

“...normally they come for removal, and they go back with a new implant inserted”: Implant Removal and Immediate Reinsertion in Rwanda

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Abstract

Background

Family planning use in Rwanda increased from 17% to 69% between 2005 and 2025. The most commonly used modern contraceptive method in 2025 was the implant, at 34%. Methods: Given the common use of implant in Rwanda, this qualitative study aimed to understand the experience of implant removal in Rwanda from the perspectives of implant users and family planning nurses.

Results

Implant users in Rwanda can get their implants removed at any time they desire. The main reason for implant removal is reaching the end of the recommended duration of effectiveness. If an implant user wants to remove the implant prior to the period of effectiveness ending, most often due to experiencing difficult side effects or desiring pregnancy, they can do so with the help of the family planning providers. When implant users remove the implant at the end of the recommended duration of use, they often immediately reinsert an implant. Some users may switch contraceptive methods after removal, but most come back for reinsertion of an implant. Implant users may switch to another contraceptive if they desire a pregnancy sooner than the three-year period of protection the most common implant used in Rwanda provides.

Conclusion

Family planning nurses in Rwanda respond positively to the removal desires of implant users. When implant users are confident in their access to implant removal services when they desire removal, they are more likely to initiate implant use. Furthermore, when implant use experience is positive, including removal services, implant users are likely to continue with implant use.

Plain English Summary

Family planning use in Rwanda went up by a lot between 2005 and 2025. More people in Rwanda use the implant than any other method. This research looks at the experience of implant users in Rwanda in terms of getting the implant taken out. This study found that implant users in Rwanda can get their implants taken out at any time. Most of the time implant users want to take out their implant when the implant is no longer able to prevent pregnancy in their body. They often want to have another implant put in their arm immediately after the implant is removed. Some implant users want to remove the implant even when it can still prevent pregnancy, in situations where they want to get pregnant or if they have side effects that cannot live with. In Rwanda, family planning nurses are responsive to implant users' desires when they want to take out the implant. Since implant users can get the implant taken out when they want this gives current implant users comfort and encourages repeat implant use.

Background

Family planning is crucial to public health. Family planning allows individuals and couples to have autonomy over their lives by providing them with the resources to have the number and timing of children desired. Family planning reduces unplanned pregnancies, encourages healthier sexual practices, improves health outcomes for both parents and infants, and promotes overall socioeconomic stability and development.

In sub-Saharan Africa, where fertility rates remain high and health systems are often under-resourced, expanding family planning access is essential. Rwanda is frequently cited as a public health and family planning success story in this regard. Between 2005 and 2025, modern contraceptive use among married women in Rwanda rose from 17% to 69%, with contraceptive implants becoming the most commonly used method, representing 34% of contraceptive use (1). A rapid increase in implant use is a trend found in other nations in the region as well (2, 3). Rwanda has made substantial progress in increasing family planning services through strong government support, widespread community-based care, and on-demand access for contraceptive care (4–7, 7–9).

Contraceptive implants are a highly effective form of long-acting reversible contraception (LARC), allowing for protection for three to five years, depending on the type (10). These subdermal devices release progestin to inhibit ovulation, thicken cervical mucus, and works to thin the endometrial lining, preventing pregnancy with minimal ongoing user input (11). Implants are commonly used due to their convenience, reliability, discreet nature, and quick return to fertility upon removal (3, 12).

With such high implant use comes the necessity to address a vital component of reproductive autonomy: timely and voluntary implant removal (3, 13). As with all contraceptive methods, the ability to discontinue use is a fundamental right (14) that requires adequate investment in the health sector (15).

The two most common reasons for requesting early implant removal is desiring pregnancy or unacceptable side effects (16–19). In Kinshasa, capital of the Democratic Republic of Congo, one study found that 20% of women who discontinued Implanon did so earlier than the recommended duration, often due to menstrual changes (20). Early removal of implants—due to side effects like irregular bleeding, weight changes, or mood fluctuations—is not uncommon (10, 16, 17, 21–23), and ensuring that women can remove their implants on demand is crucial to maintaining trust in the family planning system and upholding bodily autonomy.

Emerging literature across sub-Saharan Africa suggests that removal services often lag behind insertion services, creating barriers for women who wish to end use. Studies have identified multiple systemic obstacles to removal, including delays in removal, insufficient provider training, limited availability of removal kits, cost burdens, provider refusal, and insufficient follow-up mechanisms (16, 21, 24–28). With the difficulty in accessing implant removals, scientists have examined the acceptability of a biodegradable implant in Kenya and Senegal where they found participants were interested but also had some reservations (29).

