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Revolving Loan Fund: A Novel Approach to Increasing Access to Long-Acting Reversible Contraception (LARC) Methods in Community Health Centers

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Abstract

Objective—The aim of this study is to assess the impact of a revolving loan fund (RLF) on timing of device insertion and LARC access among a high-risk urban population at three Boston community health centers.

Design—Three health centers were identified to implement a RLF. Each clinic received \$5000 from the RLF to purchase LARC devices. Data collected through chart review retrospectively one year prior to start of the RLF and prospectively for one year thereafter included patient demographics, type of LARC selected, patient's date of documented interest in a LARC device, and date of insertion. The effect of a RLF on delay to LARC insertion was tested using negative binomial regression, controlling for site and potential confounding variables between the pre- and post-RLF periods.

Setting—Three urban community health centers.

Participants—Reproductive-aged women who received family planning services at the three participating health centers.

Main outcome measures—Increasing access to LARC and decreasing wait times to LARC insertion after implementation of the RLF.

Results—Data on 133 patients in the pre-RLF group and 205 in the post-RLF group were collected. There were no statistically significant differences in demographic or clinical

characteristics between the two time periods. LARC uptake increased significantly from pre- to post-RLF ($P=0.03$), specifically among implant users. There was a statistically significant decrease in the mean number of days in delay from interest to insertion from the pre- to post-RLF (pre-RLF: 31.3 ± 50.6 days; post-RLF: 13.6 ± 16.7 days, adjusted $p < 0.0001$). The reasons for the delay did not differ significantly between the two time periods.

Conclusion—The RLF decreased wait time for the devices and increased overall insertion rates. This may serve as a promising solution to improve LARC access in community health centers.

Keywords

LARC; community health centers; revolving loan fund; contraception

Background

The United States (US) has one of the highest unintended pregnancy rates of developed countries [1]. Of the over six million pregnancies in the US each year, half are unintended. Additionally, half of those unintended pregnancies result from incorrect, inconsistent, or non-use of contraception [2, 3]. This pattern of contraception usage can also lead to shorter intervals between pregnancies, which have been shown to increase the risk for preterm delivery, neonatal complications, and even neonatal death [4, 5]. Often these risks disproportionately affect low-income and minority women and can be attributed to the inability to procure a reliable and effective birth control method [6, 7]. Long-acting reversible contraceptives (LARC), such as IUDs (levonogestrel and copper) and contraceptive implants, are associated with fewer unintended pregnancies, longer intervals between births, and dramatic health-care cost savings through improved contraceptive compliance [8].

In 2011, the Boston Public Health Commission (BPHC) convened a task force of academic and community-based clinical leaders in an effort to reduce disparities in preterm births and birth outcomes [9]. This expert panel of leaders in obstetrics and gynecology, family medicine, midwifery, and pediatrics highlighted access to LARC in community health centers as one of four key strategies to reduce disparities in birth outcomes [9]. A workgroup was commissioned to address LARC access and utilization in Boston CHCs.

In 2012, the workgroup conducted a survey of CHCs affiliated with the Boston Healthy Start Initiative. Results suggested that clinics' access to LARC may be a key barrier to use. Nine of twelve clinics surveyed reported challenges in maintaining an adequate supply of LARC, citing factors related to cost, procurement, reimbursement, and external facility supply [10]. Most centers reported one to three months of LARC supply on hand, while others had no or a very low supply at their clinic. All clinics purchased the contraceptive supplies at a discount through the Action for Boston Community Development (ABCD) grant program or through their affiliated hospital's pharmacy at 340B pharmacy pricing [11]. One clinic, however, reported "eating the cost" of the materials for women who had either limited or no insurance. This particular clinic wanted to continue to provide this care to its patient population but was unsure how sustainable this approach would be.

To address these critical barriers to LARC access in Boston CHCs, the workgroup proposed a novel intervention of a city-wide revolving loan fund (RLF) to allow Boston CHCs to purchase and stock adequate LARC supplies thereby increase patient access to these contraceptive methods. A RLF is a pool of funds from which loans are made and repaid, thus facilitating additional loans. RLFs have been used in public health to invest in water supplies, efficient and renewable energy, and waste control [12]. Literature also reports the use of “revolving funds” to support medication procurement in low resource settings internationally and access to rural health care services [13, 14].

We found no original publications documenting the use of RLF in US CHCs. In this study, we sought to enroll CHCs in a pilot study to assess the effectiveness of a RLF program to increase access to LARC devices and foster timely insertions. We hypothesized that clinics with RLF access would experience reduced delays in providing LARC devices.

