

Barriers and Facilitators to Implementing Immediate Postpartum Contraceptive Implant Programs: A Formative Implementation Research

Jen Sothornwit¹, Pisake Lumbiganon¹, Kesinee Saranrittichai², Ussanee Sangkomkamhang³, Thanyarat Singhdaeng⁴, Nampet Jampathong⁵

¹Department of Obstetrics and Gynaecology, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand; ²Department of Health Behavior and Health Promotion, Faculty of Public Health, Khon Kaen University, Khon Kaen, Thailand; ³Department of Obstetrics and Gynecology, Khon Kaen Hospital, Khon Kaen, Thailand; ⁴Department of Obstetrics and Gynecology, Nam Phong Hospital, Khon Kaen, Thailand; ⁵Cochrane Thailand, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

Correspondence: Jen Sothornwit, Department of Obstetrics and Gynaecology, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand, Email jensoth@kku.ac.th

Objective: This study sought to identify the factors that act as barriers and facilitators to developing and implementing Immediate postpartum (IPP) insertion of contraceptive implants service according to the Consolidated Framework for Implementation Research (CFIR).

Methods: We conducted in-depth interviews and focus group discussions to explore IPP contraceptive implantation programs implemented in community, regional, and university hospitals in Thailand. The CFIR was used to guide the data collection and analyses.

Results: All CFIR domains were found to have an impact on planning and implementation. Out of 38 constructs, nine were identified as either barriers or facilitators, and four were determined to be both. Barriers included an insufficient training budget, lack of policy to support non-teenagers, disconnect among organizations, and lack of knowledge on the part of the clients. Facilitators included the relative advantage of implants over other contraceptive methods, reimbursement policy, laws that promote teenage autonomy, setting IPP implants as a key performance indicator (KPI), identifying project champions, and educating clients through antenatal counseling or multimedia intervention.

Conclusion: Barriers and facilitators to the successful implementation of an IPP contraceptive implant program were identified. In order to successfully implement this service, modifiable barriers should be overcome and facilitators should be strengthened. Strategies tailored to the local context should be developed to ensure the sustainability of the program. Educating clients is crucial and need both hospital- and community interventions.

Keywords: contraceptive implants, implementation science, influencing factors, long-acting reversible contraception, postpartum contraception

Introduction

The first postpartum visit is generally scheduled at six-weeks after childbirth¹ to assess patient recovery and to address their needs going forward. Although the postpartum visit is an ideal time to discuss and implement family planning services, there is a notably high loss to follow-up rate, particularly among adolescent mothers. This results in delayed or missed opportunities for counselling regarding appropriate contraception methods.^{2,3} In addition, up to three-fifths of women have reported having had unprotected vaginal sexual intercourse before attending their six-week postpartum visit.^{4,5}

Delayed initiation of contraception after childbirth and having unprotected sexual intercourse before the postpartum visit can lead to a short interpregnancy interval, defined by The American College of Obstetricians and Gynecologists

(ACOG), Society for Maternal-Fetal Medicine (SMFM), American College of Nurse-Midwives, and the National Association of Nurse Practitioners in Women's Health as becoming pregnant within 18 months of a previous pregnancy.⁶ As short interpregnancy intervals have negative impacts on newborn and maternal health,⁶ designing effective immediate postpartum (IPP) contraception practices for women who are at heightened risk is of the utmost importance. Faculty of Sexual & Reproductive Healthcare also recommend that contraception should be initiated at the latest by 21 days after childbirth.⁷

The ACOG recommends Long-acting reversible contraception (LARC; intrauterine devices [IUD] and contraceptive implants) be offered to all postpartum women before hospital discharge⁸ because of their high levels of efficacy and safety.⁹ However, worldwide uptake of contraceptive implants is quite low compared to that of other types of contraception.¹⁰ According to the survey from a university hospital in Thailand, contraceptive implants are employed by less than one percent of postpartum women.¹¹ Furthermore, survey from National Statistical Office found high rate of repeat unintended pregnancy in teenagers. Recognizing the importance of this issue, in May 2014, the Bureau of Reproductive Health, Department of Health, Ministry of Public Health (MoPH), and the National Health Security Office (NHSO) launched the Prevention of Repeat Teenage Pregnancy Programme in Thailand. Each health care facility that participated in this campaign was given with a budget to cover the cost of services and materials. As a result, all teenagers under the age of 20 are now eligible for free LARCs. Still, older people who desire to use these methods are forced to shoulder the costs themselves. Furthermore, many hospitals in Thailand are currently unable to provide immediate postpartum contraception services.

