstrate an awareness of the steps required to restock the clinic."

Pandora Hardtman, nurse-midwife trainer, Clinton Foundation/Ministry of Health, Rwanda

than the government health services, which may discourage women if the price is too high. Additional travel associated with purchasing the commodities result in both time lost and increased financial cost.

Senegal has recently developed and tested an "Informed Push" model that can, in large part, be attributed to the virtual elimination of stock-outs of contraceptive supplies in the country (Daff et al 2014). The initiative is accompanied by strong political will and leadership, which is crucial to successful, impactful programming. The decrease in stock-outs may partly account for recent increases in contraceptive prevalence in Senegal, but further research is needed to verify these links. This example demonstrates that a careful analysis of national supply logistics can provide insights to guide appropriate interventions to drastically reduce stock-out of resupply commodities.

9. 4. Increase Access Through Multiple Service Delivery Options

Using DHS and Service Availability Survey data for Egypt, Ali (2001) found that users of oral contraceptives living in areas with poor access to family planning services are more likely than others to discontinue use. Among those attending clinics, users at facilities with few trained family planning providers, or who only had limited access to female providers, were also significantly more likely to discontinue pill use. Significantly, Ali also found that access to a reduced range of more effective methods was associated with higher continuation. Although limited access to alternatives may effectively reduce discontinuation, a lack of options infringes upon the right of women and girls to a full choice of contraceptive methods.

With the proliferation of types of providers and sources of supply for all types of contraceptives in all countries, most users have a much wider range of service delivery options than was the case previously, although access to any method, and particularly to a range of methods, can still be limited for many. Moreover, lack of access per se is not frequently cited as a reason for discontinuation or for not switching, although it may represent one of the many "method-related reasons." With the exception of the study by Ali (2001), we are unaware of other analyses that have explored the relationship between access to different sources of supply and discontinuation.

Some limited evidence exists on the potential role of community-based services in reducing discontinuation. In their study comparing the provision of injectables by facility-based Health Extension Workers (HEW) with Community-Based Reproductive Health Agents (CBRHAs) in Ethiopia, Prata et al (2011) found that a larger proportion of CBRHA clients (79%) than HEW clients (62%) received the third injection, indicating a better continuation rate; this was attributed to the CBRHAs being able to provide women

quick and confidential access to the injectable. There are, however, major gaps in our understanding of the role that other non-clinic-based service delivery points may have, for example, commercial and social marketing outlets (e.g., pharmacies, drug sellers, kiosks, etc.), work-based programs, and mobile outreach programs, as well as the relative effectiveness of nonpublic compared with public sector clinics in ensuring continuation. Most community-based distribution programs use trained volunteer Community Health Workers (CHWs), nominated by their communities, who may also address other health concerns, such as malaria prevention and the identification and treatment of childhood illnesses, and can allay fears about side effects (which often precipitate discontinuation).

9. 5. Change Policy and Practice to Facilitate Task Sharing to Lower Level Cadres

The success of the Ethiopian CBRHAs described above has encouraged other countries (including Afghanistan, Kenya, Madagascar, and Malawi) to move forward with implementing national policies to allow community health workers to provide injectables. Similarly, several countries are now allowing midlevel health workers to provide long-acting methods, which generally have lower rates of discontinuation. For example, in February 2013, the Ghana Health Service (GHS) announced a change in policy to allow Community Health Nurses (CHNs) to provide implants based on credible evidence of both the demand for implants and the feasibility and safety of training and supplying CHNs to provide the method in community health compounds; the GHS is currently scaling up implementation of the policy (Population Council 2014).

Such task-sharing policy initiatives are important in countries that maintain unnecessary restrictions on which cadres of providers are considered competent to provide each method. Following publication of WHO's Optimize MNH recommendations on the cadres from lay health workers to midlevel providers that may be trained and supported to provide the various contraceptive methods safely (WHO 2012), many programs are now reviewing and revising their policies, which will result in women having both a greater number of service delivery points to access as well as a wider range of types of provider. Research to determine whether these policy changes do result in reduced discontinuation, as well as increased use overall, is urgently needed.

