

Provider Perceptions of Facilitators of and Barriers to Implementation of the Zika Contraception Access Network: A Qualitative Evaluation

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Objective: From May 2016 through September 2017, the Zika Contraception Access Network (Z-CAN) program increased access to contraception during the Zika virus outbreak in Puerto Rico by providing no-cost client-centered contraceptive counseling and (same-day) access to the full range of US Food and Drug Administration–approved reversible contraceptives to women desirous of not becoming pregnant. The purpose of this study was to identify areas for programmatic improvement and enhance the sustainability of services from the perspectives of participating Z-CAN physicians and other staff.

Methods: From April through July 2017, 49 in-depth key-informant interviews were conducted with Z-CAN physicians and clinic staff. Twenty-five clinics participating in the Z-CAN program were selected through a cluster randomization process. A semi-structured interview guide was developed to explore the participants' perceptions of the Z-CAN program and examine facilitators of and barriers to said implementation. A thematic analysis of the emerging topics was conducted.

Results: Our analysis encountered 4 common overarching themes: facilitators of the Z-CAN program; barriers to Z-CAN implementation; the perceived impact of Z-CAN on providers and communities; and the sustainability of contraception access after the Z-CAN program ended. The key findings were that provider training, mentor support, and communication campaigns facilitated program implementation and that delays in the acquisition and distribution of contraceptives were obstacles.

Conclusion: Lessons learned from the implementation of Z-CAN from the perspective of physicians and other staff can be used to work towards sustainable contraceptive services in Puerto Rico and inform other contraception-access programs' design and implementation strategies. [*PR Health Sci J* 2023;42(3):233-240]

Key words: Zika, Contraception, Emergency preparedness

During the 2016–2017 Zika virus outbreak, Puerto Rico reported the highest number of Zika cases in the United States (US) and US territories (1). During pregnancy, the Zika virus infection can cause severe brain abnormalities in the fetus, including microcephaly and eye defects (2,3). Before the Zika virus outbreak, Puerto Rico had one of the highest unintended pregnancy rates in the US (4,5), and highly effective reversible contraception methods were not widely available (4,6). An assessment of contraception access early in the outbreak identified several barriers, including a limited range of contraceptive methods, a shortage of physicians trained in comprehensive contraception care, inadequate physician reimbursement, and the limited availability of the same-day provision of contraception services (4). In response, the Zika Contraception Access Network (Z-CAN) was established by the National Foundation for the Centers for Disease Control and Prevention (CDC Foundation), with technical assistance from

the CDC and a diverse group of federal and territorial partners and stakeholders (7).

The Z-CAN program was a short-term intervention in response to a complex public health emergency that required increased access to contraception to reduce adverse Zika-related birth outcomes during the Zika virus outbreak. This program

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The authors have no conflicts of interest to disclose.

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established a network of 153 trained physicians that provided client-centered contraceptive counseling and same-day access to the full range of the US Food and Drug Administration (FDA)-approved reversible contraceptive methods at no cost for women wanting to prevent becoming pregnant (6,8,9,10). From May 2016 through September 2017, 29,221 women received Z-CAN services (8). In addition, the Z-CAN program developed a multi-strategy communication campaign, “Ante La Duda, Pregunta” (ALDP), translated as “When in Doubt, Ask,” which used social media to both increase awareness of pregnancy planning and contraception in the context of Zika and promote the Z-CAN program, itself (11,12). Previous research has reported that key strategies to successful new programs allow providers to implement interventions as intended (13). As part of the Z-CAN program, we conducted a comprehensive mixed-methods evaluation to examine the implementation of the Z-CAN program and assess both its impact and its potential for replication or adaptation in other jurisdictions or in situations in which an emergency response is required. The purpose of this paper is to describe findings that identify potential areas for programmatic improvement to thereby enhance the sustainability of the offered services, according to the perspectives of the participating Z-CAN physicians and other staff (nurses and administrators).

