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Provider acceptability of Sayana® Press: results from community health workers and clinic-based providers in Uganda and Senegal☆

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Abstract

Background: Sayana® Press (SP), a subcutaneous formulation of depot medroxyprogesterone acetate (DMPA) in Uniject™, has potential to be a valuable innovation in family planning (FP) because it may overcome logistic and safety challenges in delivering intramuscular DMPA (DMPA IM). However, SP's acceptability is unknown. We measured acceptability of SP among clinic-based providers (Senegal only) and community health workers.

Study design: This open-label observational study was conducted in clinics in three districts in Senegal and community-based services in two districts in Uganda. Providers administered SP to clients seeking reinjection of DMPA IM. We conducted in-depth interviews with 86 providers (52 in Senegal, 34 in Uganda) to assess their experiences providing SP to clients.

Results: Almost all providers (84/86; 98%) preferred SP over DMPA IM. The main reason Uganda providers preferred SP was the prefilled/all-in-one design made preparation and administration easier and faster. Some providers thought the SP all-in-one feature may decrease stock outs (DMPA IM requires syringe and vial). Providers also felt clients preferred the shorter SP needle because it is less intimidating and less painful. Similarly, the main reasons Senegal providers preferred SP were its characteristics (prefilled/all-in-one) and client preference (especially less pain). They also saw a potential to increase access to FP, especially through community-based distribution. Providers from both countries reported SP introduction would be enhanced through client counseling and community engagement. Providers also said SP must be accessible, affordable and in stock.

Conclusion: Almost all providers preferred SP over DMPA IM. Provider recommendations should be considered during SP introduction planning.

Implications: We found that SP was acceptable to both clinic-based FP providers and community health workers. Providers' positive attitudes towards SP may facilitate introduction and uptake of this method.

Keywords: Depot medroxyprogesterone acetate (DMPA); Subcutaneous injection; Contraception; Community health worker

1. Introduction

Unmet need for family planning (FP) among currently married women in Uganda and Senegal is high (34% and 29%, respectively) and highest in rural areas. The most common FP methods used in these countries are injectable contraceptives [1,2]. However, there are persistent logistical, safety and cost-effectiveness challenges to providing injectables.

A safe and effective [1–4] subcutaneous formulation of the injectable contraceptive depot medroxyprogesterone acetate (DMPA) delivered in the prefilled Uniject™ injection system, commercially known as Sayana® Press (SP), was designed to overcome some of these challenges. For example, the all-in-one feature of Uniject should simplify storage and administration over the standard intramuscular DMPA

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(DMPA IM) vial and syringe. Safety may also be improved because SP is prefilled with a single dose and cannot be reused.

Because of its simplified delivery system, SP may also mitigate human resource shortages. In Uganda and Senegal, there is a shortage of trained health providers, especially in rural areas. To address this situation, lay community health workers (CHWs) have been trained to provide contraceptives [3,4]. Uganda's CHW programs began including the provision of DMPA IM following a demonstration project in 2005 [5]. The government of Senegal recently began exploring the expansion of its CHW program [6] to include DMPA IM with a feasibility study conducted in three districts from 2012 to 2013 [7].

Community-based distribution of SP has the potential to increase women's access to contraception if it proves to be acceptable to in-country decision makers, FP providers and clients. The primary objectives of this paper are to describe acceptability of SP among FP providers in Uganda and Senegal and to offer recommendations for the introduction of SP. A secondary objective is to qualitatively compare acceptability of SP among two types of FP providers in Senegal: clinic-based providers and CHWs.

2. Materials and methods

An open-label observational study was conducted in Ministry of Health FP clinics in three districts in Senegal and in community-based services in two districts in Uganda. The planned enrollment was 100 FP providers consisting of 80 CHWs (40 in Uganda and 40 in Senegal) and 20 clinic-based providers (nurses or midwives in Senegal only). The sample size was based on (a) purposive, nonprobabilistic sampling under the assumption that data saturation can occur within the first 12 interviews [8] and (b) the number of providers needed for client participant enrollment. The Ministries of Health in both countries selected FP providers who were currently authorized to provide FP, had at least 6 months of experience providing FP methods and were literate in Luganda (Uganda) or literate in French and fluent in Wolof (Senegal).

Providers were trained in Good Clinical Practice, human research ethics, recruitment and consent processes, and to counsel on and administer SP using materials developed for this study. Unique training materials were used for each audience: (a) clinic-based providers, (b) Ugandan CHWs with previous DMPA IM experience and (c) Senegalese CHWs who were assumed to be "injection naive." The training materials for the CHWs were designed for an audience with a lower level of formal education, an eighth-grade reading level and less than 12 weeks of health worker training. Injection-naive CHWs received information on injectables and DMPA IM, medical eligibility, the selection of an injection site and referring clients with complications.

