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Permalink

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Journal

Contraception, 149

ISSN

0010-7824

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Publication Date

2025-09-01

DOI

10.1016/j.contraception.2025.110972

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A systematic comparison of implementation strategies at three U.S. clinic settings that expanded access to self-administered injectable contraception^{☆,☆☆}

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ARTICLE INFO

Article history:

Received 16 January 2025

Received in revised form 16 May 2025

Accepted 19 May 2025

Keywords:

Contraceptive agents

Implementation strategies

Medroxyprogesterone acetate

Patient-centered care

Self-administration

ABSTRACT

Objectives: To describe experiences and systematically compare three U.S. clinics that initiated or expanded access to depot medroxyprogesterone acetate-subcutaneous (DMPA-SC) for self-administration during the COVID-19 pandemic.

Study design: We used the Expert Recommendations for Implementing Change (ERIC) framework to systematically compare three case studies of implementation projects that expanded use of self-administered DMPA-SC in the United States during the COVID-19 pandemic.

Results: All three settings used multiple implementation strategies and common strategies fell into five main categories including (1) increasing provider awareness about self-administration of DMPA-SC and continuing education for clinical staff, (2) providing patient education and counseling tailored to patients' needs, (3) supporting changes in clinic workflow, (4) addressing insurance coverage and payment, and (5) reducing barriers to filling prescriptions for self-administered DMPA-SC. Ongoing implementation challenges identified include mitigating additional payment barriers for DMPA-SC and increasing access points beyond physical clinical sites.

Conclusion: The implementation strategies described in this study may be generalizable to other settings and help U.S.-based clinics and health care providers meet current recommendations for ensuring access to self-administration of DMPA-SC.

Implications: Three sites that successfully expanded access to self-administration in the U.S. demonstrate the importance of the following implementation strategies: (1) increasing provider awareness about self-administration of DMPA-SC and continuing education for clinical staff, (2) providing patient education and counseling tailored to patient's needs, (3) supporting changes in clinic workflows, (4) addressing insurance coverage and payment, and (5) reducing barriers to filling prescriptions for self-administered DMPA-SC.

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[☆] Conflicts of interest: Jennifer Karlin has consulted for Afaxys, Inc., about contraceptive product development but has no financial stake in the company and does not have an active contract. Sally Rafie is on the Clinical Advisory Board for Afaxys, Inc., has consulted for GenBioPro, and has been a speaker for Therapeutics MD and Veru, Inc. Dr. Berlan receives honorarium as a Nexplanon Clinical Trainer for Merck and Organon, and has received research funding from Merck and Organon. Tammy Bennett receives honorarium as a Nexplanon Clinical Trainer for Organon and works with the Clinical Training Center for Sexual and Reproductive Health (CTC-SRH) delivering intrauterine device in-person and virtual training.

^{☆☆} Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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1. Introduction

Depot medroxyprogesterone acetate (DMPA) is an injectable contraceptive available in subcutaneous (SC) and intramuscular formulations (IM). Both formulations effectively and safely prevent pregnancy [1–4]. In the United States, they distribute the SC formulation as Depo-Subq Provera 104 in pre-filled, single-dose syringes. The U.S. Food and Drug Administration (FDA) approved Depo-Subq Provera 104 in 2004 for administration by a health care professional [5]. However, because patients administer DMPA-SC subcutaneously, the method lends itself to self-administration or administration by someone other than a clinician [1–4]. While using

it as a self-administered contraceptive is off-label, many medications have evidence-based uses beyond FDA labeling [6]. As a user-controlled method, self-administered DMPA-SC may improve contraceptive access by decreasing the need for patients to see a health care provider in-person for initial or subsequent injections [7].

In 2021, the U.S. Centers for Disease Control and Prevention updated the U.S. Selected Practice Recommendations for Contraceptive Use (U.S. SPR) to state that health care providers should make self-administration of DMPA-SC available as an additional approach to deliver injectable contraception [1], consistent with the 2019 recommendation from the World Health Organization (WHO) [2]. These recommendations were based on studies demonstrating similar safety and effectiveness, and higher continuation rates, of self-administration of DMPA-SC compared with provider-administered DMPA-SC and DMPA-IM [3,4]. Studies about interest in self-injection of DMPA-SC demonstrate that those with limited access to a clinic or difficulty returning to a clinic for contraception express higher interest in this option [8]. As a user-controlled method, self-administered DMPA-SC may improve contraceptive access by decreasing the need for patients to go to a clinic for initial and subsequent injections. Equitable access to all contraceptive methods can address disparities in contraceptive use and ensure that all patients can receive the contraceptive method that is most convenient and desired by those individuals [7,9–11].

While self-administering DMPA-SC may be particularly important during disruptions in health care service delivery, like the COVID-19 pandemic or other public health emergencies, natural disasters, or staffing disruptions [12–17], implementing of self-administration of DMPA-SC services into regular care may have an ongoing impact on improving access. Prior to the COVID-19 pandemic, a limited number of Title X clinics, Federally Qualified Health Centers (FQHCs), and academic clinics [18–21] offered self-administered DMPA-SC. During the COVID-19 pandemic, clinicians in multiple states recognized that expanding access to self-administered DMPA-SC could help maintain contraceptive access during the pandemic, and physician organizations published recommendations and guidelines about self-administered DMPA-SC [20]. Limited information is available about health care provider practices offering self-administration of DMPA-SC and we know little about best ways to introduce and implement DMPA-SC in new settings.