Methods

From April through July 2017, in-depth interviews were conducted with Z-CAN physicians and other staff. The interviews explored provider satisfaction with Z-CAN program implementation; how providers integrated Z-CAN activities into their clinic workflow; and provider perceptions of the impact of Z-CAN on the individuals and communities these providers served. All 139 participating clinics were randomized (following a cluster group design) by type of clinic (private, community health, public health, or academic) and public health region. Twenty-five clinics in 7 different health regions in Puerto Rico were selected, those regions being the San Juan metropolitan area ($n = 8$), Ponce ($n = 6$), Mayaguez ($n = 5$), Arecibo ($n = 3$), Fajardo ($n = 1$), Caguas ($n = 1$), and Bayamón ($n = 1$). One Z-CAN physician and 1 staff member from each selected clinic were randomly sampled to participate in interviews. A total of 51 physicians and other staff members were contacted to schedule interviews. Consent was obtained before each interview. Most of the interviews (91%) were performed in-person, with the remaining completed over the phone. A semi-structured interview guide was developed and used to generate discussion. The guide explored physicians’ and staff members’ perceptions of the Z-CAN program’s implementation process, the facilitators of and barriers to implementation, the impact of the Z-CAN program on the physicians, clinics, communities, and women who participated in it, and the importance of sustaining contraception access. Each interview was conducted in Spanish by 1 of 4 researchers trained in qualitative data

collection and lasted from 1.0 to 1.25 hours. Participation in the interview was voluntary. No reimbursement was provided to the participating physicians; a \$20 incentive gift card was provided to the participating staff members.

All the interviews were audio-recorded, translated, and checked by the data collection team to ensure accurate translation. Transcripts containing discrepancies were sent back for re-transcription and additional review. After translating the recordings into English, the data collection team lead, the interviewer, the translator, and an external member of the research team not involved in the interviewing process met to ensure appropriate equivalence between the original Spanish transcript and the English translation of it. The transcripts were imported and coded using NVivo qualitative analysis software (NVivo 11 Pro, QSR International, 2015). An a priori codebook was developed based on the key objectives of this study, relevant theoretical constructs, and scientific findings (14). All the transcripts were read and coded independently by 2 analysts. Transcripts were checked for inter-rater reliability (IRR) to ensure trustworthiness following the Miles and Huberman formula (15). The average IRR obtained in this study was 92% (0.80 – 0.98); an IRR of 80% agreement between coders on 95% of the codes is sufficient agreement (15). Qualitative content analysis was conducted to capture the major topics related to the research question (16). Thematic analysis was used to identify emerging topics related to research objectives. This study was approved by the Institutional Review Boards at the CDC and the University of Puerto Rico Medical Science Campus.

Results

A total of 49 interviews were completed: 24 physicians and 25 staff members. One physician and 1 staff member, each from a different clinic, declined to participate in the interview, resulting in a 96% participation rate. The key themes from the physician and staff interviews were classified into 4 main categories: 1) facilitators of the Z-CAN program’s implementation process; 2) barriers to the Z-CAN program’s implementation process; 3) the perceived impact of the Z-CAN program on providers and communities; and 4) the sustainability of contraception access (Table 1). Given the general agreement between the physicians and other staff, all the results are presented together.

1. Facilitators of the Z-CAN program’s implementation process

Training, proctoring, and the availability of Z-CAN staff during implementation

The physicians and other staff, overall, reported being satisfied with the implementation of the Z-CAN program. Most of the participants described the 1-day training as an important opportunity to learn and to update their own knowledge base. The physicians and other staff also reported that the inclusion of staff in the training allowed for task shifting in their clinics once the Z-CAN program was implemented and provided

Table 1. Qualitative key themes and illustrative quotes from the physician and other staff interviews.