Methods

Study Design

This cohort study was designed with both retrospective (pre-RLF) and prospective (post-RLF) data collection periods. The loan program was implemented on May 1, 2014; therefore, the pre-RLF period was defined as May 1, 2013 through April 30, 2014, and post-RLF period was May 1, 2014 through April 30, 2015. The primary outcome compared between the two periods was delay to LARC insertion, defined as the time between patient interest in obtaining a LARC device and actual insertion of the LARC device. Secondary outcomes included differences in (1) reasons for any delay to LARC insertion (defined below), (2) types of LARC device (IUD, implant), (3) type of clinician who provided LARC (MD, NP, CNM), and (4) contact with family planning counselor (none, same day as LARC insertion, different day from LARC insertion). All reproductive aged women who received a LARC at one of the participating clinics in the defined time periods were included in the study, except for patients who were recently pregnant and postpartum, as postpartum insertion dates can vary widely by provider. None of the women in this study were given a LARC for non-contraceptive purposes.

Revolving Loan Fund

The nine surveyed community health centers that reported difficulty maintaining an adequate LARC supply were invited to participate as pilot clinic sites for the RLF, and three agreed. Each community health center was offered a loan of \$5,000 in order to purchase LARC devices. The money for the loan was from grant funding and professional development resources. However, this loan did not replace their existing family planning budget for LARC purchases or standard monthly ordering practices. Health centers were given the option of accepting a portion of the loan initially, or the full loan in the amount of \$5,000. This amount was chosen based on amount of grant funding available for the pilot project. All three health centers requested the full loan amount and all monies were distributed by April 2014 to be applied to their family planning budget starting May 1, 2014. Because this was a pilot study, clinics were not asked to repay the loan, but instead document how they would pay back the loan over time to help the authors understand

reimbursement patterns. RLF agreements were made via a memorandum of understanding (MOU) between each CHC director and the BPHC Health Commissioner to describe the purpose of the RLF, the allowed use of funds and the terms of follow-up. Administrative costs were negligible as there were no fees or costs associated. Administrative tasks included completion of the MOU/application, one time disbursement of funds and follow-up with key contacts at each site to learn about their experience with the RLF and ability to reimburse the loan. These administrative tasks and communication with clinics required approximately two hours every 90 days.

Study Population

The family planning clinics of Boston-area CHCs provide care for a large, racially diverse (>75% non-white), and low-income population (~70% at or below the 125% Federal Poverty Level) [15]. While nearly 80% of women who sought family planning services at these clinics used contraception, only 15% of the patients used LARC (13% IUDs, 2% implants) as their primary method, with combined hormonal methods (pill, patch, ring) and progestin-only pills, condoms and 3-month injection being the predominant methods [16]. Approximately 80% of the women seen at these health centers were of reproductive age.

Data collection

Electronic medical record chart review by a physician was used to collect data from the pre- and post-RLF time periods. LARC insertion billing codes were used to identify individual patients at each of the three community health centers one year prior to and one year after the start of the RLF. Data collected for each patient included clinical site, age, race/ethnicity (self-reported), gravida, parity, history of abortion, prior contraceptive use, and selected LARC method.

The “date of interest” in LARC placement was documented as either (1) the date noted in medical records of the patient’s request for a specific LARC device or (2) the date of the patient’s family planning consultation prior to LARC placement. The delay to LARC insertion was calculated as the number of days between the date of interest and the date of insertion. Information on type of provider inserting the LARC device and reasons for any delay was also collected. Primary delays were those between family planning consultation and clinical encounters for device insertion. Additional delays in the patient receiving a LARC device were documented as secondary delays related to the clinic, patient or insurance. Clinic delays were due to lack of LARC supplies or a qualified provider (e.g. only RN or family planning counselor available). Patient delays were noted if the patient missed her appointment or was ineligible for a LARC device (e.g., active STD or recent unprotected intercourse). Lastly, insurance delay occurred when the patient had either no or inactive insurance.

Data analysis

Demographic and treatment characteristics of the pre- and post- RLF samples were compared using chi square and t-tests, as appropriate. The effect of the RLF on delay to LARC insertion was tested using multivariable binomial regression models to adjust for clinic and any significant ($p<0.05$) imbalances in patient characteristics between the two

time periods. Differences in reasons for delay, type of LARC, type of practitioner who provided the LARC, and contact with family planning counselor between the pre- and post-RLF periods were tested using chi-square tests. All statistical analyses were performed using SAS v9.3 (Cary, NC) with two-sided tests and $\alpha=0.05$.

The study was approved through Brigham and Women's Hospital's Institutional Review Board (IRB). This IRB review was also approved by each individual community health center. Additionally, this study complied with NIH human participants' protection standards.