Implementation science is the study of strategies for promoting the systematic incorporation of research findings into routine practice, thereby improving the quality and efficacy of health services.¹² Identifying the barriers and facilitators to effective implementation is an essential component of implementation science. Although some studies have been published examining the implementation of immediate postpartum LARC, most were conducted in high-income countries (HICs).¹³⁻¹⁵ Due to differences in health systems, resources, demographic characteristics, or other variables, barriers and facilitators to contraceptive services in middle-income countries (MICs) may differ significantly from those in HICs. Our study employed the Consolidated Framework for Implementation Research (CFIR),^{16,17} a meta-theoretical framework synthesized the constructs from several published models that is considered suitable for studying immediate postpartum LARC policies.¹⁸ We decided to focus on only contraceptive implants since the IPP implants program is already implemented in some facilities. The primary objective of this formative study was to explore barriers and facilitators that affect immediate postpartum insertion of contraceptive implants from a holistic point of view and including the perspectives of participants at various levels of the healthcare system. Understanding these factors is crucial in developing a model that can be adapted for real-world implementation.

Methods

Theoretical Perspectives

The CFIR consists of 38 constructs within five inter-related domains: (1) intervention characteristics, (2) outer setting, (3) inner setting, (4) characteristics of the individuals involved, and (5) process of implementation. The inner setting in this context refers to birth facilities, as these are the facilities at which implants are inserted. We used this framework to better understand the involvement of stakeholders at multiple levels including policy makers, administrators, providers, and postpartum women. Data in this study are reported following the Standards for Reporting Implementation Studies (StaRI) Statement.¹⁹

Study Design and Setting

This was a qualitative study aimed at examining the IPP contraceptive implant program implemented in the three hospitals in Khon Kaen, Thailand. Khon Kaen is one of the four major cities in northeast Thailand, with a population of around 1,805,910 and area of 46 km². There are six types of government hospital in Thailand: community, general, regional, central, and university hospitals as well as medical education centers. Characteristics and contexts of both patients and health care providers differ from one hospital to another. In order to include a variety viewpoints/

settings, we selected three health facilities – Nam Phong community Hospital, Khon Kaen Regional Hospital, and Srinagarind University Hospital – as focal points to represent hospitals that provide IPP contraception. Only Srinagarind Hospital currently provides IPP insertion of contraceptive implants to all patients, while the others do so only for teenage mothers. This study was approved by the Khon Kaen University Ethics Committee in Human Research (HE631225).

Targeted Sites

We had four groups of participants as mentioned above. Administrators of each hospital were contacted and asked to identify physicians and nurses to potentially act as key informants. We selectively sampled postpartum women to recruit a variety of clients in terms of age and parity. Policy makers were officers from the Ministry of Public Health (MoPH) and National Health Security Office (NHSO). The MoPH is responsible for formulating and developing policies for health promotion, while the NHSO's responsibility is to create health security and manage reimbursement.

Data Collection

We collected data using in-depth interviews (IDIs) with administrators and policy makers and focus group discussions (FGDs) with clients and providers. Using semi-structured interview guidelines, we assessed attitudes toward birth spacing, contraception and IPP contraceptive implants, perceptions of barriers and facilitators to implementing IPP contraceptive implant services, and strategies to promote the success of these services. Written informed consent included publication of anonymized responses was obtained from all participants prior to the interviews. We conducted eight IDIs and six FGDs, which included a total of 39 participants. Each IDI or FGD lasted between 40 and 60 minutes and was led by KS, who is a trained qualitative researcher. Interviews were audio recorded and transcribed verbatim by a physician not involved with this research.