Focus Group Domain	Perceptions of Physicians and Other Staff
1. Facilitators of the Zika Contraception Access Network (Z-CAN) program's implementation process	
<i>Training, proctoring, and the availability of Z-CAN staff during implementation</i>	<p>The Z-CAN training provided everything, and the fact that the clinic staff were trained was excellent. It helped a lot. Let's just say it: It helped; it was vital. – Physician at a private clinic</p> <p>They answered all my questions and concerns. They were skilled in teaching techniques, in reviewing things that were forgotten or not used on a day-to-day basis, and [were] very skilled and professional in the presentation. – Community health center (CHC) physician</p> <p>In my case, I had never inserted an implant, so I got certified in inserting the Nexplanon through the Z-CAN program. And I know a lot of physicians who did, too, because, for example, when we graduated from residency, we did not have the opportunity, so we did not learn how to do it [insert an implant]. – Physician at a private clinic</p> <p>Our clinic health educator also took the Z-CAN training. She also supports patients by educating and directing them to the clinic and our services. She also engages the community by participating in other events and makes announcements on the radio to promote the Z-CAN program and promote family planning. – CHC physician</p> <p>Before the Z-CAN training, I focused only on counseling [patients] on the methods that I had experience with. With the Z-CAN training, I now counsel [patients] on the full range of methods. – Staff member of a private clinic</p>
<i>Same-day initiation and the in-office stocking of different contraceptives</i>	<p>Before Z-CAN, patients with health insurance had [to undertake] a tedious process to obtain contraception. They would go to the pharmacy with the prescription and were often denied contraceptives because they needed a justification. The patient would return to the physician for the justification, and then go back to the pharmacy, where they were often given another excuse for being denied the contraceptive. In the comings and goings, they could become pregnant. With the Z-CAN program, they could come to our office and did not need to have a prescription, rely on medical plans, or go to the pharmacy. – Physician at a private clinic</p> <p>In our clinic, the contraceptive counseling begins with the nurse. The nurse gives [the patient] a general overview, and then the health educator counsels [her] on the available methods. When I see the patient, I review the method that she has chosen and discuss any questions or concerns. When it comes to the method, it is her decision. – CHC physician</p> <p>With the Z-CAN program, the patient is educated, and the contraceptive of choice is provided or inserted on the same day. The patient does not have to make more than 1 visit. – CHC physician</p> <p>In our clinic, which participates in Z-CAN, I can provide patients with contraceptives that we have in stock at our clinic. Before the Z-CAN program, I did not [always] have contraceptives available at the clinic. – Physician at a public hospital</p> <p>Z-CAN has been favorable and positive for the patients. They are very satisfied and have more options to plan a family. – Staff member of a private clinic</p>
<i>Health education/social marketing campaign to improve contraception access (Ante la Duda, Pregunta)</i>	<p>The information about Z-CAN is in the press and on social media. So, one patient who knows about or participates in the program often brings another. This referral of patients and the increasing access to information is reaching different patients. Also, having Z-CAN promotion material and literature here in the clinic allows already established patients who did not know about the program to have access. – Physician at a private clinic</p> <p>The “Ante la Duda, Pregunta” poster in our office, the Facebook page, and the television, press, and radio have been very good at increasing awareness of the program. – Physician at a private clinic</p> <p>One patient told me that she learned about the Z-CAN program through the “Ante la Duda, Pregunta” radio announcement. She went to the website and looked at all the clinics and called here because of our close location. – Physician at a private clinic</p> <p>I think Z-CAN has reached a lot of women because of the social [media] marketing campaign that promotes the program. The patients are coming and asking about it. I think that has been excellent. – Physician at a private clinic</p> <p>When patients call our office, they say, “I am interested in knowing about the Z-CAN program.” And I ask them whether they have specific questions, and they tell me no, that they read or heard about it on the radio and are interested in getting information and services. That's when I tell them to make an appointment, and when they come to the appointment, they can decide, with the physician, which method is the best for their situation. – Staff member of a private clinic</p>
2. Barriers to the implementation of the Z-CAN program	
<i>Obtaining contraceptives, receiving reimbursements, and program documentation</i>	<p>After the Z-CAN training, I waited for a long time for the contraceptives to be supplied. There was a lack of communication. My patients had delayed access because it took time to get the contraceptives, the program patient ID numbers, and the patient labels. – Physician at a private clinic</p> <p>Every month we would run out of contraceptives and have to request them again. At times I would have to wait for our Nexplanon order and cancel appointments. It has been a [difficult] process to submit the contraceptive orders in a timely manner so we do not run out and for the program to deliver [the requested contraceptives] in a timely manner. – Physician at a private clinic</p> <p>I am quite satisfied with the Z-CAN program. However, one of the concerns is about timely payment for the reimbursement of services. – Physician at a private clinic</p> <p>It is a process to prepare the required program documentation. We have to report where we keep the contraceptives and the inventory. It is something we did not have to do before, and it takes a lot of time. However, here in Puerto Rico, most physicians did not have long-acting reversible contraceptives in their clinics. Now that the program has been implemented and we are getting used to the requirements, it has been running well. – Staff member of a private clinic</p>

