

Assessment of government health center needs to implement long-acting reversible contraception services in rural Rwanda

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Abstract

Background. There is unmet need for family planning in Rwanda. We previously developed an evidence-based couples' family planning counseling (C)FPC program in the capital city that combines: 1) fertility goal-based family planning counseling with a focus on long-acting reversible contraceptive (LARC) for couples wishing to delay pregnancy; 2) health center capacity building for provision of LARC methods, and 3) LARC promotion by community health workers (CHW) trained in community-based provision (CBP) of oral and injectable contraception. From 2015-2016, this service was integrated into eight government health centers in Kigali, reaching 6,072 clients and resulting in 5,743 LARC insertions.

Methods. From May-July 2016, we conducted health center needs assessments in 30 rural health centers using surveys, key informant interviews, logbook extraction, and structured observations. The assessment focused on the infrastructure, materials, and human resources needed for LARC demand creation and provision.

Results. Few nurses had received training in LARC insertion (41% implant, 27% intrauterine device (IUD)). All health centers reported working with CHW, but none trained in LARC promotion. Health centers had limited numbers of IUDs (average 16.4), implants (average 56.1), functional gynecological exam tables (average 2.3), and lamps for viewing the cervix (average <1). Many did not have backup power supplies (40%). Most health centers reported no funding partners for family planning assistance (60%). Per national guidelines, couples' voluntary HIV counseling and testing (CVCT) was provided at the first antenatal visit at all clinics, reaching over 80% of pregnant women and their partners. However, only 10% of health centers had integrated family planning and HIV services.

Conclusions. To successfully implement (C)FPC and LARC services in rural health centers across Rwanda, material and human resource capacity for LARC provision will need to be greatly strengthened through equipment (gynecological exam tables, sterilization capacity, lamps, and backup power supplies), provider trainings and follow-up supervision, and new funding partnerships. Simultaneously, awareness of LARC methods will need to be increased among couples through education and promotion to ensure that demand and supply scale up together. The potential for integrating (C)FPC with ongoing CVCT in antenatal clinics is unique in Africa and should be pursued.

Background

There is considerable unmet need for family planning in Rwanda where the population density is the highest in continental Africa(1). Family planning initiatives have the potential to improve public health via: delaying first pregnancy to improve adolescent health and gender equity(2), spacing additional pregnancies to improve maternal and child health outcomes(3), and reducing unintended pregnancy to support poverty alleviation(4).

Rwanda has achieved remarkable success in reducing its total fertility rate within the past decade from 8.6 children per woman prior to the 1994 Genocide against the Tutsi, to 6.1 children per woman in 2005,

and to 4.2 children per woman in 2014–2015(5). However, key gaps remain including underutilization of the highly effective long-acting reversible contraception (LARC: the copper intrauterine device (IUD) and the implant). Among Rwandan women using modern contraceptive methods, only 3% use the copper IUD and 17% use the implant(6). In rural areas, < 1.5% use the copper IUD and 15% use the implant(7).

Client-side barriers to LARC uptake, which are particularly common in rural areas, include lack of knowledge (particularly about the IUD)(6, 8–13); lack of male involvement in family planning(8, 14–17); concerns about side-effects; myths and misconceptions(18, 19); and concerns about negative effects on sexual intercourse(18). Provider-side barriers include lack of LARC knowledge and training (particularly with the IUD)(8, 9, 20, 21).

To address these barriers, researchers at Projet San Francisco (PSF) developed couples' family planning counseling ((C)FPC). This service is a community-based family planning initiative pairing: 1) the promotion of fertility goal-based family planning that seeks to involve male partners whenever possible, 2) promotions by community health workers (CHW) as well as clinic staff, and 3) health center provision of LARC methods. In 2014, PSF, began piloting (C)FPC(22) and in 2015–2016 successfully implemented the service in eight government health centers in Kigali, the capital city, reaching 6,072 clients and resulting in 5,743 LARC insertions(23). Since expanding the successful (C)FPC model to rural health centers will require addressing the specific needs and barriers present in that context, a rural health center needs assessment was conducted to assess readiness to implement LARC and (C)FPC services.