Data Analysis

After transcription, the data were coded for barriers, facilitators, and implementation strategies. Two coders (JS and KS) independently coded all 17 interviews (8 IDIs and 9 FGDs) using thematic content analysis. The team used a deductive approach to analysis guided by CFIR as a coding framework.^{16,17} Following this, the coding results were reviewed, and discrepancies were resolved by discussion among the two coders. To increase credibility of the findings, we utilized triangulation for data coding. The final results were mapped to the CFIR domains and constructs.

Results

Thirty-nine key informants contributed to this study, the characteristics of whom are shown in [Tables 1 and 2](#). Of the 38 CFIR constructs assessed, 14 were determined to be relevant barriers and/or facilitators to implementing an IPP contraceptive implant program. A summary of each by CFIR domain is shown in [Table 3](#).

Intervention Characteristics

Three constructs in the first CFIR domain were related to the implementation of the IPP contraceptive implant program: evidence strength and quality and relative advantage as facilitators and cost as a barrier.

Healthcare providers in all facilities perceived the IPP contraceptive implant program as an effective method for birth spacing, which falls under evidence strength and quality.

It increases the confidence of the patient as [IPP contraceptive implantation] has supporting evidence. We are able to perform more detailed counseling. (Nurse, Hos#1).

Usually, I ask [the patient] first how many years until she plans to have her next child. If the answer is more than three years, I recommend [the IPP contraceptive implant] as a first choice, because it only hurts once but is more effective than other methods. Also, it has no effect on breastfeeding. So, it is safe to use before discharge. (Physician, Hos#2)

Table 1 Characteristics of Healthcare Providers (n = 29)

Characteristics	n (%)
Role	
Physician administrator	3
Nurse administrator	2
Physician	12
Nurse	9
Policy maker	3
Healthcare facility (n = 26)	
University Hospital	10
General Hospital	11
District Hospital	5
Experience treating postpartum women (years)	
Fewer than 5	15
5–9	4
10–14	4
15 or more	6
Contraceptive implant experience	
Counsels about or provides contraceptive implants	21
Some training about contraceptive implants but does not currently counsel or provide the service	2
No training or education about contraceptive implants; personal or anecdotal experience only	6

Administrators and policy makers also expressed their views on the relative advantage of IPP contraceptive implants compared to delayed insertion at postpartum follow-up.

Because teenagers often become pregnant again soon after giving birth, insertion [of the implant] after delivery is convenient and ensures that they do not become pregnant again. (Administrator, Hos#3)

Immediate insertion is important, especially for teenage mothers. If we make an appointment [for a later date], they do not show up, including those seeking abortion services. (Policy maker, MoPH)

Cost was a barrier for initiating IPP implant insertion programs, as the organizations designated for health promotion do not allocate enough of their budget to training personnel in contraceptive implant practices.

At community hospitals, doctors will not [insert IPP implants], will they? It has to be the nurses at the postpartum ward. How are we to deal with this? Well, there is a course from the Department of Health that trains personnel – both doctors and nurses – to practice contraceptive implantation ... [However,] there was a problem in that there is a lack of funding for the training sessions. (Administrator, Hos#2)

Outer Setting

Needs and resources and cosmopolitanism were constructs identified as both barriers and facilitators, and external policies and incentives was a facilitator.

Only teenagers' needs and resources were prioritized by the MoPH and NHSO. Policy makers from both organizations agreed on the importance of meeting teenagers' birth control needs. The need for birth spacing (especially using IPP implants), of those non-teenagers however were not being given enough attention.

Table 2 Characteristics of Postpartum Women (n = 10)

Characteristics	n
Age (mean, range)	26.6 (17–36)
Education	
Secondary school	3
High school	4
Bachelor's degree or higher	3
Partner's education	
Secondary school	4
High school	4
Bachelor's degree or higher	2
Total monthly family income (Baht)	
<10,000	4
10,000 –30,000	4
> 30,000	2
Parity	
Primiparous	3
Multiparous	7
Intended index pregnancy	
Yes	6
Desire to use contraceptive implant	
Yes	5
Contraception prior to conception	
None	1
COCs	3
DMPA	1
Condom	2
Implant	1
IUD	1

Abbreviations: COCs, combined oral contraceptive pills; DMPA, depot medroxyprogesterone acetate; IPI, inter-pregnancy interval; IUD, intrauterine device.

