



## Original article

## Efforts to Increase Implementation of Evidence-Based Clinical Practices to Improve Adolescent-Friendly Reproductive Health Services



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## A B S T R A C T

**Purpose:** The purposes of this study were to describe changes in implementation of evidence-based clinical practices among health center partners as part of a multicomponent, community-wide teen pregnancy prevention initiative; to better understand the barriers to and facilitators of implementation of the evidence-based clinical practices; and to describe the technical assistance and training provided to the health center partners and key lessons learned.

**Methods:** Health center data from the second and third years (2012 and 2013) of the teen pregnancy prevention community-wide initiative were analyzed from 10 communities (the first year was a planning year; program implementation began in the second year). Data were analyzed from 48 health center partners that contributed data in both years to identify evidence-based clinical practices that were being implemented and opportunities for improvement. In addition, data were analyzed from a purposive sample of 30 health center partners who were asked to describe their experiences in implementing evidence-based clinical practices in adolescent reproductive health care and barriers and facilitators to implementation.

**Results:** Across 48 health centers in the 10 communities, 52% reported an increase in the implementation of evidence-based clinical practices from 2012 to 2013, mostly in providing contraceptive access (23%) and offering Quick Start (19%). Among health centers that reported no change (13%), the majority reported that practices were already being implemented before the initiative. Finally, among health centers that reported a decrease in implementation of evidence-based clinical practices (35%), most reported a decrease in having either hormonal contraception or intrauterine devices available at every visit (15%), having HIV rapid testing available (10%), or participating in the federal 340B Drug Discount Program (2%). In addition, health systems and community-level factors influence health center implementation of evidence-based clinical practices. In particular, support from health center leadership, communication between leadership and staff, and staff attitudes and beliefs were reported as factors that facilitated the implementation of new practices.

IMPLICATIONS AND  
CONTRIBUTION

This study highlights the importance of using an assessment to identify opportunities for health center improvement. Efforts to assess the health centers' needs, identify the barriers and facilitators to implementation of evidence-based clinical practices, and tailor technical assistance and training to address the identified needs and barriers can provide health centers opportunities to enhance their capacity and ensure that evidence-based clinical practices are implemented.

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**Conclusions:** To increase adolescent's use of quality, client-centered, affordable and confidential reproductive health services, improvement in the implementation of evidence-based clinical practices is needed. Efforts to identify barriers to and facilitators for implementation of evidence-based clinical practices can inform for health centers of opportunities to build their capacity to ensure that evidence-based clinical practices are being implemented.

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During 2015, the U.S. teen birth rate reached a historic low of 22.3 births per 1,000 females aged 15–19 years [1]. Despite this trend, U.S. teen birth rate remains higher than rates in other industrialized countries, and significant disparities by race and ethnicity persist [2]. Observed disparities in teen birth rates may be attributed in large part to disparities in adolescent use of reproductive health services. Recent analyses of National Survey of Family Growth data point to an overall decline in use of reproductive health services by adolescent females, particularly among those who are younger, Hispanic, underinsured, and less educated [3]. Among youth aged 15–19 years, approximately one in four (24%) sexually experienced females and more than one in three (38%) sexually experienced males did not receive a reproductive health service from a provider in the year preceding the survey [3]. Facilitating adolescent access to and use of reproductive health services, including reproductive health counseling, screening for sexual activity, contraceptive provision, and screening for sexually transmitted diseases (STDs), is imperative to reduce disparities in teen birth rates [4–6]. Changes at the health care delivery systems level that focus on ensuring provision of accessible, affordable, and evidence-based clinical practices are necessary to increase use of these services by adolescents.