3. Impact of Z-CAN on the physician and the community

<i>Physician impact</i>	<p>I believe in having access to [different] contraceptive methods. With Z-CAN, we have more access to IUDs and to implants and are able to teach the residents about the full range of methods. – Physician at a public hospital</p> <p>We are more focused on what the patient really wants to use. With Z-CAN, our role is to present the information so that the patient can choose the best method for her. – CHC Staff</p> <p>Before Z-CAN, we would counsel patients on methods that they could afford. For example, if they needed a prescription, we could give it to them, but they would need to go to pharmacy to pay for it. Even if they wanted an IUD, most health insurance plans do not cover it. So, we would give them a prescription for that and for the pill, condoms, Depo, the ring so we did not leave them without a method. – Physician at a private clinic</p> <p>The impact of the Z-CAN program has been very positive for the patient. It is as simple as the patient arriving at the clinic, and if she meets the program criteria and we do not suspect pregnancy or there is no other condition that prevents the method from being administered or given at that moment, there are no barriers to access. The patients have complete accessibility to the pill, condoms, the patch, injections, IUDs, implants. They have everything [available to them]. – CHC Physician</p> <p>I have an inventory of contraceptives that I can openly offer to the patient based on what she and I understand is ideal for her. I do not have to think about the limitations of the economic resources of the patient or the coverage of her health insurance plan. – CHC physician</p>
<i>Community impact</i>	<p>With the Z-CAN program, I have seen a decrease in female sterilization. – Physician at a private clinic</p> <p>The Z-CAN program has had a big impact on the community because the barriers to contraceptive service were removed. – CHC physician</p> <p>I feel good about the Z-CAN program's impact because many young patients have come to our clinic wanting contraceptives from Z-CAN that they could not access or afford before. Many are college students and do not want to become pregnant at a young age and want to finish their educations. – CHC staff</p> <p>Among women in our community, they are breaking the taboo around the LARC methods. They are talking among themselves about their experiences, and they give themselves reassurance. – Physician at a private clinic</p> <p>There are no negatives. On the contrary, the Z-CAN program is positive because we are helping patients to acquire contraceptives, and at no cost. Also, the education: They are informed and know what is being inserted, they know the pros and the cons. Concerning Zika, they are more aware. Thanks to Z-CAN, they are aware of the methods and prevention. – CHC staff</p>