Given this backdrop of increasing and high implant use in Rwanda, in tandem with research demonstrating difficulties in accessing removal services in other settings in the region, this study explores the experience with contraceptive implant removal in Rwanda from the perspectives of family planning nurses and implant users.

Methods

This qualitative study included 16 in-depth interviews and eight focus group discussions with family planning nurses and current implant users, split evenly by demographic and geographic area, in two districts of Rwanda in July 2024. The two districts, Musanze and Nyamasheke, were selected purposively based on having the highest rates of contraceptive use in Rwanda (Musanze) and one of the lowest rates (Nyamasheke).

Study participants were selected based on convenience. All study participants were approached face-to-face. The research team utilized local contacts to recruit participants. The researchers had a relationship with the local contacts in each district, but not with any of the study participants. Study participants were introduced to the purpose of the study and the research team members conducting the data collection. No one refused to participate nor dropped out from the study. Data collection took place in private rooms in the local hospital or nearby private spaces. No one was present for data collection except for the data collectors and the study participants, and all data collection was in Kinyarwanda.

Separate topic guides were developed for this study, distinct for each sub population and data collection type. Study participants were only contacted at one point in time for study participation, so transcripts were not returned to study participants. All data collection activities were audio recorded. The female Rwandan and Burundian team members conducted the interviews and focus group discussions. Written notes were taken by interviewers in the in-depth interviews, and by note takers during the focus group discussions.

There were a total of 106 participants in the study, 16 for the in-depth interviews, 42 nurses and 48 implant users each in the focus group discussions. The interviews with implant users lasted on average for 34 minutes, ranging from 27 to 43 minutes, and the focus group discussions lasted on average 57 minutes, ranging from 41 to 75 minutes. With the nurses, the in-depth interviews lasted on average 49 minutes, ranging from 37 to 61 minutes, and the focus group discussions lasted on average for 69 minutes, ranging from 56 to 80 minutes.

Content analysis framed the data analysis. All members of the study team transcribed the data into English and coded the data in Atlas.ti. The coding themes were derived inductively from the data. Each team member developed a draft code list. The team then met to discuss the draft codes, and their definitions, and debated additions to the code list. A final code list was established for the team. After coding across transcripts, analysis was conducted within each code utilizing Microsoft Excel to organize the code and subcodes in the columns, the data collection point in the rows, and the quotes in the cells. Next, each code and subcode were written up in Microsoft Word utilizing illustrative quotes to

demonstrate the themes. Each code was analyzed by two team members who met to discuss discrepancies in coding, analysis, and interpretation. Study participants did not provide feedback on the findings.

This study received approval from the Rwandan Ministry of Health and the Institutional Review Board at Western Washington University. Each study participant consented to study participation prior to data collection.

Results

Implant Removal

On Demand

The predominant theme within implant removal was that implants can be removed on demand by providers. In other words, implant users can have the implant removed whenever they want – they need not wait until the recommended duration of contraceptive effectiveness duration is reached to have their implant removed. This theme arose more often in Nyamasheke than in Musanze, and more with nurses than implant users.

...we tell her that anytime she wants to remove the implant, she can remove it.

Family Planning Nurse, FGD, 37 years, 2 children, Nyamasheke

It's your right. So, when they give you that implant, they don't force you to wait until the 5-years, you can take it out whenever you want.

Implant User, FGD, 39 years, 3 children, Nyamasheke

Some providers noted that prior to implant removal, they would counsel the client deeply – in case the removal could be mitigated due to reasons not related to the implant itself.

I: Is there any reason why someone might be turned away at the clinic from getting their implant removed?

R: Yes, but it is not to deny but to delay and start to teach her and understand why she wants to remove and understand her reasons. And after understanding those reasons you teach her again and after giving her the information you find she is agreeing, and she finds out there is no reason to remove it and she accepts it. But when she's refusing, there is no one who says I refuse to remove the implant.

Family Planning Nurse, IDI, 43 years, 2 children, Nyamasheke

When asked about how common providers would see clients back for early removal of the implant, they noted it was an uncommon event, around 10% of clients on average, ranging from 1 to 30%.

I: Approximately what percentage of implant users have the implant removed earlier?