Methods

Needs assessment content. The needs assessment utilized a mixed-methods approach that combined surveys, semi-structured key informant interviews, extraction of health center logbook data, and structured observations. Needs assessment tools were standardized and pilot tested (Supplementary File 1). The assessment focused on the infrastructure, materials, and human resources needed for LARC demand creation and provision within the framework of family planning services, and collected data on existing service provision, current capacity and resources for scale-up of (C)FPC and LARC provision. The needs assessment collected data on: health center volume, LARC provision, human resource availability (nurses and CHW availability and training), current CHW activities within facilities and in communities, and material resource availability for LARC provision. Open-ended questions ascertained barriers to LARC or (C)FPC provision, other possible CHW duties, and funding partners for family planning.

Needs assessment administration. We selected 30 rural health centers in Rwanda previously identified for potential expansion of the program. The health centers were distributed across 16 districts in all four non-Kigali provinces, with eleven in Eastern Province, seven in Northern Province, six in Southern Province, and six in Western Province. In June 2016, meetings were arranged at each health center with available staff (Director, Deputy Director, Nurse in charge of family planning, Head of CHW, data manager, etc.). Needs assessment survey questions were administered to the group by one Rwandan PSF nurse researcher. Any in-group disagreements about responses were recorded and further discussed. Open-

ended questions were explored in a focus group format. Discussions were held in a mix of Kinyarwanda, English, and French as needed according to the preferences of the assessment participants, with pauses for translation and note taking as needed. No recordings were made. Training log information and service provision data were extracted directly from health center logbooks and inventories were tallied by government clinic staff.

Analysis methods. We used descriptive statistics (counts and percentages for categorical data, means and standard deviations for continuous data) to describe health center volume, LARC provision, human resource availability (nurses and CHW availability and training), current CHW activities within facilities, and material resource availability for LARC provision. We described open-ended questions about barriers to LARC or (C)FPC provision, other possible CHW duties, and funding partners for family planning using thematic qualitative data analysis methods and present a quantitative summary of responses.

Ethics. This Emory and Rwanda IRB waived the need for formal ethical approval and the need for consent to participate. Programmatic data was de-identified by government clinic staff before sharing with PSF investigators.

Results

Service integration and Human resource capacity for LARC provision (Table 1). The average health center catchment size was 31,062 people in 34 villages. Health centers inserted 2.4 IUDs, removed 0.3 IUDs, inserted 34 implants, and removed 7.6 implants in the past three months on average. Forty-three percent of the 30 facilities had integrated family planning and antiretroviral treatment, 30% had integrated family planning education in antenatal care, and only 10% had integrated family planning and HIV testing services.

Participating health centers reported an average of 13.8 nurses on staff. On average, 57% of nurses had received training in family planning service provision; even fewer had received training specific to LARC insertion (41% implant, 27% copper IUD). Almost a quarter (24%) of nurses had been trained in couples' voluntary counseling and testing (CVCT). Health centers had an average of 3.3 nurses trained in CVCT, 7.8 in family planning, 3.8 in IUD (and 2.4 actively inserting), and 5.7 in implant (and 6.2 actively inserting including some who had not received formal training but had learned by observing colleagues). Participating health center staff agreed that new and/or refresher trainings were broadly needed, and 81% of nurses were viewed as potential candidates for LARC training.

All health centers reported working with CHW (average of 102 CHWs/health center). The number of CHW depended on the number of villages within the health center's catchment area. Each health center reported having 3 CHW per village: typically, one focused on maternal and child health while the other two attended to all other areas including family planning. Most (94%) health centers reported that every village they serve had at least one CHW trained in family planning service provision (8 health centers were in the process of training CHW in family planning). At the time of the assessment, 64 villages (6%) were

without a family planning-trained CHW. None of the health centers reported that their CHWs were trained in LARC promotion.

CHW charged with family planning were involved in community-based provision (CBP) of oral contraceptive pills (OCPs) and Depo-Provera injections (100% were performing these activities) and providing LARC education (10% actively providing though without formal training, with the remainder able to provide if trained).