4. Sustainability of contraception access

<i>Long-term system changes</i>	<p>There needs to be funding for the Z-CAN program (or a similar program) to continue. I understand that the program provided training and built the capacity of the [participating] physicians and clinics, and this is a good start. I really would like to see the key components of the program continue. Federal funds, state funds, whatever is awarded to this, for the benefit of the population. – Physician at a private clinic</p> <p>The only things that are going to be a problem to sustain are the contraceptive methods. But understanding and having a 330 medical plan [public insurance plan], we may see the possibility of obtaining contraceptives for community health center pharmacies so that patients can access them the same day and at a reasonable price. – CHC physician</p> <p>If the Z-CAN program cannot be sustained, I would first go to the Puerto Rico Department of Health, because they serve the patients who have the least access, [who also] are the ones who have children earlier and are the ones that we later support. It is important to create an alliance with the Department of Health so that all the centers will have contraceptives for patients in need. – Physician at a public hospital</p> <p>One of the things the Puerto Rico Department of Health could do is to make it mandatory to have information about family planning integrated into the other programs they support, such as WIC. They can create a liaison between the programs that the government of Puerto Rico already has with the CDC. Much of my clinic's great success is because I have an alliance with the mother and children's program; they know me; they refer patients. – Physician at a private clinic</p> <p>My concern is the accessibility of contraceptives. The patient has to have access to the contraceptives. As a physician, I can and will continue to educate patients, but will there be access to contraceptives? – CHC physician</p> <p>If the Z-CAN program were to end, we would go back to the previous system. We would provide the patient with a prescription, and the patient would need to find a place to fill the prescription. But there will be barriers for the patient. We need a system that provides patients with contraceptives without barriers . . . that is, [we need to] find an alternative. – CHC physician</p>
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an opportunity for staff to engage in the client-centered contraception counseling component of a given client's initial Z-CAN visit. After the Z-CAN training, each provider–staff–clinic unit received a proctoring visit by Z-CAN staff to ensure competency in terms of the skills learned during the training; physicians averred that this continued support was integral to their proficiency in initiating an evidence-based, comprehensive, contraceptive service in their practices. There were several participants who reported that the intensive hands-on approach

of the Z-CAN program was critical to their being able to rapidly implement Z-CAN services, ensuring that the Z-CAN program was implemented as designed and that physicians and other staff were able to provide high-quality care.

In my case, I had never inserted an implant, so I learned with the program, and I got certified in inserting the Nexplanon, and it is very easy. When we graduated from residency, we did not have the opportunity, so we did not learn how to do it [insert

an implant]. So, I imagine that just like me, many people of my generation also learned. – Physician at a private clinic

In-office stocking of a variety of contraceptives and same-day initiation

For many physicians and other staff, the ability to start women on their contraceptive method of choice on the day of the initial Z-CAN visit was the most important component of the Z-CAN program and shifted the clinical norms from a multi-day process to the same-day provision of contraception. Several physicians stated that having the ability to stock all types of contraceptives—including long-acting reversible contraception (LARC)—in their offices, improved overall client care, satisfaction, and the efficiency of clinic flow.

Before Z-CAN, it was very tedious because patients would go to the pharmacy and be denied [contraceptives] and asked for a justification; they would return to the physician for a justification, and then go back and be given another excuse for their being denied the contraceptive. And in the comings and goings, they could become pregnant. Now, they can come here, and they do not need to get a prescription or rely on medical plans, pharmacies, or anything. – Physician at a private clinic

“Ante la Duda, Pregunta” campaign

Many physicians credited the ALDP communication campaign with creating demand for contraceptive services and with supporting clients in their efforts to locate a physician, making appointments, and explaining what to expect from the Z-CAN program.

When they call me, they say, “Look, I am interested in learning about the Z-CAN.” And I ask them, “Do you have something specific [that you want to know]?” And they tell me: “No, I read about it or heard about it on the radio, and I am interested in getting some information.” That’s when I tell them, “I’ll give you an appointment, and when you come to your appointment, you decide with the physician which method you believe is the best for your situation.” – Staff member of a private clinic

2. Barriers to the Z-CAN program’s implementation process

Obtaining contraceptives, physician reimbursement, and required program documentation

Several physicians reported being dissatisfied with delays in receiving their initial and subsequent shipments of contraceptives from the Z-CAN program. Physicians and clinics who met all the readiness criteria and were authorized to receive contraceptive products and to begin offering Z-CAN services often had to wait several weeks to provide services due to delays in the procurement and supply chain for contraceptives (17). This hindered both the clinic and the women who were seeking Z-CAN services to initiate a contraceptive method (in this case, at the height of the Zika virus outbreak).