R: There are not many, if I can estimate it's like 2 percent of them. Many of them come for removal and request for new implant to continue the method... Yeah, it's what I always see - client requesting for removal and requesting for a new implant. You see that every day you are receiving someone who is requesting removal and a new implant. You see at my health center they really like this implant of three years.

Family Planning Nurse, IDI, 45 years, 6 children, Musanze

There was recognition among providers that if they don't remove implants on demand, the negative impact will be greater than for just that one client.

I started to discuss with her and advise her and when she is refusing totally, I removed it. Because on that time when I don't remove it, I will not see again another person who will come to get the insertion of the implant, because they will say that we insert the implant and won't remove it...

Family Planning Nurse, IDI, 44 years, 3 children, Nyamasheke

Family planning nurses remove the implant from implant users' arms on demand, when they request removal. Implant removal, prior to the end of the recommended duration of effectiveness, is rare. When implant users request removal prior to the recommended duration of use, family planning nurses engage the implant user in a discussion prior to removal to discern whether they can address the distress the implant user is facing to avoid removing the implant, but if they are unsuccessful, then they remove the implant. Family planning nurses recognized the potential impact of not responding to an implant user's desire to remove the implant – and how the impact of that could extend beyond one user, to deter other's from accepting the implant for fear of not being able to access implant removal services when desired.

End of Recommended Duration of Use

The most common reason for implant removal was reaching the recommended duration of implant effectiveness for pregnancy prevention. Providers and clients discussed a quick return to fertility at the end of the implant's recommended duration of effectiveness, which, if not attended to, could result in an unwanted pregnancy.

...you are obligated to come again if the period is over. If you don't come you will get pregnant because the implant is over.

Implant User, IDI, 44 years, 4 children, Nyamasheke

After removing that implant, I explain to her that if there is no other method she is going to use, she will get pregnant immediately, at any time. It is possible even that night for her to get pregnant.

Family Planning Nurse, FGD, 52 years, 2 children, Musanze

Providers and clients were keen to remove the implant at the end of its duration of recommended effectiveness to avoid an unwanted pregnancy, primarily, and secondarily due to a fear of the impact something in the body that had expired could do to the body.

...why would we keep something that has expired in my body? This may kill me if I keep it.

Implant User, FGD, 35 years, 3 children, Nyamasheke

Anything that is expired in the body, it becomes poisonous in the body. It can cause other problems because it is doing nothing in the body. So, the advice I can give to myself is when I know the date has reached to remove it, I will go quickly to the hospital and tell the doctor the date you gave me that when the method will be removed has reached.

Implant User, FGD, 44 years, 3 children, Nyamasheke

Some implant users were so anxious about the implant removal – they would come in for removal purposefully in advance of the scheduled date of removal.

If anything expires, for example, even the juice we buy in the small shops, if it has expired, it can cause problems for the body, that's why I think there is not any reason that can change the date of removal. Instead of coming on that day you can come one or two days before instead of letting it expire.

Implant User, FGD, 39 years, 4 children, Nyamasheke

How I understand it, on my side, I think that I cannot wait even for the day to reach, I may come one week or one month or two months before ...And if I want to continue the method then they also give me another implant. Because if you can leave it in your body, you could get pregnant or have other problems.

Implant User, FGD, 40 years, 3 children, Musanze

...even there are those who come before time, like a month early, and tells you that, doctor, the method only has one month, can't you remove it and give me another one before it gets expired? Even for those whose method is ending in the weekend, even they also come...

Family Planning Nurse, IDI, 44 years, 3 children, Musanze

Implant users and family planning nurses feared an unwanted pregnancy could occur if an implant user continued to rely on the implant for pregnancy protection beyond the recommended period of contraceptive effectiveness. Both implant users and family planning nurses expected the return to fertility to be immediate upon reaching the recommended duration of use. Implant users and nurses also had exaggerated fears about the potential negative impact on their bodies when leaving the implant in the body beyond the recommended duration of use – comparing the implant to spoiled foods, that if left

in place, could result in serious problems including death. To avoid these issues of a potential unplanned pregnancy, or other negative impacts on the physical body, implant users sometimes return to the clinic for implant removal a few days, weeks, or months in advance of the recommended duration of use.

