

LONDON  
SCHOOL of  
HYGIENE  
& TROPICAL  
MEDICINE



LSHTM Research Online

Benova, L; Cleland, J; Daniele, MAS; Ali, M; (2017) Expanding Method Choice in Africa with Long-Acting Methods: IUDs, Implants or Both? International perspectives on sexual and reproductive health, 43 (4). pp. 183-191. ISSN 1944-0391 DOI: <https://doi.org/10.1363/43e5217>

Downloaded from: <http://researchonline.lshtm.ac.uk/4648490/>

DOI: <https://doi.org/10.1363/43e5217>

**Usage Guidelines:**

Please refer to usage guidelines at <https://researchonline.lshtm.ac.uk/policies.html> or alternatively contact [researchonline@lshtm.ac.uk](mailto:researchonline@lshtm.ac.uk).

Available under license: Copyright the publishers

<https://researchonline.lshtm.ac.uk>

# Expanding Method Choice in Africa with Long-Acting Methods: IUDs, Implants or Both?

Fertility transition in Sub-Saharan Africa has been slow: The total fertility rate for the region was 6.8 in the late 1970s and is now a little below 5.0.<sup>1</sup> In addition, modern contraceptive use is low: Only 25% of married women in Sub-Saharan Africa were using a modern method in 2015, compared with 58% globally. Contraceptive use is increasing, however, largely because of rising uptake of the injectable. In 2015, the method accounted for 45% of all modern method use in Sub-Saharan Africa, and the pill accounted for an additional 22%.<sup>2</sup> The injectable is highly effective and can be delivered by lower-level paramedical staff, but these advantages are offset by low adherence, high discontinuation and low switching to alternative methods after discontinuation.<sup>3–5</sup>

Improving women's access to a wider range of methods—including long-acting reversible methods (LARCs), defined here as the IUD and the implant—will give women more choice and should reduce unmet need, which is increasingly the result of discontinuation of short-acting methods.<sup>6</sup> LARCs are typically used for longer durations than the injectable or the pill,<sup>3</sup> and thus are particularly appropriate for the growing number of women who want to cease childbearing altogether.<sup>7</sup> Women may use LARCs longer because those who choose them are more committed to long-term avoidance of pregnancy; another reason may be that LARC discontinuation requires a firm decision and a visit to a health facility, where health staff may encourage clients to persist with the method. According to a randomized, controlled trial in the United States, characteristics of the method rather than of the user account for the difference in discontinuation between LARCs and other reversible methods.<sup>8</sup>

Major initiatives to increase access to LARCs in Africa—funded by bilateral donors and foundations, and implemented with input from such international nongovernmental organizations as Marie Stopes International (MSI) and Population Services International (PSI)—have been launched in the past decade. Some of these projects were designed for the general population, whereas others were focused on women who had recently given birth or had an abortion, those living with HIV, those affected by conflict and the young. Many placed equal emphasis on the IUD and the implant, but some were dedicated to one or the other.<sup>9</sup>

The objective of this article is to review key components of LARC uptake in Sub-Saharan Africa with the aim of guiding policies and programs. We assess trends in access to the IUD and implant, including method knowledge and

availability at facilities; examine trends in use, source of supply, discontinuation and characteristics of users; and discuss the prospects for expanding method choice by increasing the availability of LARCs in national programs and the policy implications of our results.

## METHODS

This analysis is based on data from Demographic and Health Surveys (DHSs), health facility surveys and telephone interviews with key international family planning stakeholders, as well as findings from recently published literature reviews on enablers and barriers to IUD uptake in low- and middle-income countries.<sup>9,10</sup> Unless otherwise stated, our IUD analyses refer to copper devices and our implant analyses refer to the generic method (including levonorgestrel- and etonogestrel-based implants) rather than to specific brands.

## Demographic and Health Surveys

To examine time trends in women's knowledge and use of the IUD and implant, we used DHS data from the 22 Sub-Saharan African countries that had had one survey conducted between 1996 and 2000, and another between 2010 and 2016 (Appendix Table 1). DHS surveys are cross-sectional and nationally representative, and are based on multilevel cluster sampling of households. Women aged 15–49 years are interviewed about a range of reproductive and maternal issues.

Method awareness is the first essential component of access and demand for specific contraceptives. We analyzed women's responses to questions on whether they had ever heard of the IUD and the implant as family planning methods after the methods were described to them in detail. Also, we used women's reports of the method they were using at the time of the survey to assess time trends in IUD and implant use.

In addition, in countries where at least 50 women reported current IUD or implant use in the survey in the 2010–2016 period (Benin, Kenya, Lesotho, Nigeria, Rwanda, Sierra Leone, Togo and Zambia), we examined users' reported source of their method. We classified sources into three categories: public sector, private sector (including commercial, nongovernmental and faith-based providers) and other (including uncertain and missing responses).<sup>11</sup> Results should be interpreted with caution because private-public collaboration obfuscates supply source.<sup>12</sup>

Furthermore, differences in supply source may reflect differences in the characteristics of women who choose a

*By Lenka Benova, John Cleland, Marina A.S. Daniele and Moazzam Ali*

*Lenka Benova, John Cleland and Marina A.S. Daniele are members of the faculty of Epidemiology and Population Health, London School of Hygiene & Tropical Medicine. Moazzam Ali is medical officer, Department of Reproductive Health and Research, World Health Organization, Geneva.*

specific method. Therefore, we examined the social and demographic characteristics of IUD and implant users in countries with at least 100 current users of each method (Kenya, Nigeria, Rwanda and Zambia).

Analyses were conducted using Stata SE15 and adjusted for survey design (clustering, weights and stratification). The DHS program receives government permission to field a survey, and participants provide informed consent and are assured of confidentiality. This study was approved by the Research Ethics Committee of the London School of Hygiene and Tropical Medicine.

We also used aggregate data reported elsewhere<sup>3</sup> to analyze antecedents to IUD and implant uptake. We relied on a detailed analysis of DHS contraceptive calendar data from surveys conducted between 2010 and 2014 that show the proportions of IUD and implant adopters who started use in the month following birth, postpartum abstinence, lactational amenorrhea or extended breast-feeding; switched from another method (switching was given preference if women reported it together with postpartum abstinence); or were using no method immediately prior to adoption. Furthermore, we used indicators showing 12-month discontinuation among IUD users (in four countries) and implant users (in 13 countries) from surveys in Sub-Saharan Africa for the same time period (2010–2014), as available on the DHS Statcompiler website.