Material resources for LARC service provision (Table 2). Health centers generally had a limited number of IUDs in stock (average of 16.4) and relatively more implants (average 56.1). All health centers reported that they could procure additional IUDs and implants from their local district pharmacy as needed (although some reported occasional stock-outs that could persist for months). The most notable issues with availability of materials and equipment were those affecting IUD provision and included a lack of functional gynecological exam tables available for family planning use (2.3/health center on average) and lamps for viewing the cervix (<1/health center on average). Many health centers reported sharing exam tables with other departments and some reported improvising using cellphone lights or flashlights to illuminate the cervix for IUD insertion or the skin for implant insertion. All health centers had access to either an autoclave or dry heat sterilization oven. However, not all heat sterilization devices were able to accommodate the size of insertion kit components (particularly the tenaculum and uterine sound), and some sterilization devices required more power than was available through the health center's power supply. Health centers that did not use their own sterilization devices had arrangements with local hospitals anywhere from 0-7km away that allowed them to sterilize their equipment. When asked how many insertion kits could be sterilized in a day, responses ranged from 0-10 (average 3.8/day). Most health centers had access to promotional materials for LARC (87%). Half of participating health centers had access to a functional TV and media player of some kind. All participating health centers reported having electricity, though only 60% had functional backup power supplies. All health centers reported that they had the following on-site: materials and antiseptics to clean the cervix for IUD insertion, sterile gloves, local anesthetic, materials and antiseptics to clean the arm for implant insertion, and bandages for the arm.

Open-ended stakeholder questions regarding LARC service provision (Table 3). Health centers anticipated obstacles to increase LARC services including the need to train nurses (87% of health centers), low client acceptability (87%), and the need for more equipment (50%). Health centers anticipated relatively fewer obstacles to implementing (C)FPC programming, though 77% cited that it will be difficult to engage men in couples-based family planning. The reported reasons for this anticipated obstacle (not tabled) included cultural norms (family planning is generally seen as a woman's responsibility), gendered behavior (men are not willing to wait in line at the health center as women are), poverty (attending as a couple doubles the transportation cost and means that the male partner will be missing opportunities for earned income), and fact that men may live in separate towns due to work obligations. Staff in 16 of the health centers felt that CHW were overloaded and could not take on additional duties. Health center staff consistently emphasized the fact that CHW were overworked and undercompensated; in some cases, CHW were

incurring expenses as they were not being compensated for their transportation, use of their home for health activities, and personal materials. The majority of health centers stated that they had no funding partners for family planning assistance (60%), with 30% reporting support from USAID.

Discussion

LARC provision and uptake, especially for the IUD, is low at rural health centers despite the availability of LARC methods and LARC insertion trainings for rural providers in some areas(24). Needs assessment findings emphasized the need for: 1) LARC equipment, 2) LARC insertion trainings for nurses with opportunities to practice these skills regularly, 3) LARC promotions in the clinic and by CHW involving male partners when possible, 4) Family planning integration with other services including HIV, and 5) funding partners.

Equipment. Several health centers needed functional gynecological exam tables and lamps for viewing the cervix, designated for family planning department use only, in order to scale-up IUD provision. On-site access to adequately sized and functional sterilization devices, along with a sufficient power supply and backup power to run them, are essential components.

LARC training. The proportion of nurses in each health center who actively insert LARC methods was low (17% IUD, 45% implant). All nurses should be trained/re-trained in family planning service provision, including IUD and implant insertion and removal. Nurses often informally train each other on implant insertion and quickly become confident with this relatively straightforward procedure. In contrast, IUD insertions require more technical skill and confidence is quickly lost if these skills are not maintained through regular practice. These findings are similar to a 2014 rapid assessment of Zambian family planning clinics which found that, after LARC training, the proportion of nurses who were inserting Jadelle was much higher (96%) than IUDs (30%)(25). A study in South Africa and Zimbabwe found that provider misconceptions about the IUD persisted after training (for example, <5% reported that IUDs were appropriate for women with or at high risk for HIV), but that clinicians and nurses, especially in rural area, were eager to be trained/retrained on the IUD(26).

CHW promotions. Improving LARC – especially IUD – services must be accompanied by increases in demand so that providers are able to practice and maintain their skills. Rural health centers have robust networks of CHW who are able to reach those in the community who may not be attending the health center, including OCP and Depo-Provera users(27). We found that no CHW were formally trained to promote LARC methods and only three health centers reported that CHW were doing so. The effectiveness of CHW in promoting (C)FPC and LARC services has been demonstrated in Kigali(22, 23) as well as across 14 countries in a Marie Stopes International implementation of LARC services(28), and is likely to be transferrable to the rural context in Rwanda.