PART 10
MONITORING AND EVALUATION OF STRATEGIES TO REDUCE DISCONTINUATION

The impact of discontinuation without switching among women who do not want to become pregnant and are sexually active is significant, in terms of both women and couples' experience of unintended pregnancy and the adverse effect on national and global goals of reducing unmet need and unwanted fertility. Recognizing this adverse impact on program effectiveness means also that greater investments are needed in monitoring and evaluating trends in discontinuation rates, especially among populations more likely to experience discontinuation, as well as in strategies to reduce discontinuation and increase switching.

Large-scale DHS-like surveys are currently the main mechanism used to generate information on discontinuation and switching, and these data can be used to inform program design and implementation. These methods, which rely primarily on data collected through retrospective calendars, can suffer from recall bias and a tendency to reclassify reasons for discontinuation, especially if discontinuation resulted in a pregnancy (Callahan and Becker 2012, Bellizzi et al 2015). In addition, users may discontinue while still in need of pregnancy protection for multiple reasons (e.g., physiological concerns, logistical challenges, and sociocultural opposition), and this methodology has many limitations in accurately measuring the true reasons for discontinuation without switching when not wanting to become pregnant. Thus while such surveys can provide insights into the frequency and reasons for discontinuation generally, they are of limited use for informing program design and implementation, monitoring and evaluating program performance, and contribution to reducing unmet need.

Family planning programs monitor and evaluate their performance using a variety of indicators. FP2020 has compiled 10 core indicators[4] that it recommends be used; however, none of these indicators explicitly measure discontinuation or switching. One frequently used indicator, Couple Years of Protection (CYP), measures the volume of commodities distributed and estimates the duration of protection provided by these commodities through use of a "conversion factor," which is either the known duration of use for a supply method (e.g., pill, injectable, condom) or the estimated

4. http://progress.familyplanning2020.org/fp2020-core-indicators

mean duration for methods that depend on user behavior (e.g., long acting reversible contraception programs (LARCs) and traditional methods) (Stover et al 1997). Thus while method-specific discontinuation rates are incorporated into this measure, knowing the number of CYPs does not provide any indication of the rates or causes of discontinuation or switching.

The Performance Monitoring and Accountability 2020 (PMA2020) program uses a mobile-assisted data collection system to routinely collect data and update key family planning indicators (www.pma2020.org/indicators-topic-area). This program collects data annually on a number of indicators that measure discontinuation rates (i.e., median duration of contraceptive use, by main method) and many of the health system and programmatic factors described above. Although limited to 10 countries that have pledged commitments to FP2020, this information has the potential to generate important insights into the effectiveness and cost-effectiveness of the various quality improvement interventions being implemented through FP2020 interventions in these countries. A modest investment in research to analyze associations between and trends in health system improvements and contraceptive use dynamics could provide critical evidence to reduce unwanted discontinuation globally.