### Health Facility Surveys

Awareness of a method is of little consequence for potential adoption without knowledge of and access to a source from which that method can be obtained. Unfortunately, such information is not collected in DHS or similar surveys. However, since 2010, ICF has published four Service Provision Assessments (SPAs) for African countries as part of the DHS program,<sup>13–16</sup> and FP2020 has published information sheets with key results from five national Performance Monitoring and Accountability (PMA) facility surveys.<sup>17–21</sup> Eight African countries were captured in these nine surveys; Kenya had both surveys, and we used the PMA, which is the most recent. Both SPAs and PMAs employ teams who visit selected facilities and, through interviews and observation, collect a range of information, including the availability of LARCs and other methods on the day of the visit. Samples are designed to be nationally representative and include public, private, non-governmental and faith-based facilities; sample sizes are typically 200–500 facilities. Data on both IUD and implant stockouts in 17 African countries were available from facility surveys conducted in 2015 by UNFPA-Supplies.<sup>22</sup>

### Key Stakeholder Interviews

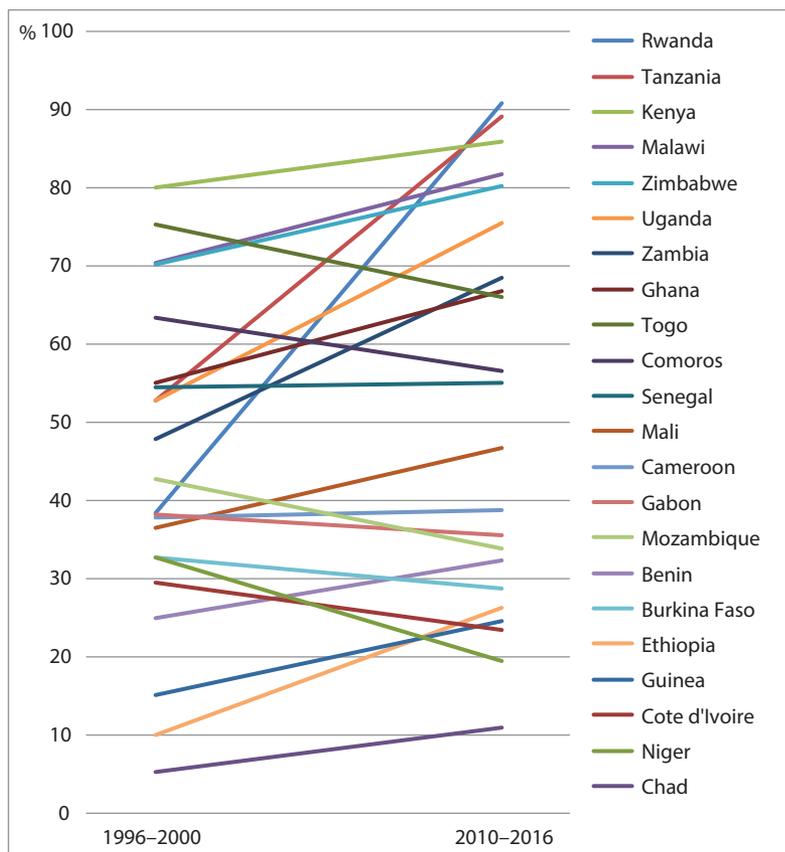
In April through June 2016, one of the coauthors conducted semistructured telephone interviews with staff from organizations known to be active in providing support to national programs to offer the IUD—the U.S. Agency for International Development, UK Department for International Development, MSI, PSI, Pathfinder International, International Planned Parenthood Federation, DKT International and FHI360. The purpose of the interviews was to identify the scale of IUD-related activities and the main awareness-raising and delivery mechanisms, and to obtain a general evaluation of difficulties and obstacles encountered. The most senior representative of each organization was contacted initially and was asked to participate or identify another appropriate senior staff member. Interviewees were asked to represent the experience of their organization; interviews lasted 60–90 minutes. We summarize the most commonly cited factors relevant to Sub-Saharan Africa.

## RESULTS

### Knowledge

The 22 countries with a survey in the specified time periods include the two most populous African nations (Nigeria and Ethiopia) and provide a good representation of both Eastern and Western Africa. Knowledge of the IUD among all married women varied widely by country: In the second survey period, the proportion who were aware of the IUD ranged from fewer than 20% in Chad and Niger to at least 80% in Kenya, Malawi, Rwanda, Tanzania and Zimbabwe (Figure 1). In 12 of the 22 countries, IUD awareness rose between the two periods, with particularly sharp increases

**FIGURE 1. Percentage of married women aged 15–49 with knowledge of the IUD, by country and DHS survey period**



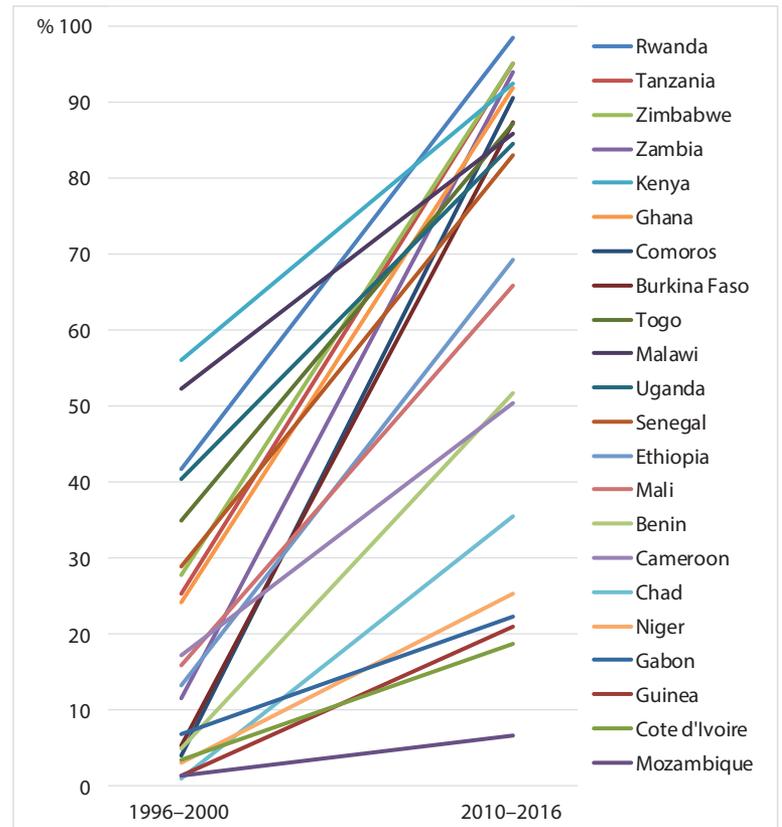
in Rwanda and Tanzania; awareness fell in six countries and remained unchanged in four. On average, IUD awareness rose modestly, from 44% to 52% (not shown).