2. Materials and methods

The three case studies illustrate the implementation processes in three settings: a safety net, primary care clinic in California; the Title X family planning program in Louisiana; and a freestanding clinic serving adolescents and young adults in Ohio. The clinician champions at each site described the process of implementation at their site and then mapped their implementation activities upon implementation strategies outlined by the Expert Recommendations for Implementing Change (ERIC) framework [22]. Implementation strategies describe the “how” of implementing evidence-based practices within a setting [23]. A variety of strategies, overlapping and distinct, supported implementation of self-administration of DMPA-SC at these sites. Since all these cases successfully implemented DMPA-SC for self-administration in each of their very different sites, we used the ERIC framework to categorize the implementation strategies used and to better understand which strategies overlap and might be essential to implementation, and which strategies may have just been specific to a particular site for success. ERIC is a list of 73 effective implementation strategies, compiled through a Delphi process to reach consensus on a consistent set of terms to describe these strategies [22]. We describe the cases below and map the actions to the ERIC implementation strategies (Table 1) so that clinics interested in implementation have a better understanding of which strategies to employ for

Table 1

Mapping case implementation strategies onto the refined compilation of implementation strategies from the Expert Recommendations for Implementing Change (ERIC) project [26] with the 11 strategies used at all sites in italic

Implementation Strategy	CA- Case 1	LA- Case 2	OH- Case 3
Access new funding			
Alter incentive/allowance structures			
Alter patient/consumer fees	x		x
Assess for readiness and identify barriers and facilitators		x	
Audit and provide feedback			
<i>Build a coalition</i>	x	x	x
<i>Capture and share local knowledge</i>	x	x	x
Centralize technical assistance			
Change accreditation or membership requirements			
Change liability laws			
Change physical structure and equipment		x	
Change record systems	x	x	
<i>Change service sites</i>	x	x	x
Conduct cyclical small tests of change		x	
Conduct educational meetings	x	x	
<i>Conduct ongoing training</i>	x	x	x
Create a learning collaborative			
<i>Create new clinical teams</i>	x	x	x
Create or change credentialing and/or licensure standards			
Develop a formal implementation blueprint	x		
Develop academic partnerships			
Develop an implementation glossary			
Develop and implement tools for quality monitoring			
Develop and organize quality monitoring systems			
Develop disincentives			
<i>Develop educational materials</i>	x	x	x
Develop resource sharing agreements			
<i>Distribute educational materials</i>	x	x	x
Facilitate relay of clinical data to providers	x	x	
Facilitation		x	x
Fund and contract for the clinical innovation			
Identify and prepare champions		x	
<i>Identify early adopters</i>	x	x	x
Inform local opinion leaders			
Increase demand		x	x
<i>Intervene with patients/consumers to enhance uptake and adherence</i>	x	x	x
Involve executive boards		x	
Involve patients/consumers and family members			
Make training dynamic	x		x
Make billing easier	x	x	
Mandate change	x		
Model and simulate change	x		
Obtain and use patients/consumers and family feedback		x	x
Obtain formal commitments			
Organize clinician implementation team meetings		x	
<i>Place innovation on fee for service lists/formularies</i>	x	x	x
Prepare patients/consumers to be active participants			
Promote adaptability		x	x
Promote network weaving	x		
Provide clinical supervision		x	
Provide local technical assistance			
Provide ongoing consultation	x	x	
Purposely reexamine the implementation		x	
Recruit, designate, and train for leadership			
<i>Remind clinicians</i>	x	x	x
Revise professional roles	x		
Shadow other experts			
Stage implementation scale up			
Start a dissemination organization	x		
Tailor strategies			
Use advisory boards and workgroups			
Use an implementation advisor			
Use capitated payments			
Use data experts			
Use data warehousing techniques			
Use mass media	x		x
Use other payment schemes			
Use train-the-trainer strategies	x		
Visit other sites			
Work with educational institutions	x		
Total: 73	27	28	18

successful implementation. We then summarize lessons learned across these diverse settings and identify next steps for addressing ongoing implementation challenges.

3. Results: Three case studies of clinics that initiated or expanded access to self-administered DMPA-SC

3.1. Case 1: Safety net, primary care clinic in California

The first case study comes from an urban, hospital-based, primary care clinic located in California that serves as a safety-net delivering a significant amount of health care related services to those with Medicaid or no insurance [24]. Prior to the COVID-19 pandemic, DMPA was only offered as an in-clinic, intramuscular option at this setting. To offer DMPA-SC for self-administration in this setting during the COVID-19 pandemic, a family medicine doctor with expertise in sexual and reproductive health developed an implementation team which included a pharmacist (The Birth Control Pharmacist) along with medical and pharmacy students who had available time and interest because their standard classes had been disrupted due to the pandemic response. The team reached out first to the clinic's medical director who recommended to first research insurance coverage for DMPA-SC prior to offering the method to patients. Since Medi-Cal (the state Medicaid program) was the primary payor in this clinic and did not cover DMPA-SC, the clinician champion leading the implementation team contacted the Medi-Cal Pharmacy Policy Division and learned that there was interest in offering DMPA-SC as a benefit if there was evidence for its use. When provided with a literature review comparing self-administered DMPA-SC with provider-administered DMPA-SC and with DMPA-IM (both provider- and self-administered) showing evidence that self-administered DMPA-DC has similar effectiveness and safety, the Chief of the Pharmacy Policy Division was able to temporarily cover DMPA-SC outside of the clinic (i.e., dispensed from pharmacies) during the pandemic [25,26]. The Medi-Cal office later made this change permanent in 2021.

Once the clinic assured coverage for DMPA-SC, buy-in from clinic executives, providers, medical assistants, and pharmacists became essential to expand the provision of DMPA-SC. Educational meetings introduced the method to attending physicians, advanced practice providers, pharmacists, residents, medical assistants, front office staff, nurses, and schedulers. In addition to in-person trainings, the team created and distributed educational materials.