All associated CHW should be trained in promotion of (C)FPC and LARC to dispel myths which are common in rural areas(8, 9). As CHW are often trusted individuals who are close to the community and hold some influence(29), they are well-positioned to lead these promotional efforts. Additionally, as CHW

visit homes they are able to increase male involvement in family planning decisions, a critical component of successful LARC promotion in other studies(8, 14). Focus groups conducted in Rwandan CHWs indicated that challenges to delivery of health care services included overwhelming workload, insufficient trainings, and poor supervision. CHW are not civil servants and their remuneration depends on a co-operative system with various sources of revenue. CHW reported that while money was an important incentive, they were also motivated by community value and respect(29).

In-clinic promotions. (C)FPC and LARC promotion can take place in the health center as well as through CHW in the community; opportunities for in-clinic promotions exist within infant vaccination, HIV testing, outpatient and antiretroviral treatment services. Rwanda is the only country in Africa to have offer CVCT as nationwide standard of care at the first antenatal visit (30). Health centers may be able to leverage the presence of male partners at CVCT services by offering add-on (C)FPC in the same session. Studies in Rwanda and Zambia have shown that knowledge of LARC methods is poor among men(31), and that fertility-goal based family planning provided to couples when access to LARC is ensured increases uptake of both IUDs and implants(22, 32, 33). More recently, post-partum IUD (PPIUD) insertion has been feasible and acceptable in Kigali(34, 35). Promotions for PPIUD would ideally take place prior to labor and involve male partners. PPIUD was not addressed during this needs assessment but if services were made available, this LARC option could also be discussed during (C)FPC at the first antenatal visit. Half of participating health centers had access to a functional TV and a media player of some kind. This can be leveraged to develop and deliver recorded education about LARC suitable for illiterate clients, as well as visual illustrations of LARC insertions(36).

HIV/family planning integration. Integrating family planning and HIV services has been a major goal of international stakeholders(37, 38) to reduce unintended pregnancy and perinatal HIV transmission(39). Integrating family planning (including LARC) and HIV services is a health policy priority in Rwanda(40, 41). However, current policies have not yet resulted in integration nor nationwide promotion of LARC methods(40, 41). Data from a recent qualitative study of interviews with key Rwandan policymakers and stakeholders indicated that the best way to integrate HIV and family planning services was through development of integrated training materials, data collection tools, and advocacy and policy guidance(42).

Partners and funders. The health centers had limited financial support for family planning and few non-governmental partnerships. Further advocacy with stakeholders is critical.

Maintaining adequate stocks of LARC methods and related insertion supplies is necessary for increased LARC provision but is not sufficient without the presence of functional sterilization equipment and a reliable power supply. The choice of disposable versus non-disposable implant insertion kits should be matched to the health center's capacity for reliable and timely equipment sterilization. Disposable insertion kits are convenient but comparatively expensive and wasteful when compared with reusable insertion equipment. Many health centers already have stocks of reusable specula and scalpels that can be used with the proper sterilization equipment. Strategies to enhance nurses' skill at inserting IUDs are

needed including overcoming misconceptions that may persist after training as well as ongoing supervision and feedback regarding IUD insertion. Additional training of rural CHW will be required, and a key barrier is the high existing workload of CHW. Use of educational tapes/DVDs in health center waiting rooms may be an effective way to promote family planning services including LARC methods. Funding partnerships to support the purchase of dedicated, functional, durable family planning equipment; the installation of reliable backup power sources adequate to provide electricity for sterilization machines; the development and implementation of skills-based LARC insertion trainings and promotional materials for health centers; and training and compensation for CHW LARC promoters are urgently needed.

Future research will need to identify funding partnerships to support resource capacity for LARC provision (including equipment, provider trainings and follow-up supervision, and community awareness). Studies are needed to adapt existing materials developed for (C)FPC training and promotion in Kigali for the rural context.

This study is a comprehensive rural government health center needs assessment related to LARC services in Rwanda. Limitations include possible social desirability bias leading respondents to understate their need. Alternately, a desire to maximize the likelihood of future support could have had led to an overstatement of need. With these possible sources of bias in mind, health center staff comments regarding capacity for LARC insertion were triangulated with monthly LARC provision data from health center logbooks to validate qualitative data on capacity gaps. Similarly, responses about available materials, equipment, and infrastructure were paired with structured observations in each facility to confirm staff accounts whenever possible. These data were mutually validating.