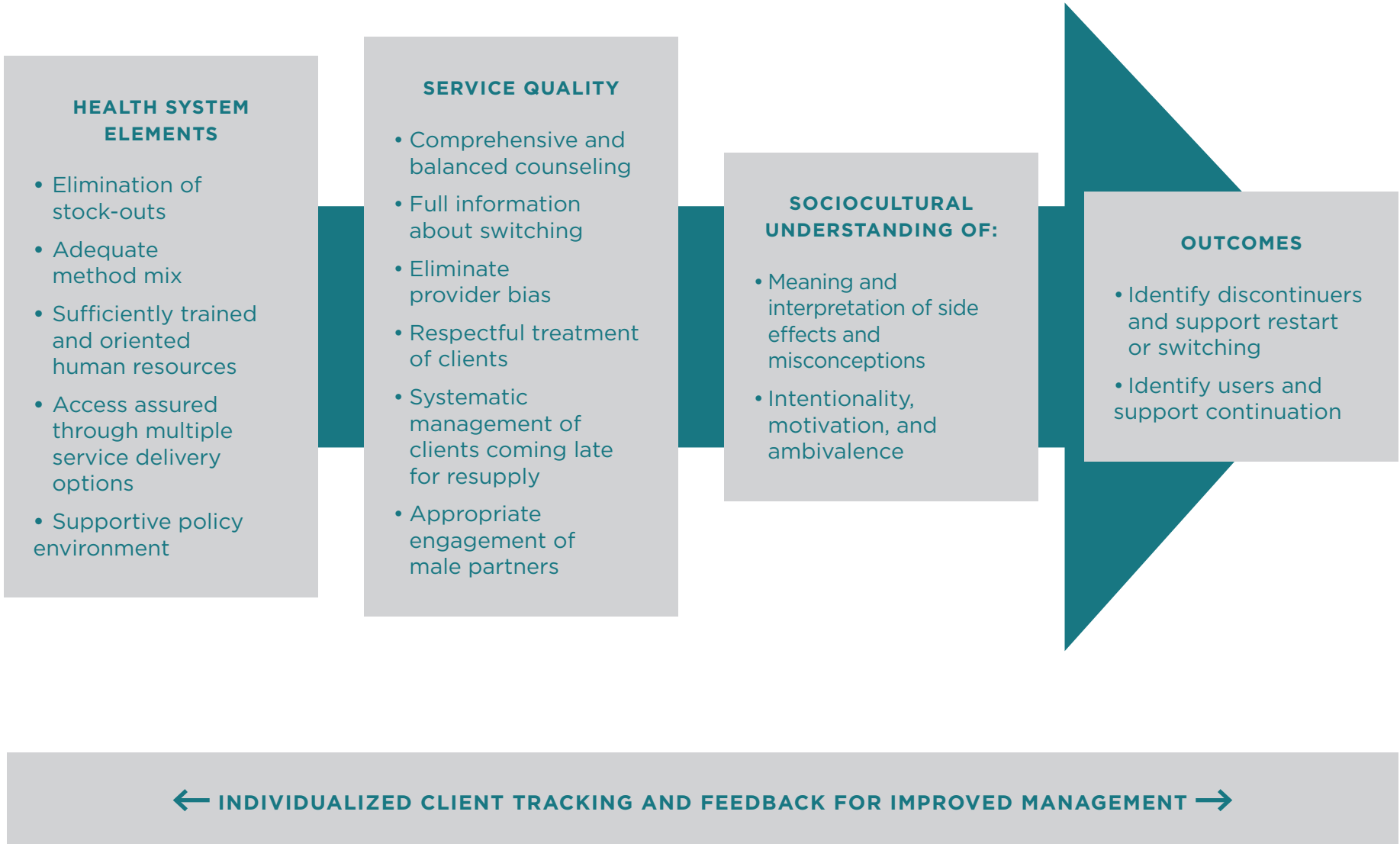
Capturing population-level, client-based information longitudinally about discontinuation, switching and the reasons for both is problematic as data need to be collected prospectively from individual women at several points in time. One option is to follow women who participate in existing Health and Demographic Surveillance Systems (HDSS), for example, those coordinated by the Indepth Network (www.in-depth-network.org). Although such data collection systems could provide this information, as well as important information about the profile of women who discontinue, the evidence would be specific to those populations covered by the HDSS. Thus while HDSS offer the opportunity to address some of the known evidence gaps through research studies, they do not address the challenge of monitoring program performance in reducing discontinuation.

An alternative is to follow individual clients who receive their contraceptive services from a clinic. An example of an individualized client tracking system for family planning clients attending clinics has been developed by Marie Stopes International (Duvall et al 2014). Known as the Client Information Center (CLIC), this is a combination of software and paper tools that track client profile information including the services and products received during client-provider interactions and any adverse events experienced during the visits (see box). CLIC allows program managers to identify and respond to discontinuation and switching because once a client has been registered it allows client visit data to be linked over time and across facilities. Mainstreaming such systems, especially in public sector programs, will undoubtedly be challenging, but it is encouraging to see the development of this innovative system.

Recent experience from the Karonga HDSS in northern Malawi demonstrates both the feasibility of a clinic-based client tracking system as well as the

> "Built-in reports allow staff to access information on which clients are due for return visits as well as view user-friendly statistical information on who our clients are and what services they receive over time. If clients wish to share their phone number, it is entered into CLIC so that providers can follow up with appointment reminders, information on minor side effects such as changes in menstruation patterns, information on the timing and location of removal services, and post-removal contraceptive choices. This new system provides MSI with a powerful yet easy-to-use tool to track clients' post-procedure and enabling a better understanding of client follow-up behaviour."
>
> MARIE STOPES INTERNATIONAL'S CLIC TECHNOLOGY
>
> DUVALL ET AL (2014)

Figure 4: A theory of change to explain contraceptive discontinuation



benefits of undertaking research on contraceptive use dynamics within an HDSS. Dasgupta and colleagues (2015b) built upon the existing health passport, a client-held medical record that all women are expected to carry with them when using governmental health care services, by creating a family planning card that was attached to the passport. Women receiving contraceptive services had information about their service experiences written into the card throughout the course of one year, after which the cards were collected and the data integrated with the women's data from the HDSS and analyzed to generate data on contraceptive use dynamics, including discontinuation and switching.