In contrast, knowledge of the implant increased among married women in every country studied (Figure 2). In the first survey period, implant awareness was higher than 50% in only two countries; however, by the second period, that number had risen to 16, and awareness was higher than 80% in 12 countries. On average, implant awareness increased from 19% to 66% (not shown).

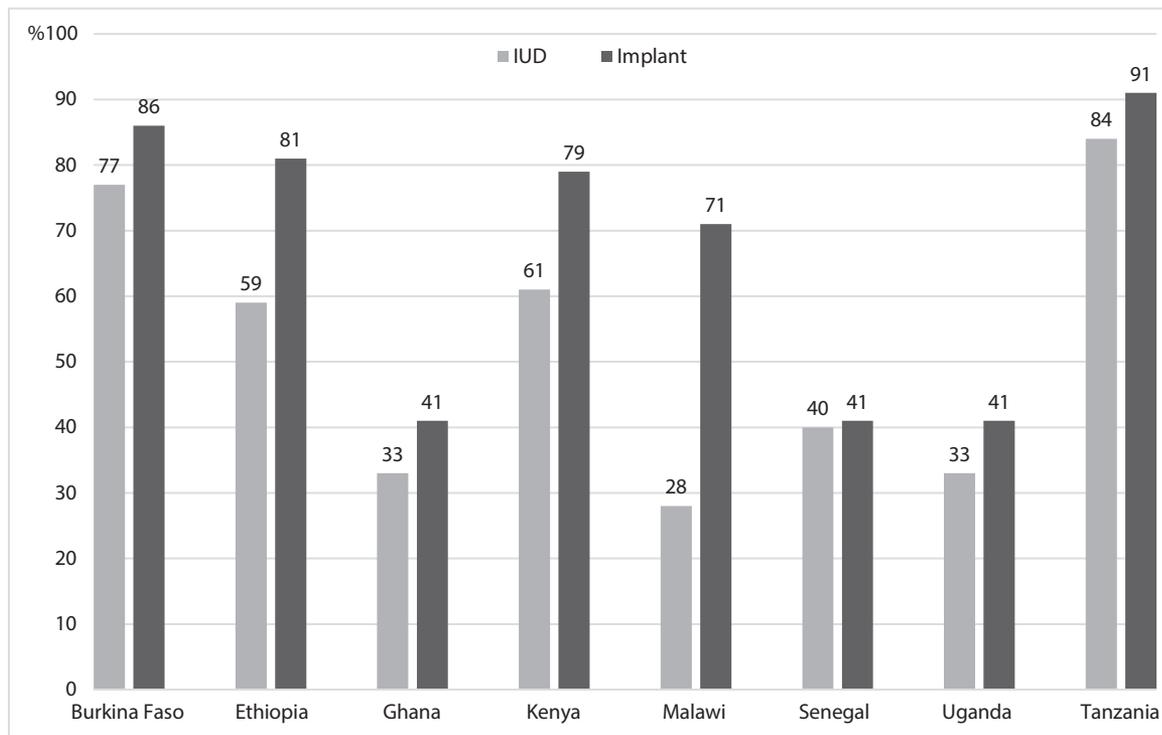
**Availability**

According to data from eight facility surveys, the availability of both the IUD and the implant at facilities that offer any contraceptive method was low in Ghana, Senegal and Uganda, and high in Burkina Faso and Tanzania (Figure 3). In Ethiopia, Kenya and Malawi, the availability of the implant was much higher than that of the IUD. Although it is dangerous to generalize from such a small number of surveys, it appears that the implant tends to be more available than the IUD. In addition, data from UNFPA-Supplies surveys conducted in 17 Sub-Saharan African countries in 2015 show that 0–66% of facilities did not have the IUD in stock when surveyed, and 0–47% did not have the implant in stock (not shown); the medians were 26% and 19%, respectively. These data support the impression that shortages are more common for the IUD than for the implant.

**FIGURE 2. Percentage of married women aged 15–49 with knowledge of the implant, by country and DHS survey period**



**FIGURE 3. Among health facilities offering any contraceptive method, percentage that had LARCs in stock on the day of survey visit, by country**



Notes: Data are from the following Performance Monitoring and Accountability (PMA) facility surveys and Service Provision Assessments (SPAs): Burkina Faso, 2016 PMA; Ethiopia, 2016 PMA; Ghana, 2015 PMA; Kenya, 2015 PMA; Malawi, 2013–2014 SPA; Senegal, 2014 SPA; Uganda, 2015 PMA; and Tanzania, 2014–2015 SPA.

Lack of contraceptive commodities can arise not only from delays in the supply chain, but also from actual or perceived low demand for a method leading to facilities not ordering it, and from a lack of staff trained to deliver it. In 23 African countries, some facilities—particularly lower level ones—were not offering LARCs because of lack of trained staff; detailed estimates for the implant, but not for the IUD, are available.<sup>23</sup>

### Use

Between the two survey periods, current modern method use among married women increased in all 22 study countries. In the first period, prevalence was less than 10% in 14 countries, and the mean for all countries was 11%. By the second period, use was lower than 10% in only four countries (Benin, Chad, Guinea and Mali), and the mean had risen to 24%, in part because of steep increases in most of the East African countries.

Figures 4 and 5 chart the changing contributions of the IUD and the implant, respectively, to the 22 countries' modern method mix between the two survey periods. Although interpretation must be cautious because of the very low levels of overall modern method use in the earlier period, there seems to be a clear contrast between the figures. The contribution of the IUD decreased or remained static in all countries. In the second period, the IUD made up more than 5% of the method mix only

in Kenya, where overall modern method use is high, and Benin, where modern method use is low. By contrast, the implant's contribution increased in all countries. That trend is to be expected because, in the late 1990s, the implant was just being introduced into family planning services, and use of the method was close to zero in many countries. But the implant's contribution to the overall method mix in the second survey period is remarkable—exceeding 10% in 15 countries and 20% in six countries. The IUD's contribution in the second period surpassed the implant's in only three countries—Gabon, Guinea and Mozambique, where use of both methods was low.

When overall modern method use rises fast, a decreased method mix contribution of the IUD does not necessarily mean a decrease in use of the method among all married women. However, examination of method-specific prevalence among all currently married women shows that IUD use remained below 1% in both survey periods in 18 of the 22 countries, and that more countries experienced small declines between surveys than small increases (not shown). In comparison, implant use in the second period exceeded 5% in six countries and was 3–5% in another four.