After the training, I spent a lot of time waiting for materials [contraceptives] to be supplied. It took a long time. There was a lack of communication. My patients had delayed access because it took time. – Physician at a private clinic

Several of the physicians who participated in the Z-CAN program reported that the paperwork requirements were cumbersome, which, though not necessarily a primary concern, nevertheless made participation a challenge. The physicians working in private clinics, academic centers, and public-health clinics who participated in the Z-CAN program were reimbursed fees for client-centered contraceptive counseling and contraceptive method provision commensurate with Medicaid fee schedules in the continental US; physicians working in federally funded community health centers were not provided the reimbursement fee but had access to the full range of reversible methods (at no cost to the patients). Several physicians who received reimbursements reported being dissatisfied with delays in the processing and receipt of their reimbursements after the provision of services. Further, while the ALDP campaign created demand for contraceptive services, some physicians reported that some communities and women of reproductive age did not know about the Z-CAN program when it started and that this lack of awareness about the availability of services was a barrier in the early phase of the Z-CAN program’s implementation.

3. Perceived impact of the Z-CAN program on providers and communities

Physician and staff impact

Several physicians and other staff commented on the benefits the Z-CAN program had on their professional growth, the quality of the services provided by their clinics, and their satisfaction with providing high quality contraceptive care. Many physicians and other staff members reported feeling pride in being able to impact communities over a short period of time with increased knowledge and confidence, in the substantial program support from the proctor and Z-CAN staff, in the program’s ability to provide high-quality contraceptive services, and in the increased client demand.

Community impact

Many physicians and other staff members felt that the Z-CAN program had a positive impact on the communities they served. Several physicians reported that the Z-CAN program encouraged many women who had not received any reproductive health care for years because of barriers to access to seek such care and that it expanded the method mix, allowing women alternatives to tubal ligation for long-term protection from pregnancy. Finally, several staff members reported that the Z-CAN program was positive in its ability to change women’s lives by making contraception services accessible and affordable.

I have the inventory [contraceptives] to openly offer the patient what she and I understand is ideal for her. I do not have to think about the limitations of the economic resources of the patient or the coverage of her health insurance plan. – CHC physician

There are no negatives. On the contrary, it is positive because we are helping patients to have their methods and at no cost. Also, the education: They are informed and know what is being inserted, they know the pros and the cons. Concerning Zika, they are more aware. Thanks to Z-CAN, they are aware of the methods and prevention. – CHC staff member

4. Sustainability of contraception access

Many physicians and other staff reported that the sustainability of contraceptive access after the Z-CAN program ended was a concern. Physicians and other staff reported that the program allowed for women to initiate contraception, plan their families, and avoid the negative impact of Zika on a pregnancy in a way that was unprecedented in Puerto Rico. Many also reported that they feared that without the Z-CAN program—or something similar—access to contraception would likely return to the status quo in terms of the provision of contraceptive services, similar to what was in place before the implementation of the Z-CAN program.

If the Z-CAN program were to end, we would go back to the previous system, to prescriptions, to finding some place that would provide us with a contraceptive method. That is, [we would have to] find an alternative. I hope that Z-CAN will last a long time, providing this service to women, but if not, then we will need to find other alternatives. – CHC physician

Discussion

Physicians and other staff of the Z-CAN program noted several facilitators of and barriers to the implementation of this program. Overall, the participants reported that the Z-CAN training and proctoring visits, as well as the continued support that was received throughout the duration of the program, were key facilitators of the program. Best practices for building the capacity of providers, such as using traditional group training methods combined with on-site individual mentoring and supportive supervision, brought providers to competency quickly, presented opportunities for task shifting, and allowed for the rapid start-up of new programs within existing clinical settings (18,19). Participating health care personnel opined that the incorporation of these strategies into the program's implementation process helped them acquire the necessary tools and skills to provide high-quality contraceptive services to women in Puerto Rico during the Zika virus outbreak. These findings are consistent with findings from a companion study that used an online survey to assess the implementation of and the satisfaction with the Z-CAN program from provider and staff perspectives. This study revealed that the individuals surveyed were satisfied with the training, proctoring, and ongoing support of the program (20).