Numerous professional organizations, including the American Academy of Pediatrics, the Society for Adolescent Health and Medicine, the American College of Obstetricians and Gynecologists, the American Medical Association, and the American Academy of Family Physicians, and governmental agencies, such as the Office of Population Affairs and the Centers for Disease Control and Prevention (CDC), have issued evidence-based recommendations for health centers and providers to improve adolescent access to reproductive health services [7–12]. Briefly, these recommendations include ensuring availability of a wide range of reproductive health services and contraceptive methods (including long-acting reversible contraception [LARC]) at reduced or no cost; offering same-day provision of LARC or hormonal contraception; providing services at locations and hours convenient for adolescents; and ensuring protection of adolescent privacy and confidentiality [8,9,11,13–18]. In addition, recommendations that include having adolescent-friendly waiting areas and examination rooms with age-appropriate educational materials; having staff trained to address the needs of adolescents of diverse backgrounds; and implementing systems and practices to ensure that the reproductive and sexual health needs of adolescents are addressed in a timely manner and at every opportunity [9,19–21]. Health centers that incorporate these guidelines report improvements in adolescent uptake of highly effective contraception and/or satisfaction with services [22–32]; however, research points to a persistent gap in the translation of this evidence into adolescent health care practice [26,33–35].

CDC partnered with the Office of Adolescent Health to fund a national demonstration project—Integrating Services, Programs, and Strategies through Community-Wide Initiatives (henceforth referred to as the Community-Wide Initiatives). Briefly, nine state- and community-based organizations were funded, eight by Office of Adolescent Health and one jointly by CDC and the Office of Population Affairs, to implement Community-Wide Initiatives to reduce teen pregnancy in 10 intervention communities across the United States. Each of the funded state- and community-based organizations focused work in five areas: (1) implementing evidence-based teen pregnancy prevention programs; (2) increasing youth access to reproductive health services; (3) mobilizing the target community to support and sustain these efforts; (4) educating key stakeholders about the need for evidence-based teen pregnancy prevention efforts; and (5) ensuring that the needs of diverse youth are met. Each funded state- and community-based organization worked with community partners, including health center partners who provide reproductive health services to youth and program implementation partners who deliver evidence-based interventions. Five national organizations were funded by CDC to provide technical assistance and training to the state- and community-based organizations. Technical assistance and training included having each state- and community-based organization develop a Health Center Improvement Plan in collaboration with each health center partner. The plans indicated capacity building goals and areas for improvement in the implementation of evidence-based clinical practices. To develop the plans, a technical assistance provider worked with the health centers to complete needs assessment to determine areas of need for technical assistance and training. For example, the needs assessment results for a health center partner indicated that training was needed for all nurses to increase their skills in providing contraceptive counseling to adolescent females and offering LARC via the Quick Start method. In response, all nurses were trained on contraceptive counseling using a tiered, client-centered counseling approach and on Quick Start of LARC methods.

The Community-Wide Initiatives' component to improve adolescent reproductive health focused on building the capacity of health center partners in the funded communities to ensure they are providing evidence-based reproductive health care services that are easily accessible to all youth in the community. To build this capacity, we funded a national organization to provide training and technical assistance on the provision of youth-friendly and accessible services and support the development of linkages between health care and other service area systems (e.g., primary care, education, social services, juvenile justice, foster care) to enhance the coordination of reproductive health care for adolescents. Health center partners were expected to implement a set of evidence-based clinical practices to support provision of youth-friendly reproductive health care

services in relation to the following domains: (1) contraceptive access; (2) the Quick Start method for the initiation of hormonal contraception and intrauterine devices (IUD) (i.e., begin contraception at the time of the visit rather than waiting for next menses if the health provider can reasonably be certain that the client is not pregnant) [36]; (3) adherence to cervical cancer screening guidelines; (4) emergency contraception provision; (5) STD and HIV testing; (6) confidentiality and consent; (7) the health center environment; and (8) cost and billing practices. A checklist of 31 evidence-based clinical practices for the provision of youth-friendly reproductive health services was synthesized from the professional organizations' and governmental agencies' evidence-based recommendations to improve adolescent reproductive health services [37; C. Tyler, unpublished data, 2015].

As previously described [37], results from the baseline health center assessment (2011) were used to identify opportunities for improvement in the implementation of the evidence-based clinical practices. Health center improvement plans were developed for each health center partner.

This article describes the changes among health center partners in the implementation of evidence-based clinical practices from the second to the third year of implementation (2012–2013) of the Community-Wide Initiatives. In addition, it highlights efforts to better understand the barriers to and facilitators of implementation of the evidence-based clinical practices using data from key informant interviews from a purposive sample of health centers. It also describes the technical assistance and training provided to the health center partners to increase implementation of the evidence-based clinical practices and highlights key lessons learned.