### Method Source

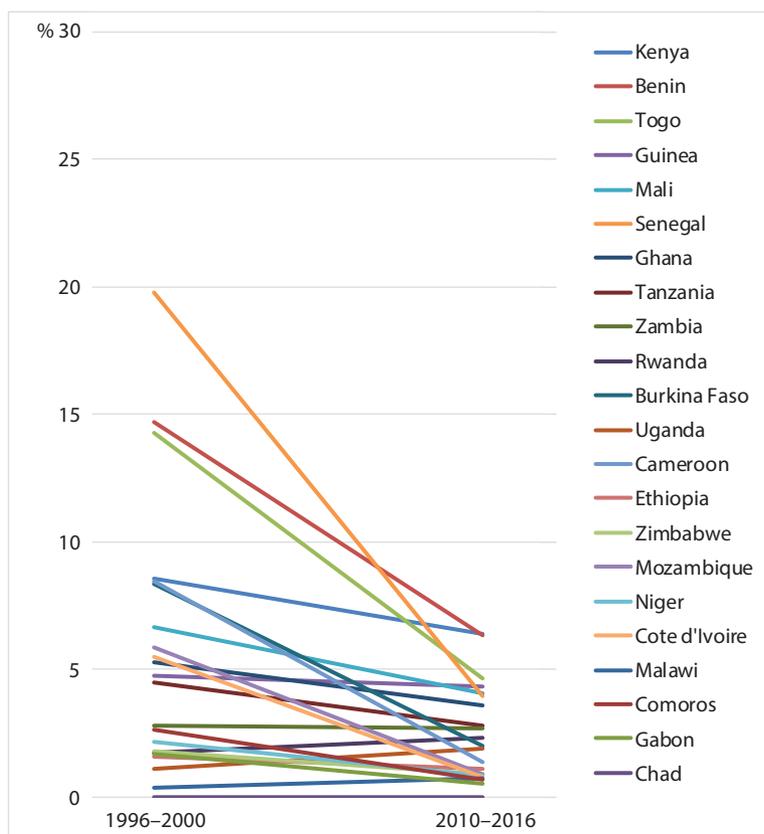
In seven of the eight countries where at least 50 women reported current IUD or implant use in a 2010–2016 survey, the public sector was the dominant source of both methods (serving >60% of users); Lesotho was the outlier, with 58% of IUD users receiving their method from the private sector. In all countries except Sierra Leone, however, implant users were more reliant on the public sector than IUD users; this was most pronounced in Lesotho, Kenya and Rwanda. Very few IUD or implant users (<3%) received their method from other sources, except in Benin and Rwanda.

### User Characteristics

Table 1 shows the social and demographic characteristics of IUD and implant users in the four Sub-Saharan African countries with at least 100 current users of each method in the most recent DHS survey. In Kenya and Zambia, IUD users were more educated, older and wealthier than implant users. In Rwanda, IUD users were more educated and wealthier than implant users, and also were more likely to live in an urban area. Of these four characteristics, only age differed significantly by method in Nigeria—with IUD users again tending to be older than implant users. Number of living children did not differ between IUD users and implant users in any of the four countries.

The percentage of IUD users who wanted to cease child-bearing ranged from 61% in Rwanda to 70% in Nigeria; the corresponding range among implant users was 40% (in Nigeria) to 57% (in Rwanda). The difference in desire for more children between method users was statistically significant in Kenya and Nigeria.

**FIGURE 4. Among married women aged 15–49 currently using a modern method, percentage relying on the IUD, by country and DHS survey period**



## Initiation and Discontinuation

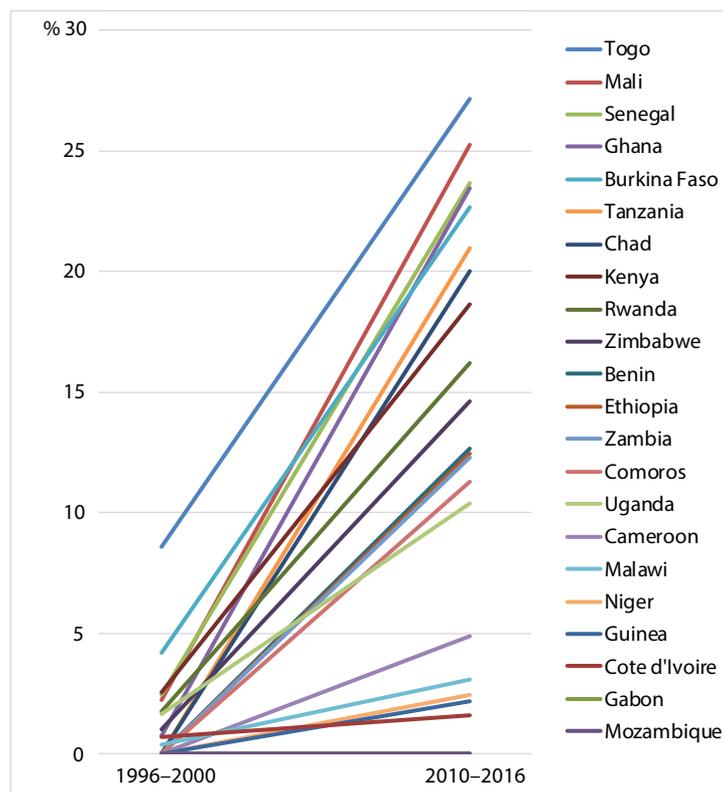
Using aggregate data, we examined antecedents to LARC use and probability of discontinuation (not shown). In most of the 12 Sub-Saharan African surveys with a sample of more than 100 episodes of method initiation,\* the majority of IUD and implant users had been using no method immediately prior to adoption; the main exceptions were implant users in Zimbabwe (42% switched from another modern method) and IUD users in Zambia (48% started using following the immediate or extended postpartum period). A direct comparison of the proportions of IUD and implant users who initiated use following the immediate or extended postpartum period could be made for seven countries: For the IUD, the proportions ranged from 12% to 23%, with the exception of Zambia (48%); for the implant, the proportions ranged from 26% to 49%, with the exception of Rwanda (9%). A tentative conclusion is that, following childbirth, women in Sub-Saharan Africa are more likely to adopt the implant than the IUD. This contrasts with pooled findings in other low- and middle-income regions that show that postpartum women are more likely to adopt the IUD than the implant.<sup>3</sup>

In addition, we examined implant discontinuation data among all women, which were available on the DHS Statcompiler website for 13 African countries. In 10 of those countries, 12-month, all-cause discontinuation was less than 10%; the exceptions were Benin (35%), Mali (18%) and Uganda (12%). Similar IUD discontinuation data were available for only four countries: Kenya (6%), Nigeria (9%), Zambia (12%) and Burundi (15%). Direct comparisons can be made for Kenya and Zambia, where rates of implant discontinuation were 8% and 4%, respectively. Moreover, we can compare discontinuation of the two methods among all married users in Nigeria (10% for the IUD and 11% for the implant).<sup>3</sup> In conclusion, discontinuation is low for both methods, and no clear-cut difference can be established in Sub-Saharan Africa on the basis of these data; however, a report based on 22 DHS surveys drawn from all regions shows appreciably lower discontinuation of the implant than of the IUD.<sup>3</sup>

Apart from DHS data, evidence that permits comparison of IUD and implant discontinuation in Sub-Saharan Africa is very scarce. Discontinuation data are available from a follow-up survey of 3,278 IUD acceptors and 995 implant acceptors—all recipients of MSI mobile services—in five countries, including Ethiopia and Sierra Leone.<sup>24</sup> Of those, Sierra Leone was the only one for which discontinuation for the two methods could be compared: At eight or more months, discontinuation was 16% for the IUD and 6% for the implant. Side effects were reported by about 40% of IUD and implant users in Sierra Leone, and by a similar proportion of implant users in Ethiopia.