Given the significant influence of discontinuation on national and global efforts to achieve FP2020's goal, significant investment in client tracking systems, such as CLIC and the health passport, and the use of the data they generate on discontinuation would seem to be not only warranted but an urgent priority. Client-held health records, using both paper documents and web-enabled mobile phone platforms, are receiving substantial attention within broader health management information systems strengthening initiatives (Turner and Fuller 2011); if family planning services can be integrated within these emerging systems then monitoring and addressing contraceptive discontinuation will become significantly easier and more effective.

PART 11

TOWARD A THEORY OF CHANGE FOR REDUCING DISCONTINUATION

Drawing on the evidence presented above, we have developed a preliminary theory of change (see Figure 4 on page 19-20) to explain the processes that lead to contraceptive discontinuation and identify potential interventions to reduce discontinuation and/or increase method switching. Our review indicates that: if women discontinue they usually do so soon after starting a method; those using LARCs are the least likely to discontinue; most discontinue without consulting a health care provider; and method dissatisfaction and side effects are the principal reasons for discontinuation. However, we know little about the decision-making processes leading to discontinuation, the means women employ when they stop using contraception, or women's motivation to stop using despite continuing to not want to get pregnant.

We have identified three key determinants of discontinuation, and for each of these have suggested some programmatic or policy interventions that have the potential to increase the likelihood of a woman continuing to use a contraceptive while she wants to avoid pregnancy. While some of these interventions are supported by research-based evidence as described above, many are intuitive and/or suggested by experience and so would benefit from rigorous impact evaluation and implementation research to determine their feasibility and effectiveness in various settings.

First, **relevant health system elements** need to be in place as necessary conditions for minimizing the likelihood that a woman would discontinue a method after starting use. These elements comprise:

- **Minimizing commodity and supply stockouts to enable women to:**
  - Continue to access resupply methods
  - Start using long-acting or permanent methods as soon as a method has been chosen.
- **Ensuring a sufficient method mix is available, either at the point of service delivery or through an efficient referral mechanism, to facilitate:**
  - Selection and initiation of the woman's preferred method
  - Switching to another method should she experience method-related problems.
- **Appropriately trained staff (preferably though improved pre-service training) are available to counsel women on all methods and support them in:**
  - Reaching an informed choice that best enables them to achieve their fertility intentions
  - Receiving the desired method as soon as possible, either through immediate provision (if authorized to provide the selected method) or through referral, with a temporary method for immediate protection if needed.
  - Counselling should be timely and on-going (for multiple methods if necessary) and ensure that women do not give up because one particular method does not suit them.

- **Enabling a supportive policy environment to facilitate:**
  - Availability of appropriate methods at lowest possible levels in the health system and at non-clinical and non-medical service points
  - Authorization of lowest cadres of health providers to provide each method category as recommended by WHO; if necessary, support task-sharing to enable further cadres to provide methods.

- **Broadening the range of service delivery channels available, including through commercial and non-profit organizations, community-based and outreach programs, so that users have the option to access methods and resupply / follow-up from an acceptable source that will motivate sustained use.**

Second, **interventions to maximize service quality** should be mainstreamed so that the ways in which clients are treated by the health system generally, and the provider specifically, do not adversely influence women's or their partner's decision to continue, including:

- **Comprehensive yet balanced counseling to ensure that clients are fully informed of how methods work and are used, including potential side effects, so that they are aware of and can manage side effects should they arise.**

- **Full information about the possibility of switching if the chosen method proves problematic or the woman's needs change, including alternative methods and their source.**