Results

Three of nine clinical sites identified received a loan. Each site served between 13 and 71 patients in the pre-loan one-year period and between 14 and 120 in the post-loan one-year period ($p = 0.5$). A total of 133 patients received a LARC device in the pre-loan group while 205 patients received a LARC device in the year following implementation of the RLF. Patient characteristics in the pre- and post-loan periods are summarized in Table 1. There were no statistically significant differences in patient demographics or clinical characteristics between the two time periods. The majority of patients had public insurance: 72% and 74% in pre- and post-RLF groups, respectively. Additionally, just over 40% of both groups identified as Hispanic and 70% identified as Black in each time period. The remaining patients identified as White (26% and 25%) or other (4% and 5%). There were no significant differences in demographic or clinical variables between the two time periods.

The mean delay to LARC insertion in the pre-RLF period was 31.3 ± 50.6 days, compared to 13.6 ± 16.7 days in the post-RLF period. The difference in delay was significantly different ($p<0.0001$) in both the unadjusted analysis and after adjusting for clinic. Among those with secondary delays (e.g., clinic error, patient error, and/or insurance error), there were no differences in the reasons for the delay between the two time periods ($p=0.7$).

Type of provider who performed the LARC insertion did not differ between the two time periods ($p=0.58$). Although most patients did not meet with a family planning counselor prior to LARC insertion in either time period, one clinic required an appointment with the counselor prior to LARC insertion. The pattern of whether and when patients met with a family-planning counselor differed significantly between the pre- and post-RLF time periods ($p=0.001$). Post-RLF, more patients had appointments with the family-planning counselor on the same day as LARC insertion compared to the pre-RLF time period (29.3% to 20%). There was also an increase in the number of visits where LARC placement occurred on the same day (1.5% to 11.2%). Study outcomes are summarized in Table 2.

Use of specific LARC devices changed significantly between the pre and post loan periods ($p=0.03$). There was a decrease in the proportion of patients receiving levonogestrel or copper IUDs, and an increase in those who received the contraceptive implant (Table 2).

Clinics were not required to repay the loan, as the study was grant funded. However, at the end of the study, key contacts from each clinic reported ability to pay back the entire loan within one year.

Discussion

Our study demonstrated that access to a RLF designed to increase on-site LARC supply decreased insertion wait times at three Boston based CHCs that serve a population at increased risk of unintended and short interval pregnancies. LARC devices are the most effective form of contraception available and have repeatedly shown a decrease in unintended pregnancy rates [17, 18]. Although the upfront cost of the devices is high, research has shown that for all types of IUDs, the cost is lower than other contraception methods over a 5-year period [19]. This study helped improve LARC access by removing the barriers preventing clinics from adequately supplying the devices.

The RLF intervention was a significant predictor of decreased delay to LARC insertion, both in the unadjusted analysis and after adjusting for clinical site. The reduction in delay associated with the RLF intervention was a clinically significant change, with a mean decrease of over two weeks after implementation of the loan. A decrease in delay of this magnitude could theoretically decrease rates of unintended pregnancies in patients waiting for their LARC device. Ideally, a same-day LARC insertion would be optimal, but in community health centers with limited resources, this may not always be possible.

Although there was an increase in the absolute numbers of patients who received LARCs from the pre-loan group to the post-loan period, there were no significant differences in the demographic or clinical profiles of the patient populations. Among women in which there were secondary delays in receiving their LARC device, there were no significant differences in the reasons for the delay between the pre- and post-RLF groups.

Interestingly, there was an increase in same-day family planning counselor visits in the post-loan group, which likely contributed to the decrease in delay to LARC insertion. Many community health centers in Massachusetts receive a Title X grant for family planning funding, which contributes to the salary of a family planning counselor. In some health centers, patients often meet with the family planning counselor prior to a LARC insertion. This required meeting may contribute to a delay in services; whereas as a counseling session the same-day as LARC insertion eliminates delay.

In comparing the pre- and post-loan groups, there was an overall change in the type of LARC devices purchased and utilized after implementation of the RLF. Specifically, the contraceptive implant had the largest increase from pre- to post-loan. It was identified in the 2012 BPHC survey as the method that all clinics wanted to purchase to offer to patients, but the upfront cost of the device was a deterrent. Implementation of the RLF enabled clinics to purchase more of these devices.

There are several limitations to this study. As this study was based on chart review, LARC insertion billing codes were used to identify patients; thus documentation of interest in LARC devices was therefore limited, and only patients with successfully inserted LARC devices were analyzed. Patients who underwent counseling for LARC devices and expressed interest but never returned for their device were not included. This may underestimate the effectiveness of the RLF, as having supplies on hand might have resulted in these women receiving a LARC the same day they expressed interest rather than failing to return at a later

date. Additionally, we were also unable to analyze whether prolonged wait times led to unintended pregnancies for patients who did not return for their LARC insertion. It is also difficult to know if national trends over time related to interest in and usage of LARC affected the delay to LARC insertion in the two time periods. Of note, LARC uptake in these three community health centers was higher than the national average (15% vs 12%). Although there was slightly higher utilization of LARC, the health centers analyzed noted difficulty in being able to offer this device to patients secondary to supply concerns.