As required by the Affordable Health Care Act, both private and public (Medicaid) health plans must provide coverage for certain preventative services (including all the FDA-approved contraceptive methods) and contraceptive counseling (21,22). However, health plans often promote practices that are aimed at increasing cost-efficiency and controlling expenditures. These practices may create barriers to contraceptive access. Although such barriers to access are not unique to Puerto Rico, they are, nevertheless, relatively burdensome on the island. Previous research found that the longstanding barriers to contraceptive access that women who resided there faced included the need for prior authorization, for unnecessary tests and exams, and for a second appointment (on a different day) before contraception could be initiated. In addition, the full range of reversible contraception was not always available nor were some of the women's preferred methods; finally, the women often had high out-of-pocket costs (4,23).

The Z-CAN program provided same-day initiation of contraception at no cost to women seeking such a service. Prior to this program, most women had to make multiple visits to their clinic and often required a referral to initiate a contraceptive method (23); physicians and other staff reported that Z-CAN's strategy to allow the on-site stocking of contraceptives for the provision of same-day service decreased the risk of a patient not initiating a method and increased both client and provider satisfaction with the program. The same-day provision of contraception can improve contraceptive access (24). The CDC's evidence-based contraceptive guidance recommends providing immediate access to contraception at the same visit if a clinician can be reasonably certain a woman is not pregnant; there is no medical reason to require clients to return for a follow-up visit or to initiate their chosen method during menses (9,10,25). To provide same-day initiation, Z-CAN personnel obtained waivers from the Puerto Rico Department of Health to allow the stocking of a full range of contraceptive products in each participating physician's office for immediate use; this short-term policy change was innovative (7), and if sustained outside of the context of a public health emergency, could help to facilitate the continued same-day access to contraception for women in Puerto Rico. Multiple large-scale programs to reduce barriers to contraceptive access in the US reported that when women were provided patient-centered contraceptive counseling and the full range of available contraception at a low or no cost and on the same day, contraception access was improved and unintended pregnancies reduced (26,27,28). Efforts to address barriers to contraceptive access can and do improve such access, both in terms of complex emergency responses and in times in which there is no emergency.

The interviewed physicians and other staff identified several factors that slowed the start of the Z-CAN program and made the implementation of and (the women's) participation in this program challenging. While the in-office stocking of a range of contraceptives was critical to offering women same-day access to contraception, the process of developing the procurement and supply chain for contraceptives and ensuring their distribution

to each of the individual clinics was complicated (7,17). The time lag between when a physician met the program's readiness criteria to begin providing Z-CAN services and the arrival of the shipment of contraceptives often ranged from weeks to months, which created dissatisfaction among the physicians and other staff, as well as in the women seeking Z-CAN services. The shipment and receipt of consecutive orders of contraceptive devices was also challenging and occasionally resulted in the depletion of the stock of those that were most used. Previous research into the challenges associated with the Z-CAN program's procurement and supply chain found the development of new channels to be challenging (17). In brief, pharmaceutical companies donated the contraceptive products to the Z-CAN program through the CDC Foundation. These pharmaceutical companies determined the quantity of donated products and shipped them to a licensed pharmaceutical distributor in Puerto Rico. The pharmaceutical distributor received the donations, secured them in a temperature-controlled facility in Puerto Rico, and held and distributed them to the participating Z-CAN physicians/clinics based on resupply requests. The Z-CAN physicians/clinics received the donated contraceptive products, managed the shipped inventory through systematic tracking and monitoring, provided secure storage, and reported the use of the products to the CDC Foundation. The Z-CAN program's clients received client-centered contraceptive counseling, selected a preferred contraceptive method, and received the selected product on the same-day and at no cost. Because of requirements related to the chain of custody, there was often a delay before the Z-CAN physician or clinic site received the requested products. As a result of several quality-improvement efforts, it was found that increased communication with Z-CAN physicians, timely reorders, and updates on the status of contraceptive orders improved the process of reordering and maintaining available stock, over time (7,17). Prioritizing the strengthening of supply chain processes for contraceptive products could ensure that same-day contraceptive services in Puerto Rico would be maintained outside of the context of an emergency response.