When discussing removal due to reaching the recommended duration of implant effectiveness, providers were quick to switch the discussion to what method the client would use next – the most common scenario was to continue with another implant, particularly if the implant was a method that was “successful” to her – in other words, she didn’t struggle excessively with side effects. The plan to continue with another implant was mentioned twice as often as continuing with another method.

...normally they come for removal, and they go back with a new implant inserted.

Family Planning Nurse, IDI, 42 years, 5 children, Nyamasheke

...if she wants to continue family planning, and the implant for three years didn’t have a side effect on her, I think she can continue with the Implanon for three years instead of using another method that she doesn’t know will be friendly with her body.

Family Planning Nurse, FGD, 40 years, 3 children, Nyamasheke

Often, the plan to continue with a subsequent implant was the only assumed action upon removal, if the user did not desire another pregnancy.

Unmanageable Side Effects

Some implant users removed implants due to unmanageable side effects, and providers would prepare new users for this possibility and reassure them that if they had unbearable side effects, they could have the implant removed early. Side effects leading to early termination of an implant were noted twice as often in Nyamasheke as compared to Musanze.

I got there, and they asked me why I was coming to remove it. I told them the obstacles I have met, I told them the problems it made in my body. The doctors received me well and removed it.

Implant User, FGD, 23 years, 0 children, Nyamasheke

An option upon removal mentioned less often was to continue with another method, or switch methods if removing the implant early, but the focus is using something to avoid an unwanted pregnancy.

I have used the implant of three years, but the year ended. It was not successful for me; I went to find the doctors to remove it for me. And they asked me which other method do you feel will work for you? I told them that I feel like the condom can work better for me, they gave it to me...

Implant User, FGD, 47 years, 5 children, Nyamasheke

Family planning nurses removed implants when side effects were too difficult to manage. Upon removal, implant users and family planning nurses were anxious to protect women from the risks of unwanted pregnancy in between methods, and most often selected condoms for those in between periods due to the ease of condom access, use, and the absence of side effects with condoms.

Desire Pregnancy

The least often mentioned reason for implant removal was desire for another pregnancy.

I will go to the health center and tell them, “I have the 3-year implant method but now I want to give birth to another child” and they will not deny you that...You’re allowed to take another one and stop it whenever you want.

Implant User, FGD, 35 years, 3 children, Nyamasheke

Implant removal due to desiring a pregnancy was the least common reason for implant removal as most contraceptive users desiring a pregnancy prior to recommended duration of use for the implant would initially select a different method, despite the fact the implant removal services are available on demand. When an implant client desired a pregnancy, implant removal was immediate.

Discussion

Family planning users in Rwanda can get their implants removed any time they desire. Most often implant users remove their implant at the family planning clinic when their use has reached the recommended duration of implant effectiveness – but if a user needs to remove the implant before then, most often due to side effects or desiring a pregnancy, they can access removal services for those reasons as well. Most users who remove the implant when they reach the recommended duration of effectiveness, reinsert another implant immediately upon removal, which is a unique finding in comparison to other contexts (16, 21).

This study found that contraceptive implant removal in Rwanda is consistently available on demand, underscoring the country’s strong alignment with a rights-based approach in its national family planning program. Participants across both Musanze and Nyamasheke districts reported that users are not required to wait until reaching the recommended duration of use to seek removal; instead, providers honor requests for removal regardless of timing. This finding reflects a health system that prioritizes voluntary method discontinuation as an essential component of contraceptive autonomy. While providers may offer counseling to help clients explore the reasons behind early removal—particularly in cases involving side effects (30)—removal is ultimately not denied, as found in other settings as well (31). The consistency of this practice suggests widespread implementation of national policy guidelines emphasizing informed choice and user control over contraceptive decision-making.

These findings align with prior research documenting Rwanda's commitment to voluntary family planning (8). The government's contraceptive programming explicitly recognizes discontinuation as a client right (30), and that removal services are largely accessible within public sector facilities. In contrast, studies from other sub-Saharan African contexts, have identified substantial barriers to implant removal, such as provider refusal (26, 27, 32). Rwanda's comparatively client-centered approach offers a useful model for other health systems seeking to improve contraceptive quality of care by strengthening removal access.

However, despite this strong rights-based framework, patterns of immediate reinsertion observed in this study suggest that many users are not transitioning to other longer term methods, such as the IUD—even when desiring longer terms of protection from pregnancy than what the implant offers. Instead, clients overwhelmingly choose to reinsert a new implant upon removal of the prior one. This is consistent with research that shows many users ultimately selected to reinsert the implant due to familiarity, ease of use, and social norms (10, 33). Peer influence and provider recommendation appear to play a significant role in method choice, particularly among younger or postpartum users. The implant has become the de facto norm in many communities—not necessarily because it is best aligned with long-term reproductive goals, but because it is widely known and consistently promoted.