\*Countries with 100 episodes of IUD initiation included Burundi, Nigeria and Zambia; countries with 100 episodes of implant initiation included Burkina Faso, Liberia, Nigeria, Senegal, Sierra Leone, Rwanda, Uganda, Zambia and Zimbabwe.

**FIGURE 5. Among married women aged 15–49 currently using a modern method, percentage relying on the implant, by country and DHS survey period**



Note: The values for Gabon are not visible because they are the same as those for Mozambique.

Of those, 30–40% had sought medical help, and difficulty in finding such help was reported by 27% in Ethiopia and by 20% in Sierra Leone. These findings demonstrate that low discontinuation does not imply the absence of side effects deemed serious enough to warrant a health consultation.

A key issue for family planning services in Sub-Saharan Africa is whether the hormonal IUD is superior to the copper IUD and the implant in terms of satisfaction and use-continuation. Efforts to increase availability of the device in Africa have been advocated, and reductions in price have made the suggestion more feasible, although cost remains a concern for donors.<sup>25,26</sup> Regrettably, evidence for Sub-Saharan African countries is absent, largely because use of the hormonal IUD is uncommon, and few surveys distinguish between IUD types. Evidence from more-developed countries suggests that the hormonal IUD is similar to the copper IUD in terms of continuation and satisfaction.<sup>27–30</sup> In the only study we could find in a developing country (Kenya) that compares the hormonal IUD and the implant, 12-month continuation was almost identical (about 90%);<sup>31</sup> at six months, satisfaction was higher among hormonal IUD users than among implant users, but the gap narrowed by 12 months. Although menstrual disruption is a common source of dissatisfaction in Africa, 78% of hormonal IUD users considered their bleeding pattern highly acceptable, compared with 66% of implant users. Efforts are currently under way to understand the

**TABLE 1. Social and demographic characteristics of IUD and implant users aged 15–49 in four Sub-Saharan African countries for which there were at least 100 current users of each method in the most recent DHS survey**

| Characteristic                        | Kenya, 2014    |                      |       | Nigeria, 2013  |                    |       | Rwanda, 2014–2015 |                    |       | Zambia, 2013–2014 |                    |      |
|---------------------------------------|----------------|----------------------|-------|----------------|--------------------|-------|-------------------|--------------------|-------|-------------------|--------------------|------|
|                                       | IUD<br>(n=614) | Implant<br>(n=1,969) | p     | IUD<br>(n=304) | Implant<br>(n=101) | p     | IUD<br>(n=105)    | Implant<br>(n=645) | p     | IUD<br>(n=111)    | Implant<br>(n=667) | p    |
| <b>Education</b>                      |                |                      |       |                |                    |       |                   |                    |       |                   |                    |      |
| None                                  | 0.9            | 3.1                  |       | 5.8            | 10.5               |       | 6.5               | 14.6               |       | 2.0               | 5.3                |      |
| Primary                               | 43.1           | 55.3                 | <.001 | 30.0           | 18.9               | .364  | 53.5              | 68.7               | <.001 | 48.3              | 49.8               | .050 |
| Secondary                             | 30.4           | 28.8                 |       | 40.2           | 43.2               |       | 20.2              | 13.3               |       | 40.7              | 41.3               |      |
| >secondary                            | 25.6           | 12.8                 |       | 24.0           | 27.4               |       | 19.8              | 3.4                |       | 9.0               | 3.6                |      |
| <b>Age-group</b>                      |                |                      |       |                |                    |       |                   |                    |       |                   |                    |      |
| 15–19                                 | 0.4            | 3.2                  |       | 0.9            | 0.0                |       | 0.0               | 2.0                |       | 0.7               | 5.5                |      |
| 20–24                                 | 7.1            | 18.7                 | <.001 | 2.9            | 7.6                | <.001 | 4.7               | 9.3                | .359  | 6.3               | 17.7               | .021 |
| 25–29                                 | 23.0           | 30.4                 |       | 10.4           | 15.3               |       | 17.6              | 22.8               |       | 22.8              | 22.1               |      |
| 30–34                                 | 22.7           | 22.1                 |       | 20.1           | 40.0               |       | 30.4              | 27.1               |       | 24.6              | 21.5               |      |
| 35–39                                 | 19.4           | 15.7                 |       | 23.3           | 22.5               |       | 24.2              | 18.9               |       | 23.2              | 18.9               |      |
| 40–49                                 | 27.4           | 9.9                  |       | 42.4           | 14.6               |       | 23.1              | 19.9               |       | 22.4              | 14.3               |      |
| Mean                                  | 34.2           | 30.1                 |       | 37.5           | 32.9               |       | 34.6              | 32.8               |       | 33.8              | 30.9               |      |
| <b>Residence</b>                      |                |                      |       |                |                    |       |                   |                    |       |                   |                    |      |
| Urban                                 | 54.3           | 48.2                 | .109  | 70.8           | 74.9               | .612  | 50.1              | 24.4               | <.001 | 68.0              | 56.9               | .059 |
| Rural                                 | 45.7           | 51.8                 |       | 29.2           | 25.1               |       | 49.9              | 75.6               |       | 32.0              | 43.1               |      |
| <b>Wealth quintile</b>                |                |                      |       |                |                    |       |                   |                    |       |                   |                    |      |
| Poorest                               | 2.6            | 9.8                  | <.001 | 0.2            | 0.6                | .748  | 6.5               | 17.4               | <.001 | 5.0               | 10.5               | .004 |
| Poor                                  | 7.7            | 17.7                 |       | 5.3            | 6.1                |       | 5.1               | 17.3               |       | 10.7              | 14.0               |      |
| Middle                                | 16.4           | 20.1                 |       | 16.1           | 14.2               |       | 13.1              | 20.9               |       | 9.0               | 21.7               |      |
| Richer                                | 22.7           | 23.7                 |       | 30.3           | 23.4               |       | 14.1              | 18.1               |       | 40.9              | 28.7               |      |
| Richest                               | 50.6           | 28.7                 |       | 48.1           | 55.7               |       | 61.2              | 26.3               |       | 34.4              | 25.1               |      |
| <b>No. of living children</b>         |                |                      |       |                |                    |       |                   |                    |       |                   |                    |      |
| 0                                     | 0.9            | 0.6                  | .168  | 1.6            | 1.9                | .441  | 1.2               | 0.5                | .463  | 0.0               | 0.8                | .535 |
| 1–2                                   | 47.1           | 45.9                 |       | 12.2           | 19.7               |       | 33.4              | 40.5               |       | 22.9              | 29.2               |      |
| 3–4                                   | 38.2           | 34.7                 |       | 40.9           | 41.5               |       | 42.9              | 36.3               |       | 35.1              | 31.9               |      |
| ≥5                                    | 13.8           | 18.8                 |       | 45.3           | 36.9               |       | 22.5              | 22.7               |       | 42.0              | 38.1               |      |
| Mean                                  | 2.86           | 3.00                 |       | 4.28           | 3.92               |       | 3.34              | 3.24               |       | 4.25              | 3.93               |      |
| <b>Desire for more children*</b>      |                |                      |       |                |                    |       |                   |                    |       |                   |                    |      |
| Wants in ≤2 years                     | 8.7            | 5.0                  | .008  | 5.5            | 4.9                | <.001 | 6.6               | 4.2                | .335  | 4.1               | 4.0                | .256 |
| Wants in >2 years or unsure of timing | 22.8           | 36.5                 |       | 16.4           | 46.6               |       | 32.2              | 37.5               |       | 26.5              | 39.6               |      |
| Undecided/missing                     | 5.3            | 2.5                  |       | 8.0            | 8.2                |       | 0.4               | 1.6                |       | 6.6               | 5.4                |      |
| Does not want/infecund                | 63.2           | 56.0                 | 70.1  | 40.3           | 60.8               | 56.7  | 62.8              | 51.0               |       |                   |                    |      |