Access to these effective devices can be challenging for community health centers. Even with 340B discount drug programs, community health centers often find the upfront cost of stocking LARC prohibitive, which translates to decreased supply and longer patient wait times. Although some health centers are utilizing on-site pharmacies to purchase the devices and decrease the initial cost, a RLF may aid in further decreasing the cost burden.

Although birth disparities and unintended pregnancies were not analyzed in this study, providing a RLF to community health center could aid in addressing these concerns highlighted by the Boston Public Health Commission. Future efforts could focus on implementation of a larger revolving loan fund to community health centers that provide LARC services. These efforts could also assess LARC uptake, continuation of method, as well as unintended pregnancies for patients that expressed interested in a LARC device but did not return for insertion. Additionally, more providers should be trained in LARC insertion, especially outside the field of Ob/Gyn. Educational efforts should also work to promote same-day LARC insertion to better accommodate the patient population.

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Implications for Policy and Practice

- In this pilot study, use of a Revolving Loan Fund to purchase LARC supplies in community health centers decreased delay to LARC insertion and helped to increased access to these methods.
- A RLF could be expanded to include more community health centers, including those that do not currently offer LARC.
- Initial capital for the RLF could either come from the city's public health commission budget, grant funding, and/or from community investment funds from local hospitals.
- Because of the nature of our pilot project, we could not analyze timing and ability to pay back the RLF; although all clinics said they would be able to pay back the RLF after one-year. Logistics of reimbursement to the RLF may add unforeseen challenges in the practice.
- Expanding the RLF would allow for further data analysis, including uptake and continuation rates as well as unintended pregnancies for patients who may not have had same day LARC insertion.

Table 1

Clinical and Demographic Patient Characteristics at participating clinics Pre- and Post-RLF Intervention

	Pre-loan (n=133)	Post-loan (n=205)	p-value
Clinic			
#1	71 (53.4)	120 (58.5)	0.51
#2	13 (9.8)	14 (6.8)	
#3	49 (36.8)	71 (34.6)	
Age (mean ± standard deviation)	28.9 ± 7.7	28.9 ± 6.5	0.23
Insurance			
Private	37 (27.8)	54 (26.3)	0.76
Public/None	96 (72.2)	151 (73.7)	
Ethnicity			
Hispanic	58 (43.6)	88 (42.9)	0.21
Non-Hispanic	74 (55.6)	109 (53.2)	
Refused	1 (0.8)	8 (3.9)	
Race			
White	25 (26)	35 (24.8)	0.94
Black	67 (69.8)	99 (70.2)	
Other	4 (4.17)	7 (4.96)	
Gravida (mean ± standard deviation)	2.1 ± 1.9	2.0 ± 2.7	0.55
Parity (mean ± standard deviation)	1.3 ± 1.2	1.2 ± 1.2	0.32
Had prior termination	36 (27.1)	56 (27.3)	0.96

Data presented as N (%) unless otherwise noted.

Table 2

Differences in outcomes pre and post-RLF at three Boston CHCs.

LARC	Pre-loan (n=133)	Post-loan (n=205)	P-value
Delay to LARC insertion (days):			
Mean $\pm$ standard deviation	31.3 $\pm$ 50.6	13.6 $\pm$ 16.7	<0.0001 *
Minimum, median, maximum	0, 16, 371	0, 8, 134	
LARC selected:	N (%)	N (%)	
52 mg LNG-IUD	70 (52.6)	90 (43.9)	0.03
Implant	28 (21.1)	70 (34.1)	
Copper IUD	35 (26.3)	42 (20.5)	
13.5 mg LNG-IUD	0 (0)	3 (1.5)	
Reason for delay (if applicable)			
Clinic error	39 (69.6)	33 (63.5)	0.72
Patient error	12 (21.4)	11 (21.2)	
Insurance error	2 (3.6)	2 (3.8)	
Unknown	3 (5.4)	6 (11.5)	
Met with Family Planning Counselor			
No	92 (69.2)	141 (68.8)	0.001
Yes – different days	39 (29.3)	41 (20.0)	
Yes - same day	2 (1.5)	23 (11.2)	
Clinical Provider of LARC			
Certified Nurse Midwife	32 (24.2)	57 (27.8)	0.58
Physician	52 (39.4)	84 (41.0)	
Nurse Practitioner	48 (36.4)	64 (31.2)	

Abbreviations: IUD: intrauterine device, LNG: Levonorgestrel

* p<0.0001 for unadjusted comparison, and after adjusting for clinic.