- **Providers not communicating any personal biases that may discourage women from unnecessarily not using their preferred method or women with particular personal characteristics (e.g., adolescents, poor, uneducated, living with HIV, etc.).**

- **Respectful treatment of clients by all facility staff so that they are not discouraged from returning for resupply, switching, or removal.**

- **Systematic mechanisms for appropriately managing clients who present late for resupply of pills and injectables to avoid temporary or unintentional discontinuation.**

- **Judging the appropriateness of couple counseling on a case-by-case basis to maximize opportunities to benefit from partner engagement while guarding against potential negative responses.**

Third, **understanding the meaning of side effects and their social consequences and the nature of rumor and misconceptions** among the various populations being served by a family planning program is critical for ensuring that:

- **Known side effects and rumors for each method are discussed in the context of their local meaning so that women can interpret the possible consequences and take them into account when deciding on a method.**

- **Potential reasons for women to discontinue a particular method can be considered during counseling and appropriate strategies for coping or switching followed.**

Addressing these determinants should enable programs to identify potential or actual discontinuers and support them to switch immediately to an equally or more effective method, as well as sustain continued support to those who are currently using to facilitate their continued use until they desire to become pregnant or no longer need protection. Underpinning all interventions (and represented by the box below the arrow in Figure 4) is the need for a health management information system that can track individual clients longitudinally and provide effective feedback to enable a program to instigate action to address those at risk of discontinuing. Individualized tracking can also furnish data that can improve all three groups of determinants.

PART 12

EVIDENCE GAPS AND FURTHER RESEARCH

This review has identified many actions that can be taken by family planning programs to reduce the likelihood of contraceptive discontinuation by women not wanting to become pregnant and increasing the likelihood of switching when a method is discontinued because it doesn't meet a woman's needs. For some programs, these actions can be introduced and/or implemented at scale fairly easily as what needs to be done is obvious.

For others, there may be a need to undertake implementation research to learn how best to implement these recommended actions so that they are appropriately configured and effective within the national (and subnational) program context, given the prevalent social norms and attitudes. While not exhaustive, some of the questions that program managers may need to address through **implementation research** include:

- **What health system factors determine whether or not a woman stops permanently, temporarily, or is able to switch immediately?**
- **Through undertaking a Total Market Approach (TMA) assessment, can the method mix and/or service delivery channel configurations available through integrated public-private sector coordination be improved to ensure improved all-method continuation rates by facilitating availability of preferred methods and feasibility of switching?**
- **How can in-service and preservice training better address provider biases, knowledge of methods and ensure respectful care so that client counseling reduces the potential for discontinuation without switching?**
- **How can programs involve male partners and leaders and women's social networks to support the counseling and delivery process?**
- **How can programs enhance services for unmarried adolescents (who have the highest rates of discontinuation) so that they are able to sustain pregnancy protection through continuous use of effective contraception and/or occasional use of coitus-dependent methods (e.g., condoms, ECP) when needed?**

Program-specific implementation research, based on a thorough assessment of the factors that determine the likelihood of discontinuation with or without switching, can support programs to make incremental improvements. Our review highlighted some interventions thought to enhance continuation rates, but for which the evidence remains inconclusive and for which **intervention-testing of specific approaches through quasi-experimental** studies in various settings may be helpful. For example:

- **Approaches that improve the quality of care experienced by clients during their consultation(s), and particularly the counseling provided to clients.**
- **In addition to counseling women on potential side effects, test the effect on discontinuation of offering women a prophylactic package of commodities for treating side effects (e.g., ibuprofen, sanitary towels, oral contraceptives).**
- **Client tracking systems that can monitor use dynamics and support women to switch if they choose to discontinue or prevent discontinuation through linking women with reassurance on method-related problems; mHealth applications have tremendous potential to enable such support mechanisms to function at scale.**

Our review also highlighted some evidence gaps for which **social science research** would be needed. Some gaps for which social science would be helpful include:

- **How do women and men interpret side effects or other method-related problems that lead to discontinuation, and what motivates them to continue or discontinue when experiencing them?**
- **Given the potential for a closely spaced birth, should discontinuation during the first 12 months postpartum result in pregnancy, contraceptive use dynamics among women who started, or restarted, using a method during the postpartum period need to be better understood.**
- **Some countries (e.g., Egypt, Indonesia, Vietnam, Zimbabwe) have all-method discontinuation rates that are much lower than the global average; case studies to understand the factors contributing to these relatively low rates would help inform understanding of potential interventions that could be adapted in similar social and health system settings elsewhere.**