For teenagers, we as healthcare providers want them to undergo insertion. But beyond the age of 20, it is the women themselves who want to use [contraception]. Therefore, ... It may not be necessary to provide [the service] immediately after delivery. (Policy maker, MoPH)

In the case of [patients] over 20 years old who want to use [the contraceptive implant], we are not sure if there is a problem. As the birthrate is getting lower and lower, do we really need to push this [policy]? (Policy maker, NHSO)

Now, it is still limited to teenagers. Non-teenagers should also have the right to use birth control, because [the IPP contraceptive implant] is a very good method of contraception. But when some people realized that it would cost money, they changed their minds. (Physician, Hos#2)

Cosmopolitanism was defined as the degree to which an organization is networked with other external organizations. We found a lack of such integration between organizations that determine policy and those that adopt those policies. However, the provision of support, such as financial support, from other organizations was deemed to be a facilitator.

Table 3 Facilitators and Barriers to Immediate Postpartum Contraceptive Implantation Using the Consolidated Framework for Implementation Research

CFIR Domain	Barriers	Facilitators
Intervention Characteristics <ul style="list-style-type: none"> Evidence Strength and Quality Relative Advantage Cost 	<ul style="list-style-type: none"> Lacking funding for a training course 	<ul style="list-style-type: none"> Strong evidence of safety and efficacy More advantages when compared to delayed insertion
Outer setting <ul style="list-style-type: none"> Patient Needs and Resources Cosmopolitanism External Policies and Incentives 	<ul style="list-style-type: none"> Policy does not support non-teenagers Disconnect among organizations 	<ul style="list-style-type: none"> Teenagers received contraceptive implants free of charge Other organizations were able to provide support Reimbursement policy and laws that promote autonomy
Inner setting <ul style="list-style-type: none"> Organizational Incentives & Rewards (Implementation Climate sub-construct) Available Resources (Readiness for Implementation sub-construct) Access to Knowledge & Information (Readiness for Implementation sub-construct) 	<ul style="list-style-type: none"> Time constraints of providers and limits to device availability Lack of a training course 	<ul style="list-style-type: none"> Setting key performance indicator (KPI)
Characteristics of Individuals <ul style="list-style-type: none"> Knowledge and Beliefs about the intervention Self-efficacy 	<ul style="list-style-type: none"> Fear of pain during insertion and side effects of contraceptive implants Misbelief regarding timing of discontinuation Providers' lack of insertion and counselling ability. 	<ul style="list-style-type: none"> Receiving positive information from mother, friends, or providers
Process <ul style="list-style-type: none"> Champion (Engaging sub-construct) External Change Agents (Engaging sub-construct) Innovation Participants 	<ul style="list-style-type: none"> Teachers' negative attitudes towards sex education 	<ul style="list-style-type: none"> The family planning unit nurse was referred to as a champion. Village health volunteers (VHVs) provide information ANC counselling Multimedia intervention such as video clips

Abbreviation: ANC, antenatal care.

Hospitals should work to create collaborative networks. In addition, information regarding active personnel at each hospital should be kept up to date, and new personnel should receive training in order to maintain service.

For the contraceptive implant project, we already knew that [teenagers] shouldn't be getting pregnant. That is upstream at the policy level. When it comes to midstream, or the provincial level, there is a committee. The committee has a chairman, the provincial governor. But in practice, making someone who is not public health personnel see the importance, it's the job of the secretary. Most of the secretaries are provincial public health officers. But they arrange meetings infrequently, only around twice a year. This is not effective at translating policy downstream. (Policy maker1, MoPH)

To be sustainable, you need to reduce costs. Because our funding was cut off. You need to find a network to help. We have support from pharmaceutical companies. (Policy maker2, MoPH)

Khon Kaen Hospital alone is not enough; we should have a network. We have to know that how many people have been trained. Where are they? (Physician Admin, Hos#2)

External Policies and Incentives were perceived as facilitators. The policy of reimbursement for the contraceptive implants in teenagers and laws that promote their autonomy have resulted in improved comfort and convenience for those receiving these services.