Trainings specific to SP use were led or supported by medical coordinators (nurses or midwives) who were full-time study staff members responsible for supervising the providers during the study. The training format involved a combination of classroom, in-service, skills-based training with small groups of participants, role play, quizzes and job aids. During the training, providers practiced at least two simulated SP injections into a training device — typically a condom filled with fine sand.

In Uganda, 38 CHWs attended a 1-day training conducted in either Mubende or Nakasongola districts in May 2012. Because of a month-long lag between the initial training and the start of client enrollment, the medical coordinators conducted a "refresher" session in June 2012 before beginning enrollment.

Four trainings were conducted in Senegal during July and August 2012. Twenty clinic-based providers from 12 health facilities in Thies, Mbour and Tivaouane districts participated in a half-day clinical training in Thies. Three separate 2-day trainings were conducted with 40 CHWs in Thies, Mbour and Tivaouane districts.

For quality assurance, medical coordinators conducted systematic observations of the first client injection given by each CHW. More information about the trainings and observations is described elsewhere [9].

Providers' acceptability of SP was measured through in-depth interviews conducted after providers had the opportunity to administer at least one SP injection to a client. The goal was for each CHW to enroll client participants until they had given three injections and each clinic-based provider gave six injections.

Trained interviewers conducted in-depth interviews with each provider who provided written consent. The same semistructured interview guide was used in Uganda and Senegal. During the interview, providers were asked about their general FP provision experience; specific experience providing DMPA IM and SP injections probing about administration difficulties and perceptions of clients' injection-site pain, skin irritation and soreness; advantages and disadvantages of SP; preference for providing DMPA IM or SP; opinion about SP replacing DMPA IM and recommendations for the introduction of SP into their community. For the primary end point of acceptability, providers were asked, "If it were up to you, would you prefer to administer SP or DMPA IM?"

Audio recordings of the interviews were transcribed verbatim and (if needed) simultaneously translated into English (Uganda) or French (Senegal) into a password-protected word processing document. One codebook was created with hierarchical codes that reflected the questions and structure of the interview guide. Transcripts were imported into NVivo 9.2.81.0 [10] to facilitate data analysis. Three American analysts, two fluent in French, coded transcripts. About 10% of all transcripts (three from Uganda and five from Senegal) were coded by two or more analysts, and differences found during intercoder agreement were discussed. The codebook was updated and modified as needed at the end of each test for intercoder reliability and

Table 1
Provider participants by country, district and study activity

District	Number of CHWs who provided SP	Number of clinic-based providers who provided SP	Total number of interviews
Uganda			
Mubende	17	0	17
Nakasongola	18	0	17
Total	35	0	34
Senegal			
Mbour	13	7	20
Thies	9	7	16
Tivaouane	10	6	16
Total	32	20	52
Study total	67	20	86

also when new themes emerged that were not captured in the original codebook. Reports were generated for each code which were analyzed and summarized separately for each country and, in Senegal, by provider type (clinic-based provider and CHW). Key themes were identified and used in conjunction with interpretive textual analysis to understand the depth of themes [11,12].

The study received ethical approval from FHI 360's Protection of Human Subjects Committee; PATH's Research Ethics Committee; Ugandan National Council for Science and Technology and Comité National d'Éthique pour la Recherche en Santé, Senegal. We obtained approval from the Ugandan National Drug Authority and Senegal's Direction des Pharmacies et des Laboratoires to import the study product, which was donated by Pfizer. Pfizer also reviewed and approved the study.

3. Results

Between August 2012 and January 2013, 34 of the 35 Ugandan CHWs who administered SP were interviewed. Between September 2012 and the end of January 2013, all 52 Senegalese providers who administered SP were interviewed. The number of providers involved in the study in each district is shown in Table 1.

3.1. Provider characteristics

The average age of the Ugandan CHWs was 40 years, half of whom (17 of 34) were female (Table 2). On average, CHWs had been providing FP for an average of 4 years and DMPA IM for 3 years. Prior experience with FP methods was (in order of frequency): DMPA IM; condoms; oral contraceptive pills; referrals for implants, intrauterine devices (IUDs) and tubal ligation; counseling on lactational amenorrhea and referrals for vasectomies.

The average age for both types of Senegalese providers was similar: 39 years for clinic-based providers and 40 years for CHWs. The clinic-based providers were comprised of 16 midwives and 4 nurses. Fifty of the 52 providers were female.