PART 13

CONCLUSIONS

Contraceptive discontinuation is a poorly understood phenomenon that has significant implications, not just for family planning and maternal and child health, but also for population growth and countries' overall economic development. Programmatic interventions are challenged by the fact that most women who discontinue do so early in their contraceptive careers and without consulting a health care provider. The likelihood of discontinuation is method-specific with those using long-acting, more effective methods requiring removal by a health care professional being less likely to discontinue. Nevertheless, if women can discuss side effects with providers, as well with other members of their social networks, improved rates of continuation or method switching can be achieved. However, in settings where women use in secret, discontinuation may occur rather than risking the social ramifications if discovered.

Discontinuation is likely to decline with improved service quality. In particular, successful strategies that decrease the likelihood of stock-outs and improve the predicting and reordering of supplies should be implemented. The availability of a variety of methods ensures that a preferred method can be selected and method switching can be accommodated. This may involve creative partnerships with the private sector and/or subsidized voucher systems, and improved human resource availability through task sharing.

Provider bias and misconceptions (e.g., the perceived inappropriateness of injectables and implants for nulliparous women) need dispelling, but improved provider training and the provision of information alone do not necessarily reduce discontinuation (Jain et al 2011). Programs can also capitalize on the use of mobile technology for timely reminders of appointments and monitoring commodity availability. Outreach services can overcome the time and economic barriers to access.

Ambivalence, intentionality, and motivation need further reflection. Women may stop using contraception temporarily but not consider themselves to be discontinuing. Further research is needed to learn how women view short-term, unintentional discontinuation. Evidence suggests that programs that actively engage husbands in decision-making and male leaders in community sensitization activities do decrease discontinuation.

Provider misconceptions about the timing of first use need to be corrected and job-aids encouraged for ruling out pregnancy and ensuring immediate resupply. Programs should be mindful of the particular challenges faced by adolescents in sustaining consistent use by providing appropriate, nonjudgmental, and confidential services.

Investments to decrease discontinuation and enhance switching must be tracked by robust, longitudinal, and individualized data collection and reporting systems. While these require investment and may be technically complex, rapid improvements in mHealth technologies are reducing the challenge of mainstreaming them in national programs. Such systems could address both the current evidence gaps on discontinuation and switching and, most importantly, enable providers to identify discontinuers, actual or potential, and provide appropriate support. Given the significant impact of discontinuation on national and global efforts to achieve FP2020's goals, investment in such measurement and data use mechanisms would seem to be a high priority.

Unnecessary and unwanted discontinuation without switching is a major, yet under-recognized challenge as family planning programs expand and access increases. This review has demonstrated that there are no simple "quick fixes" that will reduce such discontinuation; this will only happen when family planning services are provided with higher quality and within a rights-based framework. As Anrudh Jain says: "The issue is not only about adding methods to the contraceptive mix in a country or improving the quality of counseling per se. Rather it is about meeting women's reproductive health needs, their right to have a choice among contraceptive methods, their right to make informed choices, and their right to receive accurate information from service providers about the method they select and about switching methods whenever the initial one is no longer suitable" (Jain 2014a).

PART 14
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Annex 1: Cause-specific discontinuation probabilities at months 12, 24, and 36 per 100 episodes by method: median values for 19 countries