Conclusions

To successfully implement LARC and (C)FPC services in rural health centers, material and human resource capacity for LARC provision will need to be greatly strengthened through equipment, provider trainings and follow-up supervision (especially for the IUD), and supporting funding partnerships. Simultaneously, community awareness of LARC methods among women and their male partners must be increased through community-based and clinic-based education and promotion to ensure that promotion and provision of LARC scale-up together.

Abbreviations

long-acting reversible contraception (LARC), intrauterine device (IUD), couples' family planning counseling (C)FPC, community health workers (CHW), couples' voluntary counseling and testing (CVCT), community-based provision (CBP), oral contraceptive pills (OCPs), post-partum IUD (PPIUD)

Declarations

Ethics: No human subjects research was conducted during the course of this project per the Rwanda and Emory IRBs' definition of operational studies. Programmatic data was de-identified by government clinic staff before sharing with PSF investigators.

Consent for publication: Not applicable.

Availability of data and materials: The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests: The authors report no conflicts of interest.

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Authors' contributions:

AM contributed to the analysis and interpretation of data, wrote the article and revised it critically for important intellectual content, and gave final approval of the version to be published.

RI contributed to the analysis and interpretation of data, drafted the article and revised it critically for important intellectual content, and gave final approval of the version to be published.

EK contributed to the conception and design of the study, revised the article critically for important intellectual content, and gave final approval of the version to be published.

JM contributed to the analysis and interpretation of data, drafted the article and revised it critically for important intellectual content, and gave final approval of the version to be published.

JN contributed to the analysis and interpretation of data, drafted the article and revised it critically for important intellectual content, and gave final approval of the version to be published.

RP contributed to the analysis and interpretation of data, drafted the article and revised it critically for important intellectual content, and gave final approval of the version to be published.

AT contributed to the study conception and design, revised the article critically for important intellectual content, and gave final approval of the version to be published.

SA contributed to the study design and conception, contributed to the analysis and interpretation of data, revised the article critically for important intellectual content, and gave final approval of the version to be published.

KMW contributed to the analysis and interpretation of data, drafted the article and revised it critically for important intellectual content, and gave final approval of the version to be published.

References

1. Rwanda Environment Management Authority. Rwanda State of Environment and Outlook Report: Land use and agriculture 2009 [Available from: <http://www.rema.gov.rw/soe/chap3.php>.
2. WHO. Adolescent pregnancy: WHO Press; 2018 [Available from: http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregnancy/en.
3. WHO. Report of a technical consultation on birth spacing: WHO Press; 2005 [Available from: http://www.who.int/maternal_child_adolescent/documents/birth_spacing05/en/.
4. USAID, WHO, UNFPA. Family Planning for Health and Development: Actions for Change. 2009 [Available from: <https://www.unfpa.org/publications/family-planning-health-and-development>.
5. National Institute of Statistics of Rwanda (NISR) MOH, ICF International. 2014-15 Rwanda Demographic Health Survey Key Findings. 2015.
6. Family Planning 2020. Rwanda FP2020 Core Indicator Summary Sheet 2017 [Available from: <http://www.familyplanning2020.org/entities/81>.
7. USAID. Contextual influences of modern contraceptive use among rural women in rwanda and nepal 2013 [Available from: <https://dhsprogram.com/pubs/pdf/AS41/AS41.pdf>.
8. Robinson N, Moshabela M, Owusu-Ansah L, Kapungu C, Geller S. Barriers to Intrauterine Device Uptake in a Rural Setting in Ghana. *Health care for women international*. 2016;37(2):197-215.
9. Tibaijuka L, Odongo R, Welikhe E, Mukisa W, Kugonza L, Busingye I, et al. Factors influencing use of long-acting versus short-acting contraceptive methods among reproductive-age women in a resource-limited setting. *BMC Women's Health*. 2017;17:25.
10. Ayad M, Hong R. Further Analysis of the Rwanda Demographic and Health Surveys, 2000–2007/08: Levels and Trends of Contraceptive Prevalence and Estimate of Unmet Need for Family Planning in Rwanda Calverton, Maryland, USA: ICF Macro.; 2009 [Available from: http://pdf.usaid.gov/pdf_docs/Pnadq640.pdf.
11. United Nations, Department of Economic and Social Affairs, Population Division. Trends in Contraceptive Use Worldwide 2015. 2015;ST/ESA/SER.A/349.
12. National Institute of Statistics of Rwanda (NISR) [Rwanda] MoHM,], and ICF International. 2014-15 Rwanda Demographic Health Survey Key Findings. 2015.