The health center team partnered with an external pharmacist consultant and engaged medical and pharmacy students to call patients who had received DMPA-IM in the past year to assess interest in self-administered DMPA-SC. The team developed a patient-centered script which aimed to be non-coercive by asking open-ended questions about interest in self-administration and assuring patients that they could continue in-person injections or obtain an appointment for contraceptive counseling [15]. Among 90 eligible patients, 70 (80%) responded, of which 26 (37%) expressed interest in self-administered DMPA-SC, all of whom successfully self-administered telehealth appointments. Additionally, patients could schedule an in-clinic appointment to self-administer for the first time and were provided written and video information about how to self-administer. The team developed electronic-medical record prompts to ease documentation. The implementation team followed up with patients to make sure that they received the medication and successfully inject it. Ultimately, 15 patients (about 58%) obtained the self-administered DMPA-SC, all of whom successfully self-administered the method at home [15]. Factors that contributed to the discrepancy between interest in and completion of self-administration included mostly logistical ones such as pharmacies informing patients that DMPA-SC was only intended for health care professional administration, patients returning to the clinic for other health care needs and receiving DMPA-IM at that time, and trouble with receiving insurance prior authorization and obtaining DMPA-SC. The implementation team addressed these barriers by working with Medi-Cal to encourage managed care plans to decrease co-pays and not

impose prior authorization, as well as providing pharmacist education and outreach, especially to local community pharmacies. The team used direct outreach through direct phone calls, emails, and webinars to educate pharmacists that self-administration was evidence-based. The Birth Control Pharmacist led a webinar and developed patient-facing materials, pharmacy-facing materials, and provider-facing materials to distribute over social media to educate pharmacists and patients more broadly about this option [27]. The team published findings about implementation of DMPA-SC along with clinical aids, including a telemedicine guide, patient script, and workflow on how to operationalize self-administration of DMPA-SC along with other contraceptive options in the cited manuscript [15], in addition to a video for larger dissemination, available online [28].

Additionally, the implementation team learned helpful improvements for contraceptive counseling around DMPA-SC self-administration, the finding from which were previously reported [29]. This information helped recommend improvements to providers to counsel about the option of DMPA-SC for self-administration. For example, when the team learned that some patients who previously received DMPA-IM were injecting into their arm despite provision of the self-administration instructions for injection in the upper thigh or abdomen, providers began emphasizing the locations on the body for SC injections and noting that these sites differ from IM injection. Additionally, as the team learned that people were administering injections on behalf of the patient, providers providing contraceptive counseling were encouraged to use language that included this as an option, like "at home" administration rather than "self-administration" and to let patients know that they could have friends or family inject for them, if desired.

3.2. Case 2: Title X Clinics in Louisiana

The second case study comes from the Title X family planning program in Louisiana. Title X, enacted in 1970, is a federal grant program that supports clinics to provide family planning and related preventative health services to low-income individuals. Before the COVID-19 pandemic, Medicaid in Louisiana covered self-administration of DMPA-SC, but utilization remained low. When the pandemic began, leadership reassigned many Title X staff to emergency operations, suspended in-person services, and increased the number of telehealth visits. The Reproductive Health Program's first step in expanding access to self-administered DMPA-SC through telehealth included building a multidisciplinary implementation team with leaders from operations, legal, revenue, billing, coding, health informatics, and the Louisiana Office of Public Health (OPH) pharmacy. Early adopters and clinician champions emerged in each of the nine regions of Louisiana, and they assisted their peers with the change process.

Successful implementation required modifying to the electronic health record (EHR) to support telehealth visits, workflow adjustments to ensure patient confidentiality, such as collecting preferred mailing addresses, and the development of a tracking system for refills. The OPH pharmacy implemented a centralized distribution system, allowing patients to receive their DMPA-SC medication by mail at their preferred address. Each package included educational materials and a reminder calendar (see [Supplemental Appendices A and B](#)). This streamlined approach improved access and utilization of DMPA-SC while also eliminating the need to train multiple pharmacies on self-administration procedures.

Drawing from past experiences with natural disasters, Louisiana's Title X staff were well-prepared to meet patient needs during service disruptions. Clinic managers first assessed their readiness and identified barriers and facilitators to providing contraceptive counseling and care via telehealth, including the option of self-administered DMPA-SC. Provider education focused on the

effectiveness of DMPA-SC and the minimal differences between DMPA-SC and DMPA-IM.

To ensure continuity of care, Title X staff proactively contacted patients scheduled for in-clinic DMPA-IM injections within the next month, offering them a telehealth visit with an advanced practice registered nurse. The nurse provided patient-centered contraceptive counseling and included self-administered DMPA-SC as an option. Clinics used video or audio telehealth sessions to guide patients through the self-administration process. Additionally, clinic staff received ongoing training on the safety and effectiveness of self-administered DMPA-SC to support successful implementation.

Prescription dispensing through the OPH pharmacy required flexibility and ongoing adjustments. The implementation team held regular meetings to reassess and address barriers. To prevent missed doses, patients were advised to call the OPH pharmacy if their medication had not arrived before their next scheduled injection. Interestingly, in some rural areas, the postal service did not deliver medications directly to patients' homes but instead to "hub" pickup locations, such as local grocery stores or auto-parts stores. The team discovered this problem when patients called OPH Pharmacy to track their medication and traced the delivery to these hub locations. Once the team tracked the medication to the precise pickup point, patients could collect their medication locally at the designated postal drop-off location. If the team could not track the missed shipment, the OPH pharmacy promptly sent a replacement dose via overnight mail to the patient's preferred address to ensure timely administration. Initially, the packaging used for mailing the medication, patient information, and reminder calendar was fragile, leading to crushing of the package breaking the syringe during transit. To resolve this issue, the OPH pharmacy identified a vendor that provided a sturdy box with precise measurements to securely hold the DMPA-SC syringe and accompanying materials, preventing damage during shipping.