Method	Month	All Reasons	Reported Failure	Method-Related	Side Effects/ Health Concerns	Desire for Pregnancy	No Further Need
All methods	12	37.7	7.2	19.9	10.4	6.1	7.8
	24	54.6	13.9	28.4	16.8	16.7	12.5
	36	64.3	18.9	34.5	21.7	22.9	15.3
Pill	12	43.5	5.6	25.4	20.1	10.4	8.5
	24	65.0	11.7	37.9	30.3	20.8	12.1
	36	76.3	15.6	45.7	37.4	30.5	14.9
IUD	12	13.1	1.1	8.8	7.7	1.3	0.8
	24	26.3	2.2	13.8	13.0	4.0	1.7
	36	36.7	3.8	20.2	19.3	7.2	2.9
Injectable	12	40.6	1.5	34.8	26.9	6.6	5.7
	24	62.8	2.9	50.6	39.8	15.4	10.0
	36	77.1	4.3	58.0	50.6	24.5	13.9
Condom	12	50.4	7.6	23.1	2.6	11.1	12.7
	24	64.5	16.3	28.8	4.7	19.2	17.8
	36	73.9	22.2	33.6	5.0	26.1	23.8
Periodic Abstinence	12	40.3	17.4	12.7	1.0	7.3	6.6
	24	61.2	28.7	19.7	1.2	17.5	10.4
	36	70.9	36.3	23.9	1.2	22.9	14.1
Withdrawal	12	40.0	15.3	11.7	1.1	7.8	9.2
	24	61.5	31.3	17.7	1.1	21.6	15.2
	36	73.8	40.8	22.3	1.2	30.0	18.9

5. The all-reason discontinuation rate for female condoms is 59% (Reeves and Schwartz 2011).

Annex 2: Contraceptive prevalence and 12-month discontinuation rates among married women 15–49, DHS Surveys 1995–2006

	Total CPR	Total 12-Month Discontinuation Rate
Sub-Saharan Africa		
Kenya 1998	39.0	32.7
Kenya 2003	39.3	36.0
Zimbabwe 1999	53.5	18.3
Zimbabwe 2005–6	60.2	17.7
North Africa/West Asia/Europe		
Armenia 2000	60.5	39.9
Armenia 2005	53.1	30.6
Egypt 2000	56.1	29.5
Egypt 2005	59.2	32.0
South/Southeast Asia		
Bangladesh 1999–2000	54.3	48.7
Bangladesh 2004	58.5	49.3
Indonesia 1997	57.4	24.1
Indonesia 2002–03	60.3	20.8
Latin America and The Caribbean		
Colombia 2000	76.9	52.6
Colombia 2005	78.2	43.8
Dominican Republic 1996	63.7	63.0
Dominican Republic 2002	69.8	54.6

Source: Bradley, Schwandt, and Khan (2009)

Annex 3: Odds ratios from hazard models of discontinuation while in need of contraception within three years of use, using most recent episode from married women 15-49, DHS Surveys 2002-06

	Kenya 2003	Zimbabwe 2005–6	Armenia 2005	Egypt 2005	Bangladesh 2004	Indonesia 2002–3	Colombia 2005	Dominican Republic 2002
Contraceptive method								
Traditional (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Pill	4.15**	0.31**		0.53**	6.56**	5.76**	3.64**	1.08
Injectable	2.60**	0.71		0.80*	8.91**	2.63**	5.06**	2.31**
Male condom	5.58**	1.22	2.82**	0.11**	6.67**	3.86**	2.99**	1.55**
IUD				0.17**		0.87	1.36*	0.73*
Other modern	1.10	0.75	4.52**	0.46**	3.70**	1.18	3.25**	2.06**
Age at discontinuation								
15–24 (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25–34	0.33**	0.53**	0.51	0.54**	0.40**	0.58**	0.37**	0.61**
35–49	0.17**	0.21**	0.55	0.28**	0.30**	0.47**	0.21**	0.27**
Parity at discontinuation								
0–1 (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2–3	1.03	0.82	1.57	0.97	1.18	1.09	1.17*	0.96
4+	1.20	1.77*	2.34	0.96	1.51*	1.64**	1.76**	1.35**
Worked in past year (no=ref)	0.89	1.04	0.33**	0.97	1.09	0.79**	1.06	0.86*
Years of education	0.94*	0.96	0.91*	0.99	0.97*	1.00	0.98*	0.98*
Contraceptive awareness	1.03	0.98	1.05	1.02	0.97	1.08**	1.01	1.02
Partner's desired fertility								
Same (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
More	1.64**	0.83	0.89	1.06	1.67**	1.31**	1.01	0.91
Fewer	1.34	1.08	0.85	1.67**	1.53**	0.97	0.91	0.86
Don't know	1.50*	1.01	1.36	1.19	1.39	1.15	1.22	0.93
Media exposure	0.90	0.92	1.44*	0.91*	0.91	0.98		0.85**
Community CPR	0.71	0.64	0.45	1.11	1.07	0.21**	0.45**	0.87
Residence (urban=ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Wealth status								
Lowest	1.06	1.45*	1.31	1.09	0.98	1.12	1.41**	1.09
Middle (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Highest	0.96	1.03	1.91	0.84*	0.83	1.12	0.78**	0.86

Source: Bradley, Schwandt, and Khan (2009).