13. Tang JH, Kopp DM, Stuart GS, O'Shea M, Stanley CC, Hosseinipour MC, et al. Association between contraceptive implant knowledge and intent with implant uptake among postpartum Malawian women: a prospective cohort study. *Contraception and Reproductive Medicine*. 2016;1(13).
14. Anguzu R, Tweheyo R, Sekandi JN, Zalwango V, Muhumuza C, Tusiime S, et al. Knowledge and attitudes towards use of long acting reversible contraceptives among women of reproductive age in Lubaga division, Kampala district, Uganda. *BMC Research Notes*. 2014;7:153-.
15. Brunie A, Tolley EE, Ngabo F, Wesson J, Chen M. Getting to 70%: Barriers to modern contraceptive use for women in Rwanda. *International Journal of Gynecology & Obstetrics*. 2013;123(Supplement 1):e11-e5.
16. Chigbu B, Onwere S, Aluka C, Kamanu C, Okoro O, Feyi-Waboso P. Contraceptive choices of women in rural Southeastern Nigeria. *Nigerian Journal of Clinical Practice*. 2010;13(2):195-9.
17. Farmer DB, Berman L, Ryan G, Habumugisha L, Basinga P, Nutt C, et al. Motivations and Constraints to Family Planning: A Qualitative Study in Rwanda's Southern Kayonza District. *Glob Health Sci Pract*. 2015;3(2):242-54.
18. Alnakash AH. Influence of IUD perceptions on method discontinuation. *Contraception*. 2008;78(4):290-3.
19. van Zijl S, Morroni C, van der Spuy ZM. A survey to assess knowledge and acceptability of the intrauterine device in the Family Planning Services in Cape Town, South Africa. *J Fam Plann Reprod Health Care*. 2010;36(2).
20. Greene E, Stanback J. Old barriers need not apply: opening doors for new contraceptives in the developing world. *Contraception*. 2012;85(1):11-4.
21. Ingabire R, Karita E, Ahmed N, Byingana R, Nyombayire JM, Sinabamenye R, et al. Capacity Strengthening and Training of Government Nurses on Long-acting Reverseable Contraceptive (LARC) Methods in Kigali. *AIDS research and human retroviruses*. 2014;30(S1):A101-A-.
22. Khu NH, Vwalika B, Karita E, Kilembe W, Bayingana RA, Sitrin D, et al. Fertility goal-based counseling increases contraceptive implant and IUD use in HIV-discordant couples in Rwanda and Zambia. *Contraception*. 2013;88(1):74-82.
23. Mazzei A, Ingabire R, Mukamuyango J, Nyombayire J, Sinabamenye R, Bayingana R, et al. Community health worker promotions increase uptake of long-acting reversible contraception in Rwanda. *Reprod Health*. 2019;16(1):75.
24. JHPIEGO. Implementing and Maintaining High-Quality LARC Service: A Guide for Using the LARC Learning Resource Package2017:[1-34 pp.]. Available from: http://resources.jhpiego.org/system/files/resources/LARC_LRP_ImplementationGuide.pdf.
25. Banda S, Bwalya B, Banda L, Ng'andwe C, Wina H, Stillman K, et al. A Rapid Assessment on Long Acting Family Planning Training on Healthcare Providers Bethesda, MD: Abt Associates Inc.; 2014 [Available from: https://www.abtassociates.com/sites/default/files/migrated_files/6e1105ac-0549-49e9-a0ca-a2e1e119d470.pdf].