Clinicians received ongoing survey data from patients who chose self-administered DMPA-SC to identify barriers from the patients' perspectives. All surveyed patients ($n = 31$) strongly agreed or agreed that their provider made them feel comfortable, clearly explained medical details about contraception, and thoroughly answered their questions during the medical visit. Additionally, 75% of patients strongly agreed or agreed that they received their medication in a timely manner. However, the team noted some challenges. For example, patients had trouble navigating the REDCap platform used for collecting registration information, identification and insurance cards, and proof of income. Eight percent of patients reported difficulty uploading their identification and insurance cards, while 17% struggled to upload proof of income. The Federal 2021 Title X rule change, which allowed verbal income declaration instead of physical proof, helped reduce cost-related barriers to care. In consultation with the Louisiana Department of Health's legal counsel, the use of REDCap was eliminated, and staff transitioned to verbal income declaration and consent for telemedicine services in response to patient feedback.

Despite these improvements, Louisiana's Title X continues to face reimbursement challenges for DMPA-SC. The OPH pharmacy bills for DMPA-SC through the Medicaid pharmacy benefit, but reimbursement is based on National Average Drug Acquisition Cost (NADAC) pricing. NADAC pricing reflects the average amount pharmacies pay for the medication; however, these prices are not updated regularly. When the cost of DMPA-SC increases, the NADAC reimbursement is lower than the acquisition cost, leading to financial losses.

3.3. Case 3: Freestanding clinic serving adolescents and young adults in Ohio

The third case study comes from a family planning clinic at a freestanding quaternary children's hospital in Ohio. Because of lack of insurance coverage prior to the COVID-19 pandemic, this clinic did not include DMPA-SC for either provider- or self-administration.

However, with the new imperative for social distancing due to the pandemic, the benefits of DMPA-SC self-administration became apparent. In April 2020, BC4Teens, a young women's contraceptive services program at the hospital, implemented protocols to promote access to contraception when the COVID-19 pandemic curtailed in-person visits.

A multidisciplinary team including pharmacists, nursing staff, administrative leaders, representation from an affordable care organization affiliated with the institution, and physicians developed a protocol that was key to successful uptake. The team assessed readiness for implementation by identifying barriers and facilitators and conducting a local needs assessment. The protocol included the following elements: (1) for new telehealth visits, information about self-administered DMPA-SC during contraception counseling; (2) for scheduled DMPA surveillance visits, the clinic contacted patients prior to the visit to offer self-administered DMPA-SC or to lengthen their window in between injections to 15 weeks [30–33]; and (3) at in-office DMPA surveillance visits, clinicians informed patients about DMPA-SC for self-administration [17]. Clinicians counseled patients interested in starting self-administration of DMPA-SC about the use of a bridging method (such as contraceptive pills, in the case of delay of availability of DMPA-SC), sexually transmitted infection (STI) testing, and condom use. Pharmacies received DMPA-SC prescriptions electronically. Nurses or pharmacists offered telehealth teaching visits to patients without personal or family member experience with subcutaneous injections. All patients received educational material including the Reproductive Health Access Project "Fact Sheet: Home Shot/Depo-Provera Sub-Q" and were scheduled for an in-clinic or telehealth follow up visit in 11 to 13 weeks [34]. Ongoing trainings for clinicians disseminated information and reminded clinicians about the DMPA-SC protocol. Due to safety concerns with teaching medication injection via telehealth (a patient fainted while self-injecting), the clinic promoted adaptability and revised professional roles by transitioning to standardized in-person nurse injection teaching visits and created an internally branded patient information sheet about DMPA-SC for self-administration [35].

The team trained nursing staff to manage prior authorization requests with standardized forms and processes. Most local private and public payors covered this method early in the pandemic. However, in late 2021 and 2022, the clinic started receiving more denials from insurers. The nurses and pharmacists on the team communicated with specific payors and developed plans to place DMPA-SC on fee-for-service lists. The clinic experiences informed a published protocol for COVID-related contraception care for adolescents [17] and shared their experiences on national websites, bulletins, and listservs.

Within 2 years, this clinic wrote more than 108 prescriptions for DMPA-SC. A survey of the young people who received and filled DMPA-SC prescriptions from this clinic found they were satisfied with the method and mode of administration and that most (69.6%) former DMPA-IM users preferred DMPA-SC [36]. Reasons for preference for self-administration included personal control, convenience, and ease of injection. Most patients did not have trouble getting DMPA-SC from the pharmacy or paying for it; although, 21% reported missing their injection window. To support adherence to this method among adolescent patients, the clinic provided patients with a continuous dosing calendar that indicated their next DMPA injection as well as information about what to do if they were late for an injection and to contact the clinic with questions or problems.

4. Discussion

Out of the 73 ERIC implementation strategies [23], 11 strategies were employed at all sites (Table 1), indicating that these may be essential steps for expanding access to self-administration of DMPA-SC: (1) building a coalition, (2) identifying early adopters, (3) creating new clinical teams, (4) changing service sites, (5) placing

the innovation (DMPA-SC) on formularies, (6) developing educational materials, (7) distributing educational materials, (8) intervening with patients to enhance uptake and adherence (in this case, by increasing awareness of self-administration of DMPA-SC), (9) reminding clinicians that DMPA-SC for self-administration was an option and how to prescribe it, (10) capturing and sharing local knowledge, and (11) conducting ongoing trainings. The sites also utilized additional strategies that addressed unique challenges at their site. These 11 implementation strategies can be further summarized into five common categories specific to implementing DMPA-SC, which we discuss in further detail below, including: (1) increasing provider awareness about self-administration of DMPA-SC and continuing education for clinical staff, (2) providing patient education and counseling tailored to patient's needs, (3) supporting changes in clinic workflows, (4) addressing insurance coverage and payment, and (5) reducing barriers to filling prescriptions for self-administered DMPA-SC.