Clinic-based providers had been providing FP for more than double the amount of time of Senegalese CHWs (11 and 4 years, respectively). Clinic-based providers reported experience administering the following methods (in order of frequency): DMPA IM, oral contraceptive pills, implants and condoms, IUDs, cycle beads/standard days and counseling on lactational amenorrhea. CHWs offered the following methods (in order of frequency): oral contraceptive pills, male and female condoms, cycle beads, counseling on lactational amenorrhea and referrals for other methods. All of the clinic-based providers had administered DMPA IM, averaging 10 years. Five Senegalese CHWs previously provided DMPA IM to clients.

3.2. Uganda provider acceptability

All 34 Ugandan CHWs preferred SP compared to DMPA IM. Their main reasons for preferring SP were categorized into two major themes: characteristics of the Uniject injection system and perceived client preferences.

Nearly half of the CHWs noted benefits of SP's design, especially that it is prefilled or all-in-one. This made it easier to prepare (n=13) and administer (n=16) compared to the separate syringe and vial used for DMPA IM. One CHW simply said, "It is easy to administer, just have to press and it all comes out." This design was also believed by some CHWs (n=7) to potentially reduce the likelihood of stock outs when compared to DMPA IM.

> [DMPA IM] we always find problems with syringes because when we go to get them, they can give us depo with few syringes and a client can come when we do not have syringes. […] I had my client who came for depo but I did not have syringe and I told her to buy, she told me she does not have money. I did not give her depo and she got pregnant.

Some also thought that with fewer, lighter-weight materials, it would be easier to dispose (n=6) and store

Table 2
Characteristics of providers interviewed by country and provider type

	Uganda CHWs (n=34)	Senegal CHWs (n=32)	Senegal clinic-based providers (n=20)
Percent female	50%	100%	90%
Mean age (years), (range)	40 (28–71)	40 (25–57)	39 (29–58)
Mean time providing FP (years), (range)	4 (1–7)	4 (1–12)	11 (3–33)
Mean time providing DMPA IM (years), (range)	3 (1–6)	5 (4–6)[a]	10 (3–32)

[a] Five CHWs in Senegal had previous experience administering DMPA IM. Three of these only administered injections during their past training.

and transport (n=4) SP than DMPA IM. Five CHWs said that the design helps facilitate discrete FP use:

> Because it [SP] saves me on time of preparing it and injecting it […] mainly it depends on the clients we work on because most of them stealthily come for family planning injection […] so if she has stealthily come you don't take a lot of time; you just inject her and she goes but for the other one [DMPA IM] […] which takes a lot of time and if she has stealthily come even other people might pass-by and see you and report to the husband.

Several CHWs (n=10) also preferred SP over DMPA IM because they thought their clients preferred it. This was largely reflected in statements that the shorter needle was perceived to be less painful and less intimidating. One CHW said, "It is short, it doesn't scare somebody. Somebody looks at it and sees that it is short […] and the client doesn't fear; you know when something is long somebody might say ehh all that long injection!"

3.3. Senegal provider acceptability

Most Senegalese clinic-based providers (18 out of 20) preferred SP compared to DMPA IM. One provider reported no preference, and another said it depended on what clients prefer. The major reasons clinic-based providers preferred SP were categorized as the characteristics of the Uniject injection system (n=18), perceived client preference (n=6) and the potential to increase access to FP (n=5).

The most common reason for preferring SP was the benefit of the prefilled or all-in-one characteristic of Uniject which was highlighted by one provider who said:

> It's easier. It's prefilled, we lose less time. You shake, you activate and you inject. With the other [DMPA IM] you open the syringe, you shake, you aspirate, and you do everything to not let the product go to the bottom of the bottle and slowly push out so you don't lose the product.

Some providers also considered their client's preferences in their decision, especially noting less pain. As one provider said, "There are clients who said that they felt almost nothing. So it's easier, it's faster. There is less pain and it's more practical in preparation."

The third most common reason for their preference was the potential to increase access to FP, as this clinic-based provider said, "I want to scale it up… because it's the population who wins. We win time and efficiency and above all maybe in the long term we could completely eliminate the intramuscular injectable method to continue the subcutaneous method."

All of Senegal's CHWs (32 out of 32) preferred SP over DMPA IM. CHWs had limited exposure to DMPA IM for this comparison, which several readily acknowledged. Their reasons were categorized as the characteristics of Uniject (n=31), the potential to increase access to FP (n=13), the opportunity to increase CHWs knowledge and skills (n=10) and perceived client preference (n=8).

Like other providers, the prefilled or all-in-one characteristic of Uniject was the most common reason CHWs preferred SP. One CHW explained her preference as "[SP is] easier because it's already prepared."