From a clinical standpoint, there is no known medical limit to how many contraceptive implants a person can use over their lifetime, if each insertion and removal is completed safely. The Implanon/Nexplanon implant, which is most commonly used and lasts three years, can be safely removed and reinserted multiple times. However, the need for multiple removals and reinsertions introduces cumulative risk and discomfort, raising questions about why some users aiming for 10 + years of birth spacing are not choosing longer-acting methods like the copper IUD, which can last up to 10–12 years.

One possible explanation is the difference in initial acceptability. A randomized trial comparing etonogestrel and levonorgestrel implants with non-randomized copper IUD users found that implants were more acceptable among participants due to their less invasive placement, perceived lower risk, and ease of use (10). For younger clients or those navigating cultural stigma around pelvic exams, the implant presents a more accessible and less intimidating option. Similarly, the biodegradable implant acceptability study in Kenya and Senegal found strong user enthusiasm for implant technologies, particularly among those concerned about access to and difficult implant removals (29). These findings suggest that contraceptive choice is often less about method duration or efficacy, and more about user comfort, trust, and perceived normalcy.

While removal services in Rwanda are available on demand, some of the worries providers and implant users had regarding biological processes occurring at the exact moment the recommended duration of implant prevention protection is reached, raises some concerns. Family planning nurses and implant users were quite anxious about an immediate return to fertility upon reaching the implant's recommended duration of use; however, the Implanon implant, the most commonly used implant used in Rwanda, is effective up to 4 and 5 years of use (34–36); therefore, a quick return to fertility is not the

case if implant use extends beyond the recommended duration of use. Additionally, some family planning nurses and implant users were terrified of the potential negative impacts of leaving the implant in the arm beyond the recommended duration, some even noting that having something “expired” in the body could lead to death. In studies on the use of Implanon two years beyond the recommended three years duration of use, no adverse events occurred (34, 36). In response to these findings, the Rwandan Ministry of Health should provide updated training to family planning providers on implant use effectiveness extending beyond the original recommended duration of use, to assuage fears of an immediate return to fertility, as well as the lack of harmful effects in retaining the implant beyond the recommended duration of use. With updated training on implant effectiveness and the harmlessness in retaining the implant beyond the recommended duration of use, family planning providers can then incorporate these important messages in their counseling of new and returning implant users.

The strengths of this study involve the focus on implants; the most common method used in Rwanda and of increasing use in other nearby settings as well. In addition, the inclusion of both implant users and family planning nurses to better understand the implant removal experience both from the demand and the supply side. The data come from two different districts in Rwanda, representing both the highest contraceptive prevalence district and one of the lowest. Finally, Rwanda has a globally recognized family planning program so findings from research on the family planning program in Rwanda can be used as an example in other settings.

Despite the strengths of the study, there are some limitations. The study is qualitative and relatively small so it can not represent the experiences of all Rwandans. Study participant recruitment was purposive, so implant users who were unsatisfied with their experiences may not have been selected for study inclusion.

Conclusion

In summary, implant removal services are available on demand at public family planning clinics in Rwanda. Most implant users use the implant until its recommended duration of effectiveness is reached and then request insertion of another implant. Early implant removals are most often due to side effects or desiring a pregnancy. Rwandan family planning nurses are responding well to implant removal desires with a human rights framework, which means that implant users will likely continue to select the implant since they feel secure in their ability to obtain an implant removal whenever they desire.

Declarations

Ethical approval and consent to participate

This study was reviewed and approved by the ethical review boards at Western Washington University and at the Ministry of Health in Rwanda. All study participants provided informed consent prior to study participation. This study adhered to the Declaration of Helsinki.

Consent for publication

Not applicable

Competing interests

The authors declare that they have no competing interests.

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Author Contribution

HMS designed the study. SM, BS, RU, and LU collected the data. HMS led data analysis with SD, MK, ML, IL, SM, SP, AR, BS, NT, RU, LU, and SF. IS led manuscript drafting. All authors read and approved of the final manuscript.

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Data Availability

The data used during the current study are available from the corresponding author on reasonable request.

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