4.1. Increasing provider awareness about self-administration of DMPA-SC and continuing education for clinical staff

At all sites, initial awareness about the option of self-administration of DMPA-SC was limited and clinician champions at each site were necessary to initiate or expand the option. Additionally, initial perceptions about who would be interested in DMPA-SC for self-administration were often narrow and not always correct. In California and Louisiana, for example, the clinic managers assumed that those who would be interested would likely come from those already using DMPA-IM, and therefore focused recruiting efforts on current DMPA-IM users. In Ohio, it was assumed by many that adolescents would not be interested. It took advocates at each clinic to persuade others that there would be sufficient interest in this option from a diverse group of patients.

Initial provider and staff education was necessary at each site since providers had limited baseline experience with offering DMPA-SC for self-administration. Standardizing contraceptive counseling protocols can decrease individual provider biases, prevent disparities in access, and ensure that all patients are offered the same contraceptive options. Sustaining interest in providing DMPA-SC for self-administration required ongoing reminders, trainings, and implementation of standardized counseling. The use of standardized protocols in the Louisiana and Ohio clinics encouraged providers to continue offering DMPA-SC for self-administration after the implementation. In addition, including DMPA-SC for self-administration in standardized contraceptive counseling showed that there were some people interested in self-administration of DMPA-SC even if they were not previously on DMPA-IM. All sites developed their own internal and external education and since the initial implementation, national organizations have collated best practices and online resources. For example, A Toolkit for DMPA-SC for Self-Administration developed by the Clinical Training Center for Sexual and Reproductive Health (CTC-SRH) has collated all these materials [19] and can be used at all clinics to initiate or expand self-administration of DMPA-SC. Providing all options for reproductive health care aligns with the values of patient-centered, quality care [37–40].

4.2. Providing patient education and counseling tailored to patients' needs

In all clinic settings from these three case studies, patient-centered counseling about self-administered DMPA-SC included screening for contraindications, providing information on potential side effects, teaching injection technique and intervals, and educating patients about safe medication storage and needle disposal. All settings informed patients that they could follow up with providers at any time, that the clinics were available for any

contraceptive needs including provider-administered DMPA, and how to navigate possible logistical or payor issues.

All sites asked patients about preferences for contraceptive education and self-injection skills training and learned that some patients preferred in-person, some preferred written material, and some preferred videos. All sites included patient education based on patient preference for modality. Patient successfully self-administered at all sites whether education was done in-person, by phone, or by video at the California and Louisiana locations. All sites supplemented patient education with various resources, using similar patient-facing education materials in paper or video form, which included step-by-step instructions as well as an injection calendar. Some sites used open access resources and others developed their own materials.

As sites received patient feedback and adapted their practices, as reported, for example, in the California case in which providers received updated recommendations regarding emphasizing injections in different locations than intramuscular injections. Or, for example, as all the sites learned that patients were having family and community members inject, they shifted their recommendations about provider counseling from referring to "self-administration of DMPA-SC" to "at-home" administration or "administration outside of the clinic."

4.3. Supporting changes in clinic workflow

In all settings, successful implementation required workflow changes and buy-in from multi-disciplinary teams to implement altered workflows. Sites tailored changes to their needs at the particular sites. In some locations, staffing adjustments were made from nurse visits to pharmacist visits for patient education. In all settings, pharmacists helped with patient outreach, education, and dispensing. While there is potential to extend implementation into community pharmacies, there are a limited number of states that allow pharmacist prescribing of DMPA [41]. Despite differences in local settings, all succeeded changing workflow and helping patients obtain DMPA-SC for self-administration if they expressed interest after contraceptive counseling or patient outreach.

4.4. Addressing insurance coverage and payment

To expand use at all the sites, implementers at each clinic had to understand logistics for payment and reimbursement before changing clinic protocols. It was helpful to use electronic medical records to determine the most frequent payors for the patient population. Formularies often exist online, or providers can call the insurance company directly to determine if DMPA-SC is covered and what the co-pay might be. If not currently on the formulary, education can be provided about coverage for contraceptive methods, especially those mandated by law like the Affordable Care Act [42]. Additionally, the payor dynamics can change, and both the Louisiana and Ohio sites periodically reviewed prices for the clinic and for patients' out of pocket expenses. The Louisiana sites continue to face coverage challenges.

4.5. Reducing barriers to filling prescriptions for DMPA-SC

Due to how Title X was operationalized in Louisiana compared to private and public insurance in Ohio and California, the Louisiana Title X clinics could distribute DMPA-SC directly to patients through their central pharmacy, in California and Ohio, providers wrote prescriptions that patients filled at their preferred pharmacy. Patients sometimes experienced challenges filling Prescriptions due to prior authorization requests for insurance coverage. In addition, some pharmacists were unaware of DMPA-SC self-administration and counseled the patient that, according to the FDA label, they

would need to return to the clinic for in-clinic administration. In the California project, for example, 11 of 26 patients faced with these challenges did not initiate self-administration of DMPA-SC [15]. To address these challenges, the pharmacist project collaborator created education materials distributed to California community pharmacies, followed up individually by phone with pharmacies to provide support, and created a larger educational campaign with a webinar and patient and provider facing materials. Conversely, in Ohio, patients did not report difficulty obtaining DMPA-SC from pharmacies and this type of support was not required. Although telehealth has improved access to DMPA-SC, people may still face challenges with pharmacy access.

4.6. Common implementation challenges and potential solutions

To continue expanding the approach of self-administered DMPA-SC more broadly, clinics and public health entities must address non-medical barriers to care including affordability, availability, and accessibility—all of which are related. Despite implementation in these three clinics and others across the country, we identified three main challenges to expanding self-administered DMPA-SC beyond improving awareness of the option. These three challenges include: mitigating payment barriers for DMPA-SC, increasing access points beyond physical clinical sites for DMPA-SC, and addressing research gaps.