Several CHWs saw the potential for SP to increase access to FP because it could be administered by CHWs at the lowest levels of the health care system:

> I want to do it for everyone… We have clients who always want injections. Even if you show them all the available family planning methods, they always choose injections. Your only choice is to refer them to the health post. Also, they want to be injected by me because I am in the community with them all the time. But I tell them to go to the [health] post. Some get discouraged and some get lazy to go to the health post. Meanwhile the client can get pregnant. We must bring the product to the health hut level.

CHWs also saw SP as an opportunity to increase their knowledge and skills to make them a better provider: "I prefer [SP] because my understanding will be faster so the more I do the more comfortable I am."

Similar to other providers, Senegalese CHWs said they preferred SP because their clients seemed to like it due to less pain or less fear at the sight of the needle.

3.4. Providers' recommendation for SP introduction

The most frequently mentioned recommendations were categorized for each country and are summarized in Table 3. To facilitate SP introduction, Ugandan CHWs recommended clients be counseled well and communities sensitized: "Working with health workers at the health facility and sensitizing women about family planning and showing them [SP] which is going to be used in the community, it works

Table 3
Providers' most frequent recommendations for SP introduction by country and provider type

Recommendation	Uganda CHWs (n=34)	Senegal CHWs (n=32)	Senegal clinic-based providers (n=20)
Counsel women and sensitize the community about SP	17	18	6
Make SP accessible at the lowest level facility for use by CHWs	10	25	7
Provide incentives and equipment for CHWs	8	–	–
Consider self-injection of SP	7	–	–
Price SP at or less than DMPA IM	–	13	12
Avoid stock outs	–	8	10

This table only presents the top four recommendations by country and provider type. The dashes should not be interpreted as zeros. For example, in Senegal, six CHWs and one clinic-based provider recommended self-injection of SP, but this theme was not one of the top four in Senegal.

and how it is administered." Additionally, Ugandan CHWs said SP must be accessible to CHWs who currently travel far to transport DMPA IM to their villages. To improve service delivery, CHWs recommended financial incentives and equipment to facilitate transportation and storage of FP supplies. Senegalese providers also recommended clients be counseled well and communities sensitized. Most Senegalese CHWs and over a third of clinic-based providers recommended CHWs provide SP, although four clinic-based providers expressed concerns about the CHWs administering the injection safely, which they suggested could be resolved with training and/or supervision. One clinic-based provider said:

> An unmet need for family planning has been identified and this need is often linked to difficulty in accessing clinics so if we succeed in putting [SP] in the community that will resolve lots of problems. So it's necessary to involve community members like [CHWs]

Both types of providers in Senegal felt successful introduction of SP depended on the method being affordable and in stock. In addition, providers in both countries mentioned the potential for self-injection of SP as something to be considered.

4. Discussion

Almost all providers (98%) in this study stated that they preferred SP to DMPA IM. This was primarily because of SP's characteristics (prefilled or all-in-one design) which made preparation and administration easierand faster and their perceptions of client preference (especially less pain).

Our findings are similar to previous acceptability studies of Uniject used to deliver intramuscular medicines [13–15]. Most providers in these studies preferred the Uniject over injection with disposable or reusable syringes and found the Uniject easier to use. Our study is unique because it included three different types of providers with varying levels of medical training and injection experience. Our findings may be generalizable to providers in other Sub-Saharan African countries.

A limitation of our study includes the potential for social desirability bias. We attempted to minimize this bias by having interviewers trained in qualitative techniques conduct the interviews with a structured guide in private locations where the discussion could not be overheard. Also, although by following local ethics committee guidance we provided modest compensation to Ugandan providers for their time spent participating in the interview (compensation was not recommended in Senegal), we did not pay providers in any site to administer SP which, out of necessity, included conducting study procedures which are often done by paid staff (e.g., informed consent). We expected any influence of this burden to be *against* preference for SP, so finding that most providers preferred SP over DMPA IM raises our confidence in the findings.

For more women to meet their FP needs, access and quality of contraceptive information and services need to be improved, and new and improved contraceptive technologies need to be developed [16]. In the context of high unmet need for FP and demand for injectables, provider preference for SP may facilitate introduction and uptake of this method, resulting in more couples having their FP needs met. Additionally, expanding the distribution of DMPA (any formulation) by CHWs should increase access to FP. An important area of future research is acceptability and treatment fidelity of self-administered SP, an idea also spontaneously supported by some providers in this study.

However, accessibility and information issues will be critical to address, and providers in both countries noted these in their recommendations: (a) clients need to be counseled well and communities sensitized for successful introduction of SP, and (b) accessibility issues, including transportation, cost and supply, need to be resolved. In addition to being acceptable, FP methods must be affordable and available. These elements must be assured for SP to reach its full potential.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.contraception.2014.01.009.

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