26. Morse J, Chipato T, Blanchard K, Nhemachena T, Ramjee G, McCulloch C, et al. Provision of long-acting reversible contraception in HIV-prevalent countries: results from nationally representative surveys in southern Africa. *BJOG : an international journal of obstetrics and gynaecology*. 2013;120(11):1386-94.
27. FHI 360. Rwanda: Adding Re-supply of Hormonal Contraceptive Methods to Community Health Worker Tasks Does Not Increase Their Workload 2013 [Available from: https://www.fhi360.org/sites/default/files/media/documents/adding-hormonal-contraceptives-workload-community-health-workers-rwanda-2013_0.pdf].
28. Ngo TD, Nuccio O, Pereira SK, Footman K, Reiss K. Evaluating a LARC Expansion Program in 14 Sub-Saharan African Countries: A Service Delivery Model for Meeting FP2020 Goals. *Maternal and Child Health Journal*. 2017;21(9):1734-43.
29. Condo J, Mugeni C, Naughton B, Hall K, Tuazon MA, Omwega A, et al. Rwanda's evolving community health worker system: a qualitative assessment of client and provider perspectives. *Human Resources for Health*. 2014;12:71.
30. Karita E, Nsanzimana S, Ndagije F, Wall KM, Mukamuyango J, Mugwaneza P, et al. Implementation and Operational Research: Evolution of Couples' Voluntary Counseling and Testing for HIV in Rwanda: From Research to Public Health Practice. *Journal of acquired immune deficiency syndromes*. 2016;73(3):e51-e8.
31. Grabbe K, Stephenson R, Vwalika B, Ahmed Y, Vwalika C, Chomba E, et al. Knowledge, use, and concerns about contraceptive methods among sero-discordant couples in Rwanda and Zambia. *Journal of women's health*. 2009;18(9):1449-56.
32. Haddad L, Wall KM, Vwalika B, Khu NH, Brill I, Kilembe W, et al. Contraceptive discontinuation and switching among couples receiving integrated HIV and family planning services in Lusaka, Zambia. *Aids*. 2013;27 Suppl 1:S93-103.
33. Wall KM, Kilembe W, Vwalika B, Haddad LB, Khu NH, Brill I, et al. Optimizing Prevention of HIV and Unplanned Pregnancy in Discordant African Couples. *Journal of women's health*. 2017;26(8):900-10.
34. Ingabire R, Nyombayire J, Hoagland A, Da Costa V, Mazzei A, Haddad L, et al. Evaluation of a multi-level intervention to improve postpartum intrauterine device services in Rwanda. *Gates Open Res*. 2018;2(38):38.
35. Wall K, Ingabire R, Allen S, Karita E. Cost per insertion and couple year of protection for postpartum intrauterine devices and implants provided during service scale-up in Kigali, Rwanda [version 3; peer review: 2 approved with reservations]. *Gates Open Research*. 2019;2(39).
36. Stephenson R, Vwalika B, Greenberg L, Ahmed Y, Vwalika C, Chomba E, et al. A randomized controlled trial to promote long-term contraceptive use among HIV-serodiscordant and concordant positive couples in Zambia. *Journal of women's health*. 2011;20(4):567-74.
37. USAID. Promoting Integration of Family Planning into HIV and AIDS Programming 2016 [Available from: <https://www.usaid.gov/what-we-do/global-health/hiv-and-aids/technical-areas/promoting-integration-family-planning-hiv-and#section1>].

38. World Health Organization. Strengthening the Linkages between Family Planning and HIV/AIDS Policies, Programs, and Services 2009 [Available from: http://www.who.int/reproductivehealth/publications/linkages/fp_hiv_strategic_considerations.pdf].
39. FHI 360. Preventing Unintended Pregnancies and HIV 2012 [Available from: <https://www.fhi360.org/sites/default/files/media/documents/PMTCTbrief.pdf>].
40. Republic of Rwanda Ministry of Health. National Guidelines for Comprehensive Care of People Living with HIV in Rwanda: Rwandan Ministry of Health; 2011 [Available from: https://aidsfree.usaid.gov/sites/default/files/tx_rwanda_2011.pdf].
41. Republic of Rwanda Ministry of Health. Family Planning Policy Rwandan Ministry of Health; 2012 [Available from: <http://www.moh.gov.rw/fileadmin/templates/Docs/Rwanda-Family-Planning-Policy.pdf>].
42. Wall KM, Bayingana R, Ingabire R, Ahlschlager L, Tichacek A, Allen S, et al. Rwandan stakeholder perspectives of integrated family planning and HIV services. *The International journal of health planning and management*. 2018;33(4):e1037-e49.