## Methods

### *Data collection and measurement of the implementation of evidence-based clinical practices*

**Data collection procedures.** Health center data were collected in 10 communities in Alabama, Connecticut, Georgia, Massachusetts, New York, North Carolina, Pennsylvania, South Carolina (two communities), and Texas, using the Clinic Partner Needs Assessment (CPNA). The CPNA is a comprehensive needs assessment tool that examines health center practices and capacity in provision of reproductive health care for adolescents [C. Tyler, unpublished data, 2015]. Assessment results were used to identify which evidence-based clinical practices were being implemented at health centers and opportunities for improvement. As part of the Community-Wide Initiatives, performance measures data were required to be collected annually by a multidisciplinary team of health center staff—including providers, administrators, billing, and information technology staff.

**Measurement of the implementation of evidence-based clinical practices.** All data were entered and maintained on a secure and password-protected server. Data were reviewed and validated by a team of CDC evaluation staff. Of the 31 evidence-based clinical practices [C. Tyler, unpublished data, 2015], 28 had dichotomous response options to indicate whether the practice was being implemented. The remaining three practices were assessed using multiple questions in the CPNA. For practices with multiple indicators, three separate algorithms were developed. The practice for having a wide range of contraception that is available was met

if the health center indicated that at least five of the six types of contraception listed (i.e., IUD, hormonal implant, hormonal contraceptive pill, hormonal injection, patch, or ring) were prescribed or dispensed; same-day or walk-in appointments were met if the health center indicated that either was available for adolescents; and prescribing hormonal contraception without prerequisite examinations or testing (i.e., without first requiring a Pap smear, pelvic examination, breast examination, or STD testing) was met for health centers that did not require any prerequisite examinations or testing.

Data from the second and third years (2012–2013) of the Community-Wide Initiatives were used for the analyses of the implementation of the evidence-based clinical practices. CPNA data were submitted by 58 health center partners in 2012 and 62 health center partners in 2013. Of these, 48 health center partners contributed valid data in both 2012 and 2013. The health center partners represent all sites that reported best practices in 2012 and 2013. Four health centers were discontinued after 2012, and nine health centers began in 2013. Of the four health centers that were discontinued, two were primary care, one was family planning, and one was an obstetrician/gynecologist. Of the nine health centers that were added in 2013, six were primary care, one pediatric, one school-based health clinic, one adolescent subspecialty, and one obstetrician/gynecologist. Best practices from the four health centers that were discontinued did not differ from the 48 health center partners that continued.

To determine the number of health centers that implemented specific evidence-based clinical practices during the second and third year of implementation, descriptive statistics were computed for each of the 31 practices. We also calculated the percentages of health centers that increased, decreased, or had no change in implementation of specific practices and the percentage point change in the number of health centers implementing each clinical practice in 2012 versus 2013. All quantitative data were analyzed using SAS, version 9.3 (SAS Institute., Cary, North Carolina), and Microsoft Excel, version 14 (Microsoft Corporation, Redmond, WA). A nonresearch determination was received from CDC for this project because the primary intent of the project was public health practice (i.e., program evaluation activity) and thus did not require institutional review board review.

### *Key informant interviews to describe implementation of the evidence-based clinical practices*

A purposive sample of 30 health centers was selected to describe their experiences in implementing evidence-based clinical practices in adolescent reproductive health care at their respective health centers [38]. Centers were selected based on agency type and practice setting to ensure a diverse sample. Representatives of prospective health centers were contacted by the study authors to assess the willingness and availability of center leadership and staff to participate in the research. A total of 30 health centers across communities agreed to participate in the study and included 10 federally qualified health centers, 10 centers operated through county health departments, four community health centers, two university-/school-based health centers, two obstetrician/gynecologist practices, and two family planning clinics. An interview guide was developed by the evaluation staff from the national organization leading the technical assistance and training on the clinical component and CDC. Semistructured face-to-face interviews were conducted by

a senior research scientist from the national organization providing technical assistance and training during July 2012–October 2013 with 85 staff members across participating health centers. Interview participants were recruited to fill a purposive sample to ensure diverse representation of clinical and nonclinical staff and leadership. Interview participants included senior- and mid-level administrators, clinical staff, care coordinators, outreach workers, and other support staff (e.g., front desk workers). Health center staff were asked about barriers to and facilitators of implementation of evidence-based clinical practices. Follow-up interviews were conducted by the national organization providing technical assistance and training to further explore reasons for any decrease in implementation of an evidence-based clinical practice.