Since the NHSO came up with this project, it has been good. And it is in line with the Privacy Act. It makes teenagers feel at ease – no shame, no secrets – and allows them to go wherever they feel comfortable ... Before, according to the declaration of patient rights, patients under the age of 18 had to give consent and parents had to sign the form. But the [Privacy] Act is a law that supersedes this declaration, so teenagers can make their own decisions.

Inner Setting

Barriers were available resources (Readiness for Implementation sub-construct) and access to knowledge and information (Readiness for Implementation sub-construct). The construct of organizational incentives and rewards (Implementation Climate sub-construct) was a facilitator.

Organizational incentives and rewards were seen as facilitators in that they stipulated a key performance indicator (KPI) based on whether all teenage mothers received contraceptive implants. Two out of three facilities incorporated this KPI into their assessment systems.

Ours is an innovation pilot. There are three KPIs regarding teenagers: 1. teenagers should not become pregnant, 2. Should they become pregnant, they are to be counseled [about postpartum contraception], and after giving birth, they should receive contraceptive implants, and 3. if [the implant] is not inserted before discharge, they must return to the family planning clinic again. (Nurse administrator, Hos#3)

Available resources were identified as barriers to implementing this service due to limitations to both time and device availability.

Regarding implants, some people don't see the whole picture. It's all messed up. Some hospitals have [implants], some don't. If they receive training but go back to a hospital that does not have the devices, what will people get? I mean, we just set up the policy. But we forgot to put in place the administration system. It turns out, [inventory management] varies from one hospital to another. (Policy maker1, MoPH)

About drug stock, although the NHSO said these costs can be reimbursed, can we order 10 sets of implants per month? If you were the director, you would say no, because the hospital's money is limited. You have to prioritize [some expenditures over others]. Medicines for diabetes, hypertension, and heart disease are considered more important. (Policy maker2, MoPH)

We told [one patient] we would insert the implant in the afternoon. Then their relatives said that they had to leave immediately. Someone had already come to pick them up. Some people cannot wait until the afternoon because they have other plans, and we cannot do it in the morning like they want us to. (Physician, Hos#1)

Access to knowledge and information: Training personnel is an essential process. Training courses should consist of sessions covering both theory and practice. The courses should initially include participants from tertiary hospitals and then expand to other smaller hospitals. However, due to a lack of funding, no training courses have been held in recent years.

Years ago, we had a training course [consisting of] five days of theory and five days of practice. Participants needed to perform a certain number of insertions to meet to the minimum requirement for certification. (Physician administrator, Hos#2)

If I were asked whether I want to send more people to train, [I would answer] yes, I would like to send one more person. But [I have received] no invitation letter for training. (Nurse administrator, Hos#3)

Characteristics of Individuals

The construct knowledge and beliefs about the intervention was identified as both a facilitator and barrier. Self-efficacy, however, was perceived only as a barrier.

Knowledge and beliefs: Fear of pain during insertion and side effects, including weight gain, discourage some women from undergoing contraceptive implantation. Lack of knowledge on the part of patients' relatives, especially mothers, also negatively influenced their decision. However, receiving more information regarding the procedure's high level of effectiveness and the acceptability of its side effects from friends or providers can persuade patients to opt for immediate postpartum insertion.

They are afraid of side effects such as obesity. Patients who have misbeliefs about contraceptive methods are afraid of [these kinds of] side effects. (Physician, Hos#1)

My mom told me not to use the implants, and my cousins said the same. (Client, Hos#2)

A friend of mine advised me to use contraceptive implants when I chose to have a tubal resection. she said that it's not painful and that she was able to [go to] work as usual. So, I chose to use implants. (Client, Hos#1)

Some may have misunderstandings regarding the timing at which to discontinue the contraceptive methods. They think that they would be unable to prematurely discontinue the implants [while they remain effective].

We counsel [patients] that contraceptive implants can last three years or five years, depending on the type. When we say this, some people do not consider that if even they want to avoid pregnancy for [a shorter period], they might also be able to use implant. They would say, 'Three years is too long. I should use another method'. (Physician, Hos#1)

Self-efficacy: In order to implement the IPP implants program, personnel training is imperative, especially for nurses. Providers must be able to counsel postpartum women regarding the mechanism of action, effectiveness, and side effects of the implants. They also need to be familiar with the insertion technique and have some experience performing this procedure. Lack of skills on the part of providers is considered a barrier to implementing this service.