According to the Affordable Care Act, all methods of contraception should be available with health insurance at no cost [42,43]. Health insurance can facilitate access to contraceptive methods by not requiring prior approval and by covering DMPA-SC as both a pharmacy and medical benefit [44]. For example, if health insurance only covers DMPA-SC as a pharmacy benefit, then patients must pick up their DMPA-SC at a pharmacy. If only covered as a medical benefit, then they could obtain their DMPA-SC directly from the clinic and administer it one site or at home. Clinics that have pharmacies on site, like in Louisiana, are less affected by processes of outside pharmacists because these clinics can disseminate information more cohesively across their setting. If a clinic does not have a pharmacy on site, then receiving same-day contraception and learning how to inject in-person may be more difficult for patients. Being able to supply DMPA-SC immediately in clinic might improve access for people who desire DMPA-SC self-administration, as same day access for contraceptives is widely recommended [45,46]. Mandating that health care plans include DMPA-SC as both a medical and pharmacy benefit could improve equitable access for different populations since it would be available at multiple access points.

In all cases, pharmacists were integral team members for education and dispensing of DMPA-SC for self-administration. States that allow pharmacists to directly prescribe self-administered hormonal contraceptives provide additional availability of this method; however, only 61% of states allow pharmacists to prescribe hormonal contraception [41].

Offering telehealth visits can also increase access to self-administered DMPA-SC. All three case studies incorporated telehealth visits for self-administration of DMPA-SC and demonstrated that counseling about the method and training in self-administration could be accomplished through telehealth, either over the phone or by video. While the option of providing self-administered DMPA-SC through telehealth could further increase access, availability through telehealth remains low (11% from one survey of U.S. providers) [13].

4.7. Addressing research gaps and next steps for expanding access to DMPA-SC for self-administration

We have limited information about patient-centeredness and preferences about initiating DMPA-SC self-administration, longer-term continuation rates – and how these experiences and preferences vary by different patient characteristics, such as age, race

and ethnicity, residency, income and insurance status, and other factors that affect contraceptive access [29]. There is only one published study to date in the U.S. on what patients may find important in outcomes regarding non-clinic administration [29]. In addition, there are no published data on outcomes for use of self-administered DMPA-SC for non-contraceptive indications, such as menstrual suppression for various purposes including dysmenorrhea and gender-affirming care. Finally, while the Ohio clinic in this study did not face barriers to expanding DMPA-SC for self-administration to minors (Ohio is one of four states in the U.S. without an explicit policy on minors' authority to consent to contraceptive services and joins another 25 states and the District of Columbia that explicitly allow all minors to consent to contraceptive services), 21 states only permit minors to consent to contraceptive services in limited circumstances [47]. Therefore, we have limited data about the barriers clinics would face expanding DMPA-SC for self-administration to minors in jurisdictions with laws about parental consent for contraceptive services.

Self-administration of DMPA-SC is a safe, effective, and feasible option for contraception. Provision of self-administered DMPA-SC has been implemented across different settings in the United States. Identifying challenges, resources, and common implementation strategies from these cases in which DMPA-SC for self-administration was initiated and expanded – even during a challenging time for health care delivery – may help other interested sites move forward to further expand access to self-administered DMPA-SC. Self-administration of DMPA-SC provides an additional option for people seeking contraceptives that can improve access and equity for patient-centered reproductive and sexual healthcare.

CRedit authorship contribution statement

Elise D. Berlan: Writing – review & editing, Investigation, Formal analysis, Data curation. **Tammy Bennett:** Writing – review & editing, Investigation. **Karlin Jennifer T:** Writing – review & editing, Writing – original draft, Visualization, Validation, Methodology, Investigation, Formal analysis, Data curation. **Sally Rafie:** Writing – review & editing, Investigation. **Leah Michael:** Investigation, Data curation.

Appendix A. Supporting material

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.contraception.2025.110972](https://doi.org/10.1016/j.contraception.2025.110972).

References

- [1] Curtis KM, Nguyen A, Reeves JA, Clark EA, Folger SG, Whiteman MK. Update to U.S. selected practice recommendations for contraceptive use: self-administration of subcutaneous depot medroxyprogesterone acetate. *MMWR Morb Mortal Wkly Rep* 2021;70(20):739–43. <https://doi.org/10.15585/mmwr.mm7020a2549>
- [2] World Health Organization. WHO Consolidated Guideline on self-care interventions for health: sexual and reproductive health and rights. Geneva: World Health Organization.; 2019. PMID: 31334932.
- [3] Kennedy CE, Yeh PT, Gaffield ML, Brady M, Narasimhan M. Self-administration of injectable contraception: a systematic review and meta-analysis. *BMJ Glob Health* 2019;4(2):e001350. <https://doi.org/10.1136/bmjgh-2018-001350558>
- [4] Burke HM, Chen M, Packer C, Fuchs R, Ngwira B. Young women's experiences with subcutaneous depot medroxyprogesterone acetate: a secondary analysis of a one-year randomized trial in Malawi. *J Adolesc Health* 2020;67(5):700–7. <https://doi.org/10.1016/j.jadohealth.2020.03.038>
- [5] U.S. Food and Drug Administration. Drug Approval Package: Depo-SubQ Provera 104 (Medroxyprogesterone Acetate) NDA #021584. Available from: https://www.accessdata.fda.gov/drugsatfda_docs/nda/2005/021584s000_depo-subQTOC.cfm#:~:text=Approval Date%3A 10%2F18%2F2004.
- [6] Bodie A. Off-label use of prescription drugs. Congressional Research Service; 2021. Report No. R45792. Available from: <https://sgp.fas.org/crs/misc/R45792.pdf>. (accessed March 8, 2023).
- [7] Burlando AM, Flynn AN, Gutman S, McAllister A, Roe AH, Schreiber CA, et al. The role of subcutaneous depot medroxyprogesterone acetate in equitable contraceptive care. *Obstet Gynecol* 2021;138(4):574–7. <https://doi.org/10.1097/aog.0000000000004524>