Qualitative data were analyzed using ATLAS.ti software (ATLAS.ti Scientific Software Development GmbH, Berlin, Germany). Data were coded to identify emergent themes in accordance with the principles of grounded theory analysis [38]. As described by Corbin and Strauss [39], grounded theory is an inductive approach to data analysis that “allows the theory to emerge from the data.” In accordance with this approach, interview transcripts and observation notes were first examined line-by-line and assigned “open codes” in the initial phase of data analysis. Related codes were identified and then linked to form broader analytic categories or “axial codes.” These categories were organized according to the barriers to and facilitators of implementation of the evidence-based clinical practices.

This qualitative study was reviewed and approved by the Western Institutional Review Board, Puyallup, WA, USA (WIRB Study Protocol #1131670).

## Results

### Quantitative results

Among 48 health centers reporting data at both time points, practice settings were family planning (33%), primary care (21%), pediatric (10%), obstetrician/gynecologist (8%), adolescent subspecialty (8%), and school-based health centers (6%). Of those, 54% reported receiving Title X funding, in which clinics are mandated to provide reproductive health services that are confidential regardless of a client's ability to pay and serve a disproportionately high number of young clients [40].

### Adolescent client demographics

In 2012, a total of 40,689 unduplicated adolescent clients were served across the 48 health centers, of whom 72% were female. Health centers provided services to comparable percentages of adolescent clients aged 15–17 years (40%) and 18–19 years (37%). Over half (54%) of the adolescent females and males served by these health centers were African-American, 28% were Hispanic, and 14% were white.

### Implementation of evidence-based clinical practices

Overall, 25 (52%) health centers reported an increase in the implementation of evidence-based clinical practices from 2012 to 2013, 6 health centers (13%) reported no change, and 17 health centers (35%) reported a decrease (Table 1). Of those that reported an increase, about half (25% of the health centers overall) implemented two to three additional evidence-based clinical

**Table 1**

Change in the number and percentage of evidence-based clinical practices implemented by 48 participating health centers in 2013 versus 2012

Changes in implementation of evidence-based clinical practices (out of 31 possible)	Health centers number (%); n = 48
Any increase in implementation of evidence-based clinical practices	25 (52)
Increased by six or more practices	1 (2)
Increased by four to five practices	3 (6)
Increased by two to three practices	12 (25)
Increased by one practice	9 (19)
No change in implementation of evidence-based clinical practices	6 (13)
Any decrease in implementation of evidence-based clinical practices	17 (35)
Decreased by one practice	9 (19)
Decreased by two to three practices	7 (15)
Decreased by four to five practices	1 (2)
Decreased by six or more practices	0 (0)

practices in 2013 versus 2012. Of those that reported a decrease, about half (19% of the health centers overall) implemented one less evidence-based clinical practice in 2013 compared with 2012 on average. The health centers that reported declines were not clustered in any one specific region or were not one specific health center type.

The results of the implementation of evidence-based clinical practices are reported in Table 2. From 2012 to 2013, in efforts to improve contraceptive access, six (13%) health centers reported an increase in appointments available during the weekend, two (4%) reported an increase in sexual health assessments taken or updated at every visit, and two (4%) reported an increase in the availability of a wide range of contraception (via prescription and/or dispensed on-site) available. However, seven (15%) health centers reported a decrease in hormonal contraception or IUD available at every visit that the adolescent females make to the clinical provider regardless of reason of visit (e.g., urgent preventive, school-health, sports physical).

In efforts to increase same-day initiation of contraception, four (8%) health centers reported an increase in Quick Start initiation of hormonal contraception following a negative pregnancy test, and three (6%) health centers reported an increase in the option of having an IUD inserted using the Quick Start method.