I want to attend training course because I need knowledge and confidence. I still feel lack of confidence sometimes. We also need to learn more to educate postpartum women. When they ask why, what, and how, [we must be able to] respond correctly. (Nurse, Hos#2)

Process

The domain of external change agents was recognized as both barrier and facilitator. Both Engaging and Innovation participants were facilitators.

Engaging important personnel, particularly those designated as champions and external change agents, was crucial to effective implementation. Family planning unit nurses were referred to as champions in implementing the IPP contraceptive implant program.

At first, when they told us that there will be implant insertion [at the postpartum ward], we felt that it was a little difficult to adjust, because we need to help doctors. [I thought,] 'What do I need to prepare? What do I need to do?' Then Phen, a family planning nurse, came and let us see how they counseled the patient and what they do when there are complications. Phen educated the postpartum nurses at that ward and a pamphlet was provided. (Nurse, Hos#1)

External change agents: Since the target population of most hospitals in our study consisted of teenagers, non-cooperation from teachers in the catchment area was identified as barrier. Some teachers may have negative attitudes towards providing contraceptive information to their students, believing that sex education would increase the likelihood of students engaging in sexual intercourse.

Teachers don't know much [about contraception]. I would say the kids know some, but the teachers don't. They might have a bad attitude. Instead of teaching the students to use birth control, they teach them just to say no to sex. (Physician administrator, Hos#1)

In contrast, village health volunteers (VHVs) were perceived as facilitators in familiarizing and educating people in the community.

Let the village health volunteers do home visits ... and educate villagers about what it would be like if they used birth control. Demonstrate the insertion [process]. If someone understands, when they have a child, they may be interested [in using IPP contraceptive implants]. (Client, Hos#3)

Innovation Participants: Counselling at the antenatal care (ANC) clinic was repeatedly referred to as a facilitator by both clients and providers.

I think we have to give information during the last trimester at the ANC clinic. [We should determine] whether or not the patients want to have more children, and if yes, when? What contraceptive method do they plan to use? If patients receive the counseling, it may be easier to decide after delivery. (Physician, Hos#2)

I want to propose one thing. Contraceptive counselling at the ANC clinic would, at least, make [patients] familiar with [the procedure]. Otherwise, if they receive information after giving birth, they may have less confidence in using contraceptive methods. (Nurse, Hos#2)

I chose [contraceptive implants] because the doctor recommended it, before delivery and after. (Patient, Hos#3)

Both providers and physicians also expressed the view that multimedia intervention such as video clips could alleviate fear of the insertion procedure. Videos should depict the device and procedure and/or women who had used the implants sharing their experiences.

Group meetings with women who have used implants would be another option; let others know how it feels. Does it hurt? ... If there is a video clip, it can be included in the health education session. (Nurse, Hos#1)

I decided to use this birth control because I searched for it on Google and watched many clips. (Client, Hos#3)

Discussion

This study was conducted to provide data that would help healthcare practitioners more effectively implement evidence-based practices in postpartum contraception. All CFIR domains were discovered to have an impact on planning and implementation. Nine constructs were identified as either barriers (cost, available resources, self-efficacy) or facilitators (evidence strength and quality, relative advantage, external policies and incentives, organizational incentives and rewards, access to knowledge and information, innovation participants). Four constructs were perceived as both barriers and facilitators (patient needs and resources, cosmopolitanism, knowledge and beliefs about the intervention, engaging).

Strength of evidence and relative advantage were the intervention characteristics that positively influenced implementation. Both physicians and nurses recognized the high levels of effectiveness and safety of contraceptive implants. By contrast, lack of knowledge was identified as potential barrier in a previous US study.¹³ Providers also acknowledged the high loss to follow-up rate, especially in teenage mothers. Emphasizing this issue might increase providers' awareness of the advantages of IPP insertion.