- [8] Upadhyay UD, Zlidar VM, Foster DG. Interest in self-administration of subcutaneous depot medroxyprogesterone acetate in the United States. *Contraception* 2016;94(4):303–13. <https://doi.org/10.1016/j.contraception.2016.06.006>
- [9] Committee Opinion No. 615. *Obstet Gynecol* 2015;125(1):250–5. <https://doi.org/10.1097/01.aog.0000459866.14114.33>
- [10] Ensuring Access to Equitable, Affordable, Client-Centered, Quality Family Planning Services. A rule by the Health and Human Services Department on 10/07/2021. 2021–21542 (86 FR 56144). Available from: (<https://go.usa.gov/xMfQy>). (accessed October 14, 2024).
- [11] Nguyen AT, Curtis KM, Tepper NK, Kortsmis K, Brittain AW, Snyder EM, et al. U.S. medical eligibility criteria for contraceptive use, 2024. *MMWR Recomm Rep* 2024;73(4):1–126. <https://doi.org/10.15585/mmwr.rr7304a1>
- [12] Zapata LB, Curtis KM, Steiner RJ, Reeves JA, Nguyen AT, Miele K, et al. COVID-19 and family planning service delivery: findings from a survey of U.S. physicians. *Prev Med* 2021;150:106664. <https://doi.org/10.1016/j.ypmed.2021.106664>
- [13] Comfort AB, Rao L, Goodman S, Raine-Bennett T, Barney A, Mengesha B, et al. Assessing differences in contraceptive provision through telemedicine among reproductive health providers during the COVID-19 pandemic in the United States. *Reprod Health* 2022;19(1):99. <https://doi.org/10.1186/s12978-022-01388-9>
- [14] Kohn JE, Berlan ED, Tang JH, Beasley A. Society of Family Planning committee consensus on self-administration of subcutaneous depot medroxyprogesterone acetate (DMPA-SC). *Contraception* 2022;112:11–3. <https://doi.org/10.1016/j.contraception.2022.03.023>
- [15] Katz M, Newmark RL, Aronstam A, O'Grady N, Strome S, Rafie S, et al. An implementation project to expand access to self-administered depot medroxyprogesterone acetate (DMPA). *Contraception* 2020;102(6):392–5. <https://doi.org/10.1016/j.contraception.2020.09.001>
- [16] Miles C, Ennamuri D, Yeh J, Shih G. Would you be interested in DMPA-SC? An implementation project in two urban primary care clinics. *Contraception* 2022;112:116–9. <https://doi.org/10.1016/j.contraception.2022.01.015>
- [17] Wilkinson TA, Kottke MJ, Berlan ED. Providing contraception for young people during a pandemic is essential health care. *JAMA Pediatr* 2020;174(9):823. <https://doi.org/10.1001/jamapediatrics.2020.1884>
- [18] Comfort AB, Alvarez A, Goodman S, Upadhyay U, Mengesha B, Karlin J, et al. Provision of DMPA-SC for self-administration in different practice settings during the COVID-19 pandemic: data from providers across the United States. *Contraception* 2023;131:110360. <https://doi.org/10.1016/j.contraception.2023.110360>
- [19] Clinical Training Center for Sexual and Reproductive Health (CTC-SRH). A toolkit for user administration of subcutaneous depot medroxyprogesterone acetate. Available from: (<https://ctcsr.org/ctcsr-resource/user-administration-of-subcutaneous-depot-medroxyprogesterone-acetate-dmpa-sc/>). (accessed January 13, 2024).
- [20] National Family Planning and Reproductive Health Association. DMPA-SQ Clinical Protocol and Template. Available from: (https://www.nationalfamilyplanning.org/file/NFPRHA—DMPA-SQ-Clinical-Protocol_FINAL-Nov-2020.docx). (accessed December 23, 2022).
- [21] National Family Planning and Reproductive Health Association. Self-Administration of Injectable Contraception. Available from: (<https://www.nationalfamilyplanning.org/file/documents—service-delivery-tools/NFPRHA—Depo-SQ-Resource-guide—FINAL-FOR-DISTRIBUTION.pdf>). (accessed January 13, 2024).
- [22] Powell BJ, Waltz TJ, Chinman MJ, Damschroder LJ, Smith JL, Matthieu MM, et al. A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project. *Implement Sci* 2015;10(1):21. <https://doi.org/10.1186/s13012-015-0209-1>
- [23] Proctor EK, Powell BJ, McMillen JC. Implementation strategies: recommendations for specifying and reporting. *Implement Sci* 2013;8:139. <https://doi.org/10.1186/1748-5908-8-139>
- [24] Lewin ME, Altman S, editors. America's health care safety net: intact but endangered. Institute of Medicine Committee on the changing market, managed care, and the future viability of safety net providers. Washington, DC: National Academies Press; 2000.
- [25] Cooper J. Section 1135 Flexibilities Requested in March 16, 2020 and March 19, 2020 Communications. Available from: (<https://www.dhcs.ca.gov/Documents/COVID-19/CA-1135-Flexibilities-Approval-Letter-Rev-032320.pdf>). (accessed May 22, 2020).
- [26] Information Regarding the Use of Subcutaneous Depot Medroxyprogesterone Acetate During the 2019 Novel Coronavirus Public Health Emergency. Available from: (<https://www.dhcs.ca.gov/Documents/COVID-19/Medi-Cal-FFS-Depo-Provera-SQ-Temp-Policy.pdf>). (accessed May 22, 2020).