\*Sample size is based on 1,389 weighted cases that were randomly chosen for the long questionnaire. Note: p values from chi-square tests.

profile of hormonal IUD users and the impact of adding the device to the method mix in selected Sub-Saharan African countries.<sup>32</sup>

### Key Stakeholder Interviews

The main reasons identified by stakeholders for low IUD use in Sub-Saharan Africa were related to the interaction between women and providers. First, providers might not present the IUD as an option because they hold misconceptions about the method (e.g., that the IUD moves around in the body and causes infection); because it requires more time to provide than other methods; or because they believe that other methods, including the implant, might be more suitable due to higher perceived effectiveness and the fact that other methods do not require insertion deep inside the body. The fact that an implant is considerably more difficult to remove than an IUD is not explained to women. Second, women might not feel comfortable having an IUD inserted by a male provider. And third, many facilities lack the space to provide women with privacy during the insertion.

In addition, stakeholders often mentioned that some women believe the IUD is less effective than other modern methods, such as the implant. This was attributed to greater efforts by donors, health ministries and providers to communicate information about the implant than about the IUD. Side effects—in particular heavy menstrual bleeding—act as a further deterrent. Interviewees reported that women consider the implant less intrusive than the IUD, and that the implant—being a relatively new method—has been the subject of fewer misconceptions and concerns.

Several informants reported feeling that the implant is more acceptable to women than the IUD, and that the method is favored by some agencies for this reason. They also mentioned the lack of national-level support for providing the IUD, which is reflected in supply chain issues and the restrictions in some countries on nurses and midwives inserting the IUD, and results in lack of demand and consequent loss of provider skills and confidence (particularly in rural areas with low client volumes).

To address low IUD utilization, interviewees suggested information and education activities to counter

misconceptions and reservations among women, including those that increase awareness of the IUD as an emergency contraceptive. They also mentioned that supply-side issues could be reduced through training, retraining and retention of providers; task shifting; and recruitment of enthusiastic, dedicated IUD providers.

## DISCUSSION

We can draw several weak or tentative conclusions from our analyses. In Sub-Saharan Africa, the availability of the implant at health facilities may be greater than that of the IUD; users of the IUD are more reliant than users of the implant on private supply sources. Compared with IUD users, implant users tend to be younger, and more likely to start use in the extended postpartum period and be motivated by birthspacing or postponement rather than family size limitation. IUD users tend to be more highly educated, wealthier and more likely to live in an urban area. Taken together, the findings suggest that the IUD may appeal to a more privileged group than the implant. Users of both methods, however, record high continuation rates, although our findings suggest that continuation among implant users may be even higher than for IUD users.

In addition, two strong conclusions can be drawn from these analyses. First, awareness of the implant has spread rapidly and, in many countries, has now surpassed awareness of the IUD. Second, in many countries, the implant's overall level of use and its share of use have both risen sharply, whereas the IUD's overall level of use has remained low and its share of use has fallen. The need for LARCs in Africa is pressing, and the evidence presented here strongly suggests that the implant, not the IUD, is filling the need.

A commonly cited reason for the persistently low levels of IUD uptake in Sub-Saharan Africa is the lack of trained providers.<sup>8,33,34</sup> The remedy appears obvious: to undertake more widespread training. However, there are two reasons why this strategy is unlikely to succeed on its own. First, improving the supply of a product without simultaneously increasing demand for it may have little effect. Supply and demand are like the two blades of a pair of scissors; one without the other is close to useless. In the case of the IUD, providers trained in insertion and removal may lose the confidence to use those skills safely if they are not able to put them into practice regularly (e.g., several times a month). Second, IUD insertion is more complex and takes more time than implant insertion, although IUD removal is easier than implant removal; this point emerged strongly from interviews with key stakeholders. Providers naturally prefer the simple procedure to the complex one, and this consideration may be the major reason why implant acceptance is rapidly expanding while IUD acceptance is languishing.

The importance of client-related reasons for non-use of the IUD is difficult to assess. It is certainly more intrusive to insert a method into the uterus than to insert one into the upper arm, and this is likely to be a major barrier, particularly in facilities lacking privacy or female staff. Furthermore, the IUD is associated with many

misconceptions about health risks that may be endorsed and sustained over time by potential clients, as well by providers. The implant is a relatively new method, and thus has given rise to fewer misconceptions.