The Z-CAN program provided physicians access to high-quality evidence-based training to improve long-term contraceptive service delivery. Its participants reported that the program enhanced their professional development and allowed them to reach communities in a meaningful and impactful way during the public health emergency represented by the Zika outbreak. Prior research has demonstrated that when health care initiatives are driven by local leaders and co-created with communities, they are more likely to succeed in reaching the intended users and contribute, as well, to the sustainability of services via local ownership (29). The Z-CAN physicians and the communities served will likely be the drivers towards efforts to sustain access to contraception and can use the lessons learned to continue the advancement of contraceptive access in Puerto Rico.

This study had several strengths and limitations. The use of qualitative methods allowed us to explore the experiences of the Z-CAN program's physicians and other staff and understand

both the aspects of the program's implementation that facilitated access and those areas that could be improved. While our study is not generalizable beyond our study population, we do believe our findings can be useful to other programs implementing novel health-service interventions in the context of public health emergencies and can contribute to the available literature on program implementation.

Conclusion

The Z-CAN program was a short-term emergency response intervention that used contraception to prevent unintended pregnancy during the 2016–2017 Zika virus outbreak in Puerto Rico. Group training, on-site mentoring, continued on-site and virtual support throughout the program, and the communications campaign were key facilitators of the successful implementation of this novel contraception-access program. Lessons learned about this implementation (garnered from the perspectives of physicians and other staff) included those concerning successes and challenges and can be used to work towards sustainable contraceptive services in Puerto Rico as well as to inform other contraception-access programs' design and implementation strategies.

Resumen

Objetivo: De mayo de 2016 a septiembre de 2017, la Red de Acceso a la Anticoncepción del Zika (Z-CAN, por sus siglas en inglés) aumentó el acceso a anticonceptivos durante el brote del virus del Zika en Puerto Rico (PR) mediante el asesoramiento centrado en la paciente y acceso el mismo día a métodos anticonceptivos reversibles aprobados por la Administración de Alimentos y Medicamentos sin costo para las mujeres que decidieron prevenir embarazos. El propósito fue identificar áreas de mejoramiento programático e implementación y sostenibilidad de los servicios desde la perspectiva del personal médico. **Métodos:** De abril a julio de 2017, se realizaron 49 entrevistas a profundidad a informantes clave de 25 clínicas participantes en Z-CAN aleatorizadas. Se elaboró una guía semiestructurada para explorar la percepción, los facilitadores y las barreras relacionadas a la implementación de Z-CAN. Se realizó un análisis temático de temas emergentes. **Resultados:** Del análisis surgieron 4 temas principales: facilitadores de implementación; barreras de implementación; impacto percibido del Programa Z-CAN en proveedores y comunidades; y sostenibilidad del acceso a anticonceptivos. Los principales hallazgos fueron: la capacitación de proveedores, el apoyo de mentores y las campañas de comunicación fueron principales facilitadores; y que la demora en la adquisición y distribución de métodos anticonceptivos fue obstáculo. **Conclusión:** Las lecciones aprendidas de la implementación de Z-CAN desde la perspectiva de los médicos y del personal pueden apoyar los servicios anticonceptivos sostenibles en PR e informar sobre diseño y estrategias de implementación de otros programas de acceso a anticonceptivos.

Acknowledgments

The authors acknowledge the Third Mission Institute (Albizu University), Marizaida Sánchez Cesáreo, PhD, Nayda Cruz, MS, and Mónica Vigo, MA, for their support in the qualitative data collection and analysis and the evaluation. We also acknowledge graduate medical students Sabrina Valentín, BA, and Nicole Carrillo, MS (St. Kitts Medical School), for their support as research assistants and for their guidance on young women's experiences. Finally, Dr. Edna Acosta Pérez acknowledges the National Institute on Minority Health and Health Disparities and the National Institute of General Medical Science for infrastructure support (U54GM133807). Funding source: This evaluation project was funded by the Department of Health and Human Services, Centers for Disease Control and Prevention. Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the US Centers for Disease Control and Prevention. In addition, the views and conclusions in this document are those of the authors and should not be interpreted as representing the opinions or policies of the CDC Foundation.

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