Counseling regarding contraceptive implants as well as the insertion procedure requires expertise on the part of providers. Nurses from all facilities agreed that they needed a training course. However, according to administrators, no training has been held in recent years due to budgetary constraints. The cost construct includes costs related to implementing the procedure and was identified as a barrier. Likewise, a previous survey also demonstrated that contraceptive implants were much less likely to be offered than IUDs due to lack of training.²⁰ As mentioned above, administrators can reach out to other organizations – both government and non-government – for support. We propose that university hospitals cooperate with the MoPH to arrange for the necessary training.

The lack of a reimbursement policy for non-teenagers was repeatedly mentioned by informants from all facilities and was thus considered a barrier in the outer setting domain. This finding is consistent with a recent qualitative study conducted with staff involved in the Postpartum Contraceptive Access Initiative in the US.²¹ Hofler et al¹³ also described

the financial concerns regarding the reimbursement system and providers perceived that insurers should proceed first. Allowing for reimbursement would improve access to hormonal contraceptives.²² Policymakers should thus extend coverage to all women of reproductive age.

Interestingly, policymakers expressed the view that providing effective contraception would have a negative impact on population growth. However, readiness to raise a child does not depend on age alone. The government should value “quality” together with “quantity.” Furthermore, although there is policy aimed at increasing the use of LARC, the disconnect between policy makers and providers at the local facilities, hinders successful implementation. Creating a learning community is one effective strategy for training key persons at various levels.¹⁵

Time constraints on the part of providers and insufficient device stock are barriers consistently cited in many studies.^{13,18,23} These barriers should be overcome as part of early implementation. We found that including IPP LARC as a KPI is a promising way to drive successful implementation. It would encourage administrators and providers to view this service as a top priority and adjust their schedules and inventory to accomplish the goal. However, setting the KPI as all teenagers should receive the implants raise our concern on coercion. Cut-off value of KPI should be appropriate to the context of each facility and need to respect reproductive right and autonomy.

We found that the opinions of family, especially mother, and friends influenced patients’ decision to use contraception. A recent mixed methods study conducted in the US also supported our findings.²⁴ The study found that misbeliefs/misgivings, particularly regarding the side effects, are major barriers to opting for contraceptive implants. This highlights the importance of education at the community level.

The process domain was also important. “Champions” – individuals who devote their time to promoting and pushing through implementation – were identified as key facilitators. This is in line with the finding from the Association of State and Territorial Health Officials (ASTHO) that facility-level champions can facilitate implementation by offering peer-to-peer instruction, acting as role models within the facility, and assisting in coordination among stakeholders.²³ However, provider champions alone may not be sufficient.²⁵ Our study found that external change agents play an important role in engaging the target population. Research exploring teachers’ perceptions and misbeliefs regarding sexual and reproductive health education is necessary. Policy makers should initiate a campaign to improve attitudes towards contraception and establish collaboration among the relevant sectors.

Although there is no evidence regarding the best timing for contraceptive counseling,²⁶ this study found that supplementing post-partum counseling with antenatal counseling, including benefits and disadvantages of IPP implants, might be beneficial. The need for contraceptive counseling may differ from facility to facility depending on clients’ characteristics and knowledge. The approach utilized should be tailored to the specific setting during the initial implementation phase. In addition to the timing, the form of counseling is also important. Advising patients using media, such as educational videos, has been reported to effectively increase the rate of delayed postpartum implantation.²⁷ However, this aspect has yet to be studied.

The strengths of this study include its inclusion of rich qualitative data from key informants at various levels in the healthcare system and the diversity of the settings included. However, it is not without limitations. Our sampling strategy identified only hospitals that, to some extent, have successfully implemented an IPP contraceptive implant program. Informants may be subject to recall bias and some barriers may have been missed. Further prospective experimental study is needed to assess the effectiveness of the strategies proposed in this study.

Implications

The strategies to overcome barriers and strengthen facilitators to implementation should be used as a guide in similar settings. Further research to evaluate the proposed strategy for program implementation is needed.

Conclusion

Identifying barriers and facilitators using the implementation science is imperative to the success of implementing an IPP contraceptive implant program. Modifiable barriers should be overcome, facilitators should be strengthened, and strategies tailored to the local context should be developed to ensure the sustainability of the program.

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