Still, the evidence from interventions that seek to increase availability of the IUD or the implant in Africa shows that these barriers can be overcome. A PSI initiative in 13 countries—six in Africa—resulted in 576,000 IUD insertions in 2009–2010.<sup>35</sup> Similarly, MSI reported 167,000 IUD insertions in 20 African countries in 2010<sup>36</sup> and 250,000 in 2012.<sup>37</sup> Although LARC interventions that offer both methods typically result in a ratio of about three implant insertions for each IUD insertion, a sizable minority of women will choose the IUD when met with enthusiastic staff and high-quality counseling.<sup>9</sup> Additional elements of successful LARC interventions highlighted by PSI and MSI include careful coordination of the timing of demand-creation activities and service delivery; provision of removal services; and activities designed to reach poor or underserved women, such as mobile outreach and the provision of free or subsidized services. In line with our findings on the antecedents to LARC adoption shown above, these programs predominantly reached new users. Nevertheless, the fact remains that these efforts have not prevented the decline of the IUD's contribution to overall contraceptive protection in Sub-Saharan Africa.

## Conclusion

This paper raises fundamental questions about the future of the IUD in Africa. One position is to take the moral high ground and argue that the method must continue to be made available in the region because it is imperative that women have the widest possible range of choices. Cost considerations also favor continued access to the IUD, which is considerably cheaper than the implant. If an era of diminished U.S. funding for international family planning is about to start, commodity costs and staff costs for counseling, insertion and removal will become more important.<sup>38</sup> However, a business-as-usual scenario seems to be leading nowhere in terms of nationwide success.

We suggest two alternative strategies. The first is a minimal approach that would involve concentrating IUD services in high-volume, urban facilities by training and placement of dedicated LARC providers. This strategy would be relatively easy to implement and should be cost-effective; however, it would be limited in terms of coverage and national impact.

The second is a maximal approach that would involve an expansion of IUD training, a considerable investment in IUD demand creation and the provision of some motivating mechanism for providers to offer IUD services with enthusiasm. NGOs, such as MSI and PSI, could assist, but government commitment would be vital, and it is uncertain whether the necessary political will exists. Thus far, government family planning agencies in Africa—except in Kenya—have left IUD services largely to non-governmental organizations that lack the national reach

to implement such a maximal approach, except perhaps in small countries. However, as mentioned, the IUD is the most cost-effective method, which should appeal to governments.

The motivation for providers is the problematic element, and perhaps the most crucial one as well. Payments for performance could restrict rather than widen choice, but to suggest an alternative that would encourage staff to spend the time required for IUD counseling and insertion without compromising the right of clients to freedom of choice is difficult. One interesting possibility is encouraging IUD use among providers themselves—an approach that draws on evidence from developed countries that providers are likely to recommend a method that they have used with success.<sup>39</sup> We hope that this comment will stimulate discussion of this and other creative ways of improving the situation.

## REFERENCES

- United Nations, Department of Economic Affairs, Population Division, *World Population Prospects: the 2017 Revision*, New York: United Nations, 2017.
- United Nations Department of Economic and Social Affairs, *World Contraceptive Patterns 2013*, 2013, <http://www.un.org/en/development/desa/population/publications/pdf/family/worldContraceptivePatternsWallChart2013>.
- Staveteig S, Mallick L and Winter R, Uptake and discontinuation of long-acting reversible contraceptives (LARCs) in low-income countries, *DHS Analytical Studies*, 2015, Rockville, MD, USA: ICF International, No. 54.
- Ali M, Cleland J and Shah I, *Causes and Consequences of Contraceptive Discontinuation: Evidence from 60 Demographic and Health Surveys*, Geneva: World Health Organization (WHO), 2012.
- Dasgupta AN, Zaba B and Crampin AC, Contraceptive dynamics in rural northern Malawi: a prospective longitudinal study, *International Perspectives on Sexual and Reproductive Health*, 2015, 41(3):145–154.
- Cleland J, Harbison S and Shah IH, Unmet need for contraception: issues and challenges, *Studies in Family Planning*, 2014, 45(2):105–122.
- Van Lith LM, Yahner M and Bakamjian L, Women's growing desire to limit births in sub-Saharan Africa: meeting the challenge, *Global Health, Science and Practice*, 2013, 1(1):97–107.
- Hubacher D et al., Long-acting reversible contraceptive acceptability and unintended pregnancy among women presenting for short-acting methods: a randomized patient preference trial, *American Journal of Obstetrics & Gynecology*, 2017, 216(2):101–109.
- Cleland J et al., The promotion of intrauterine contraception in low- and middle-income countries: a narrative review, *Contraception*, 2017, 95(6):519–528.
- Daniele MAS et al., Provider and lay perspectives on intra-uterine contraception: a global review, *Reproductive Health*, 2017, 14(1):119.
- Campbell OM et al., Who, what, where: an analysis of private sector family planning provision in 57 low- and middle-income countries, *Tropical Medicine & International Health*, 2015, 20(12):1639–1656.
- Footman K et al., Using multi-country household surveys to understand who provides reproductive and maternal health services in low- and middle-income countries: a critical appraisal of the Demographic and Health Surveys, *Tropical Medicine & International Health*, 2015, 20(5):589–606.
- Malawi Ministry of Health (MMOH) and ICF International, *Malawi Service Provision Assessment Survey 2013–14: Key Findings*, Rockville, MD, USA: MMOH and ICF International, 2014.
- Agence Nationale de la Statistique et de la Démographie (ANSD) and ICF International, *Sénégal: Enquête Continue sur la Prestation des Services de Soins de Santé 2014*, Rockville, MD, USA: ICF International, 2015.
- Ministry of Health and Social Welfare (MoHSW), Ministry of Health, (MoH), National Bureau of Statistics (NBS), Office of the Chief Government Statistician (OCGS) and ICF International, *Tanzania Service Provision Assessment Survey 2014–15*, Dar es Salaam, Tanzania, and Rockville, MD, USA: MoHSW, MoH, NBS, OCGS and ICF International, 2015.
- National Coordinating Agency for Population and Development (NCAPD), Ministry of Medical Services (MOMS), Ministry of Public Health and Sanitation (MOPHS), Kenya National Bureau of Statistics (KNBS) and ICF Macro, Kenya Service Provision Assessment Survey 2010, Nairobi, Kenya: NCAPD, MOMS, MOPHS, KNBS and ICF Macro, 2011.
- PMA2020, *PMA2016/Burkina Faso–R3*, 2016, <https://www.pma2020.org/sites/default/files/BFR3-EN-FP-Brief-v5-2016.06.14.pdf>.
- PMA2020, *PMA2015/Ethiopia–R3*, 2017, <https://www.pma2020.org/sites/default/files/ETR3-2PG-FP-Brief-v8-2017-02-17.pdf>.
- PMA2020, *PMA2015/Ghana–R4*, 2017, <https://www.pma2020.org/sites/default/files/GHR4-FP-Brief-v10-2017-06.08-sed.pdf>.
- PMA2020, *PMA2015/Kenya–R4*, 2017, <https://www.pma2020.org/sites/default/files/KER4-2PG-FP-Indicator-Brief-v7-2017-05-23.pdf>.
- PMA2020, *PMA2016/Uganda–R4*, 2017, <https://www.pma2020.org/sites/default/files/UGR4-2PG-FP-Brief-v5-2017-02-15.pdf>.
- Avenir Health, StatTRACK, Stock-outs by method, 2015, July 2017, [http://www.track20.org/pages/data\\_analysis/core\\_indicators/StatTrack.php](http://www.track20.org/pages/data_analysis/core_indicators/StatTrack.php).
- United Nations Population Fund (UNFPA), *UNFPA Supplies Annual Report 2015*, 2015, <https://drive.google.com/file/d/0B9D17A0k5PiRclAtIZWUnR4SmM/view>.
- Eva G and Ngo TD, *MSI Mobile Outreach Services: Retrospective Evaluations from Ethiopia, Myanmar, Pakistan, Sierra Leone and Viet Nam*, London: Marie Stopes International (MSI), 2010, [https://www.k4health.org/sites/default/files/outreach\\_web.pdf](https://www.k4health.org/sites/default/files/outreach_web.pdf).
- Hubacher D, The levonorgestrel intrauterine system: reasons to expand access to the public sector of Africa, *Global Health, Science and Practice*, 2015, 3(4):532–537.
- Rademacher KH et al., Expanding access to a new, more affordable levonorgestrel intrauterine system in Kenya: service delivery costs compared with other contraceptive methods and perspectives of key opinion leaders, *Global Health, Science and Practice*, 2016, 4(Suppl. 2):S83–S93.
- Peipert JF et al., Continuation and satisfaction of reversible contraception, *Obstetrics & Gynecology*, 2011, 117(5):1105–1113.
- Flamant A et al., Rates of continuation and satisfaction of immediate intrauterine device insertion following first- or second-trimester surgical abortion: a French prospective cohort study, *European Journal of Obstetrics, Gynecology, and Reproductive Biology*, 2013, 169(2):268–274.
- Friedman JO, Factors associated with contraceptive satisfaction in adolescent women using the IUD, *Journal of Pediatric and Adolescent Gynecology*, 2015, 28(1):38–42.
- Phillips SJ et al., Continuation of copper and levonorgestrel intrauterine devices: a retrospective cohort study, *American Journal of Obstetrics & Gynecology*, 2017, 217(1):57.e1–57.e6.
- Hubacher D et al., Uptake of the levonorgestrel intrauterine system among recent postpartum women in Kenya: factors associated with decision-making, *Contraception*, 2013, 88(1): 97–102.
- Bill & Melinda Gates Foundation, *Evaluation and Learning on the Introduction of the LNG IUS: Request for Concept Memo–Evaluation*, 2016, [http://www.gatesfoundation.org/~media/GFO/How-We-Work/RFP/RFP-Evaluation-Request-for-Proposal\\_LNG-IUS-Evaluation\\_Feb17.pdf](http://www.gatesfoundation.org/~media/GFO/How-We-Work/RFP/RFP-Evaluation-Request-for-Proposal_LNG-IUS-Evaluation_Feb17.pdf).