Annex 4: Percentage of contraceptive users who discontinued a method within 12 months after starting to use it by age and reasons for discontinuation, according to country and survey year

	15–19							20–49						
	All			Discontinued				All			Discontinued			
		Method Failure	Switched	Total	In Need	Not In Need	Months of Exposure		Method Failure	Switched	Total	In Need	Not in Need	Months of Exposure
Bangladesh, 2004	60.0	6.4	25.5	28.0	8.1	19,9	3,188	44.2	3.6	23.9	16.8	6.0	10.8	7,114
Bolivia, 1994	59.7	19.1	17.7	22.9	8.2	14.7	527	38.6	11.1	14.3	13.1	7.4	5.8	3,972
Brazil, 1996	52.3	7.2	16.8	28.3	16.5	11.8	1,764	41.0	5.5	20.9	14.5	8.9	5.7	6,484
Colombia, 2005	54.6	9.4	20.2	24.9	9.0	16.0	7,710	37.9	6.4	17.8	13.7	5.9	7.7	22,704
Dom Rep, 2002	63.5	7.9	15.6	39.9	24.9	15.0	3,669	42.1	5.5	12.9	23.7	14.0	9.7	11,210
Egypt, 2005	43.2	4.1	15.6	23.3	12.7	10.6	1,128	31.5	3.1	12.9	15.5	7.5	8.0	14,269
Ethiopia, 2005	54.7	2.4	15.2	32.9	11.3	21.6	407	38.2	1.0	11.3	23.9	13.5	10.4	2,027
Guatemala, 1999	62.7	7.7	11.3	43.7	28.3	15.4	297	39.0	5.6	15.4	18.0	10.9	7.1	1,856
India, 2006	44.5	5.1	7.8	29.6	8.5	21.2	5,058	24.2	2.9	5.5	14.7	5.3	9.4	30,048
Indonesia, 2002	29.2	2.9	8.2	18.0	5.5	12.5	1,935	19.5	1.9	9.1	8.4	3.9	4.5	14,477
Jordan, 2002	61.7	13.6	15.0	33.1	13.4	19.7	252	41.2	10.3	14.9	15.9	6.3	9.7	6,019
Kenya, 2003	53.2	8.4	8.5	36.4	22.6	13.8	608	34.4	4.9	7.6	21.9	14.1	7.8	3,081
Malawi, 2004	49.3	4.3	4.6	40.3	19.9	20.5	945	32.8	3.1	3.5	26.2	16.5	9.7	4,347
Moldova, 2005	45.5	5.9	22.3	17.2	5.8	11.4	752	36.3	6.8	17.0	12.5	5.4	7.1	3,800
Morocco, 2003	50.7	6.6	13.2	30.8	4.0	26.9	872	42.5	5.2	16.8	20.5	3.6	16.8	9,286
Peru, 2004	59.9	9.6	27.6	22.8	11.4	11.4	1,433	47.7	5.8	26.8	15.1	6.7	8.4	8,296
Philippines, 2003	54.9	13.1	15.6	26.3	15.6	10.7	407	38.0	7.4	13.1	17.4	10.7	6.7	5,378
Tanzania, 2004	50.1	2.9	13.0	34.2	16.9	17.3	768	35.3	4.1	8.6	22.5	13.0	9.5	3,904
Turkey, 2003	56.3	9.8	22.6	23.9	5.8	18.1	762	37.8	8.5	19.0	10.4	3.2	7.1	6,394
Vietnam, 2002	45.3	9.3	17.7	18.3	6.1	12.2	147	23.9	7.5	9.9	6.5	1.9	4.7	3,404
Zimbabwe, 2005	28.4	3.1	4.1	21.2	7.9	13.4	1,024	18.4	1.9	4.6	11.9	5.4	6.6	4,272

Source: Blanc, A., Tsui, A., Croft, T., and J. L. Trevitt (2009)

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