- [27] Birth Control Pharmacist. Pharmacy-based contraception care during COVID-19. Available from: (<https://birthcontrolpharmacist.com/training/careduringcovid/>). (accessed January 24, 2024).
- [28] Innovating Education. This is how I teach: self-injection DMPA-SC. Available from: (<https://www.innovating-education.org/2020/06/this-is-how-i-teach-self-injection-dmpa-sc/>). (accessed December 22, 2022).
- [29] Newmark RL, Hodge CC, Shih G, Karlin J. Patient experiences switching from in-clinic to self-administration of injectable contraception in two Western U.S. states. *Perspect Sex Reprod Health* 2024;56(4):347–57. <https://doi.org/10.1111/psrh.12278>
- [30] Toh YC, Jain J, Rahnnny MH, Bode FR, Ross D. Suppression of ovulation by a new subcutaneous depot medroxyprogesterone acetate (104 mg/0.65 mL) contraceptive formulation in Asian women. *Clin Ther* 2004;26(11):1845–54. <https://doi.org/10.1016/j.clinthera.2004.11.013>
- [31] Halpern V, Combes SL, Dorfänger LJ, Weiner DH, Archer DF. Pharmacokinetics of subcutaneous depot medroxyprogesterone acetate injected in the upper arm. *Contraception* 2013;89(1):31–5. <https://doi.org/10.1016/j.contraception.2013.07.002>
- [32] Paulen ME, Curtis KM. When can a woman have repeat progestogen-only injectables—depot medroxyprogesterone acetate or norethisterone enantate? *Contraception* 2009;80(4):391–408. <https://doi.org/10.1016/j.contraception.2009.03.023>
- [33] Jain J, Dutton C, Nicosia A, Wajszczuk C, Bode FR, Mishell DR. Pharmacokinetics, ovulation suppression and return to ovulation following a lower dose subcutaneous formulation of Depo-Provera®. *Contraception* 2004;70(1):11–8. <https://doi.org/10.1016/j.contraception.2004.01.011>
- [34] Reproductive Health Access Project. Expanding access to the self-administered contraceptive injection. Available from: (<https://www.reproductiveaccess.org/2020/07/contraceptive-injection/>). (accessed December 23, 2022).
- [35] Nationwide Children's. Helping hand. Available from: (<https://www.nationwidechildrens.org/-/media/nch/family-resources/helping-hands/documents/hhiv217.ashx>). (accessed March 14, 2023).
- [36] Wernick HJ, Wentzel E, Jackson K, Schmuhl K, Valenti O, Bonny AE, et al. A pilot study of adolescent and young adult experience with subcutaneous depot medroxyprogesterone acetate. *J Pediatr Adolesc Gynecol* 2023;36(6):549–52. <https://doi.org/10.1016/j.jpaa.2023.06.005>
- [37] Berndt VK, Bell AV. This is what the truth is: provider-patient interactions serving as barriers to contraception. *Health* 2020;25(5):613–29. <https://doi.org/10.1177/1363459320969775>
- [38] Manzer JL, Bell AV. We're a little biased: medicine and the management of bias through the case of contraception. *J Health Soc Behav* 2021;62(2):120–35. <https://doi.org/10.1177/00221465211003232>
- [39] Dehlendorf C, Ruskin R, Grumbach K, Vittinghoff E, Bibbins-Domingo K, Schillinger D, et al. Recommendations for intrauterine contraception: a randomized trial of the effects of patients' race/ethnicity and socioeconomic status. *Am J Obstet Gynecol* 2010;203(4):319.e1–8. <https://doi.org/10.1016/j.ajog.2010.05.009>
- [40] Dehlendorf C, Rodriguez MI, Levy K, Borrero S, Steinauer J. Disparities in family planning. *Am J Obstet Gynecol* 2010;202(3):214–20. <https://doi.org/10.1016/j.ajog.2009.08.022>
- [41] Birth Control Pharmacist. Available from: (<https://birthcontrolpharmacist.com/policies/>). (accessed March 7, 2023).
- [42] Patient Protection and Affordable Care Act. Public Law. Vol. 111; pp. 119–21. Available from: (<https://www.congress.gov/111/plaws/publ148/PLAW-111publ148.pdf>).
- [43] Women's Preventive Services Initiative (WPSI). Contraception. Available from: (<https://www.womenspreventivehealth.org/recommendations/contraception/>). (accessed October 14, 2024).
- [44] Romero L, Sappenfield OR, Uesugi K, Howland JF, Kroelinger CD, Okoroh EM, et al. Review of publicly available state policies for long-acting reversible contraception device reimbursement. *J Womens Health* 2022;31(7):1048–56. <https://doi.org/10.1089/jwh.2021.03>
- [45] Gavin L, Pazol K, Ahrens K. Update: providing quality family planning services—recommendations from CDC and the U.S. office of population affairs, 2017. *MMWR Morb Mortal Wkly Rep* 2017;66(50):1383–5. <https://doi.org/10.15585/mmwr.mm6650a4>
- [46] Curtis KM, Nguyen AT, Tepper NK, Zapata LB, Snyder EM, Hatfield-Timajchy K, et al. U.S. selected practice recommendations for contraceptive use, 2024. *MMWR Recomm Rep* 2024;73(3):1–77. <https://doi.org/10.15585/mmwr.rr7303a1>
- [47] Guttmacher Institute. Minors' access to contraceptive services. State Laws and Policies As of August 30, 2023. Available from: (<https://www.guttmacher.org/state-policy/explore/minors-access-contraceptive-services>). (accessed November 4, 2024).