33. Family Health International, Addressing unmet need for family planning in Africa: Long-acting and permanent methods, 2007, <http://docplayer.net/22783908-Addressing-unmet-need-for-family-planning-in-africa-long-acting-and-permanent-methods.html>.

34. Osei I et al., What happened to the IUD in Ghana? *African Journal of Reproductive Health*, 2005, 9(2):76–91.

35. Blumenthal PD et al., Revitalizing long acting reversible contraceptives in settings with high unmet need: a multi-country experience matching demand creation and service delivery, *International Journal of Gynaecology & Obstetrics*, 2012, 119(Suppl. 3):S299–S300.

36. May K, Ngo T and Hovig D, *Expanding Contraceptive Choices for Women: Promising Results for the IUD in Sub-Saharan Africa*, London: MSI, 2011, <https://www.k4health.org/sites/default/files/Expanding-contraceptive-choices-for-women-FINAL.pdf>.

37. Duvall S et al., Scaling up delivery of contraceptive implants in sub-Saharan Africa: operational experiences of Marie Stopes International, *Global Health, Science and Practice*, 2014, 2(1):72–92.

38. Sergison JE et al., Cost of contraceptive implant removal services must be considered when responding to the growing demand for removals, *Global Health, Science and Practice*, 2017, 5(2):330–332.

39. Gemzell-Danielsson K et al., Use of contraceptive methods and contraceptive recommendations among health care providers actively involved in contraceptive counseling—results of an international survey in 10 countries, *Contraception*, 2012, 86(6):631–638.

**Appendix Table 1. Countries included in analysis of IUD and implant use in Sub-Saharan Africa, by DHS survey years**

| Country       | Survey period 1 (1996–2000) | Survey period 2 (2010–2016) |
|---------------|-----------------------------|-----------------------------|
| Benin         | 1996                        | 2011–2012                   |
| Burkina Faso  | 1998–1999                   | 2010                        |
| Cameroon      | 1998                        | 2011                        |
| Chad          | 1996–1997                   | 2014–2015                   |
| Comoros       | 1996                        | 2012                        |
| Cote d'Ivoire | 1998–1999                   | 2011–2012                   |
| Ethiopia      | 2000                        | 2011                        |
| Gabon         | 2000                        | 2012                        |
| Ghana         | 1998                        | 2014                        |
| Guinea        | 1999                        | 2012                        |
| Kenya         | 1998                        | 2014                        |
| Malawi        | 2000                        | 2010                        |
| Mali          | 1995–1996                   | 2012–2013                   |
| Mozambique    | 1997                        | 2011                        |
| Niger         | 1998                        | 2012                        |
| Rwanda        | 2000                        | 2014–2015                   |
| Senegal       | 1997                        | 2014                        |
| Tanzania      | 1996                        | 2015–2016                   |
| Togo          | 1998                        | 2013–2014                   |
| Uganda        | 2000–2001                   | 2011                        |
| Zambia        | 1996                        | 2013–2014                   |
| Zimbabwe      | 1999                        | 2015                        |

#### Acknowledgment

This manuscript expresses the collective views of the authors, and does not necessarily represent the decisions or the stated policy of the World Health Organization.

**Author contact:** [lenka.benova@lshtm.ac.uk](mailto:lenka.benova@lshtm.ac.uk)