Supplementary Files

File name: Supplementary file 1

Title of data: Clinic Needs Assessment

Description of data: Standardized needs assessment guide/checklist

Tables

Table 1. Human resource capacity for LARC service provision in n=30 rural health centers, 2016

Health center volume and LARC provision	N	%	Mean per health center	SD
Catchment population of health centers	931,873	--	31,062.4	13,835.0
Villages in health center catchment areas	1019	--	34.0	12.3
IUD insertions in last 3 months	73	--	2.4	6.2
IUD removals in last 3 months	9	--	0.3	0.7
Implant insertions in last 3 months	1019	--	34.0	44.9
Implant removals/replacements in last 3 months	219	--	7.6	10.0
Service integration				
Services integrated with FP				
FP and antiretroviral treatment	13	43%	--	--
FP and antenatal care	9	30%	--	--
FP and HIV testing	3	10%	--	--
Human resources - Nurses				
Nurses	414	--	13.8	3.9
Nurses trained in:				
CVCT provision	100	24%	3.3	3.9
FP provision	234	57%	7.8	6.0
IUD insertion	113	27%	3.8	3.8
Implant insertion	170	41%	5.7	4.6
Nurses actively inserting				
IUD	72	17%	2.4	1.7
Implant	185	45%	6.2	4.1
Health centers needing nurse refresher trainings needed in FP, IUD, and Implant	30	100%	30.0	0
Nurses in health center that could be trained to	337	81%	11.2	4.7

insert LARC

Human resources - CHW				
CHW working with all health centers	3071	--	102.4	37.0
Villages with CHW trained in FP	955	94%	31.8	12.7
CHW formally trained in LARC promotion	0	0%	0.0	0.0
Clinics with CHW FP activities				
Dispensing oral contraceptive pills				
CHW already conducting	30	100%	--	--
Administering Depo-Provera injections				
CHW already conducting	30	100%	--	--
Providing LARC education and promotion				
CHW already conducting	3	10%	--	--
This could be done by CHW	27	90%	--	--

CVCT: couples' voluntary HIV counseling and testing. LARC: Long-acting reversible contraceptive. FP: Family planning. IUD: Intra-uterine device. SD: standard deviation. CHW: Community Health Worker

Table 2. Material resources available for LARC service provision in n=30 rural health centers, 2016

Average number of:	Mean	SD
IUD methods	16.4	27.0
Hysterometer	8.5	28.7
Lamp for viewing cervix	0.8	0.7
Forceps for IUD removal	4.2	13.3
Tenaculum	9.1	28.6
Speculum	11.8	28.5
Gynecological table	2.3	1.2
Implant methods	56.1	54.9
Disposable implant kit	51.7	50.8
Reusable implant kit	3.6	6.4
Halogen lamp	0.07	0.2
Scalpel	92.5	80.8
Clinics with availability of:	N	%
Autoclave or dry heat sterilization oven	30	100%
Electricity	30	100%
Backup power supply	18	60%
Materials and antiseptics for IUD insertion	30	100%
Sterile gloves	30	100%
Local anesthetic	30	100%
Materials and antiseptic to clean the arm	30	100%
Bandages for the arm	30	100%
Promotional materials for the IUD or implant	26	87%
Television and media player	15	50%

LARC: Long-acting reversible contraceptive. IUD: intrauterine device. SD: standard deviation.

Table 3. Open-ended questions about LARC service provision in n=30 rural health centers, 2016

	N	%
Barriers to introduce or expand LARC services?		
Need for nurse training	26	87%
Low client acceptability*	26	87%
Need for more equipment	15	50%
Cost barriers for uninsured	13	43%
Need for CHW promotional training	7	23%
Understaffing	4	13%
None	1	3%
Obstacles in implementing (C)FPC?		
Improving male involvement	23	77%
None	5	17%
Cost barriers for uninsured	3	10%
Client acceptability*	2	7%
Need for CHW training	2	7%
Understaffing/wait times	2	7%
Obtaining provider buy-in	1	3%
Partners/funders that help provide family planning services?		
Maternal Child Survival Program (USAID)	9	30%
Partners In Health	1	3%
Ministry of Health	1	3%
Global Fund	1	3%
None	18	60%

*Client acceptability: myths/misconceptions/rumors, lack of awareness particularly among men, concerns about side-effects or adverse events, religious beliefs

LARC: Long-acting reversible contraceptive. FP: Family planning. IUD: Intra-uterine device. CHW: Community Health Worker

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [ORIGINALPSFFPClinicNeedsAssessment.docx](#)