In efforts to ensure access to emergency contraception, 46 (96%) health centers reported no change in emergency contraception availability (i.e., dispensed on-site or dispensed with prescription) because the evidence-based clinical practices were already being implemented in the health centers before the initiative. To improve cervical cancer screening, one health center (2%) reported an increase in adherence to current cervical cancer screening (Pap smear) guidelines for adolescent females (initiate Pap screening at age 21 years).

In efforts to ensure access to STD and HIV testing, 48 (100%) health centers reported no change in chlamydia screening provided to all adolescent females at least annually or based on diagnostic criteria, consistent with U.S. Preventive Services Task Force [41,42] and CDC recommendations [43], and 47 (98%) reported no change in gonorrhea screening available for both adolescent females and males because the evidence-based clinical practices were already being implemented in the health centers before the initiative.

**Table 2**

Prevalence and change in the number and percentage of participating health centers (n = 48) implementing evidence-based clinical practices, by practice, 2012 and 2013

Specific evidence-based clinical practice (EBCP)	Health centers implementing evidence-based clinical practices		
	2012; number (%)	2013; number (%)	Change from 2012 to 2013; number (%)
Contraceptive access			
Appointments are available during the weekend	14 (29)	20 (42)	+6 (13)
Sexual health assessment taken/updated at every visit	39 (81)	41 (85)	+2 (4)
Wide range of Contraception is available (via prescription and/or dispensed on-site)	33 (69)	35 (73)	+2 (4)
Appointments are available after school hours	46 (96)	47 (98)	+1 (2)
Prescribe hormonal contraception to adolescent females without prerequisite exams or testing (i.e., without first requiring any of the following: Pap smear, pelvic examination, breast examination, or STD testing).	1 (2)	1 (2)	0 (0)
Same-day or walk-in appointments are available for adolescents	47 (98)	47 (98)	0 (0)
Hormonal contraception or IUD is available at every visit that the adolescent makes to the clinical provider (e.g., urgent, preventive, school-health, sports physical, pregnancy testing, emergency contraception (EC), STD testing, HIV testing etc.)	44 (92)	37 (77)	−7 (−15)
Quick Start method for initiation of hormonal contraception and IUD			
Quick Start initiation of hormonal contraception after an adolescent client has had a negative pregnancy test	43 (90)	47 (98)	+4 (8)
The option of having an IUD inserted using the Quick Start method	25 (52)	28 (58)	+3 (6)
Quick Start initiation of hormonal contraception when an adolescent client is provided with EC where a pregnancy test is negative	42 (88)	44 (92)	+2 (4)
Hormonal contraception is initiated utilizing the Quick Start method	45 (94)	46 (96)	+1 (2)
EC			
EC is provided to male adolescents for future use (advance provision)	19 (40)	20 (42)	+1 (2)
EC is available (i.e., dispensed on-site, dispensed with prescription)	46 (96)	46 (96)	0 (0)
EC is provided to female adolescents for future use (advance provision)	34 (71)	34 (71)	0 (0)
Cervical cancer screening			
Adhere to current cervical cancer screening (Pap smear) guidelines for adolescent females (initiate Pap screening at age 21 years)	46 (96)	47 (98)	+1 (2)
STD and HIV testing			
Expedited patient-delivered partner therapy (EPT) is available as an option for the treatment of uncomplicated chlamydial infection	30 (63)	33 (69)	+3 (6)
Chlamydia screening is provided to all adolescent females at least annually or based on diagnostic criteria, consistent with USPSTF and CDC recommendations	48 (100)	48 (100)	0 (0)
Chlamydia screening via urine is available for adolescent females	48 (100)	48 (100)	0 (0)
Chlamydia screening via urine screening is available for adolescent males	45 (94)	45 (94)	0 (0)
Gonorrhea screening is available for both adolescent females and males	47 (98)	47 (98)	0 (0)
Rapid HIV testing is available for adolescent females and males in accord with CDC recommendations	33 (68)	28 (58)	−5 (−10)
Cost, confidentiality, and consent			
Low- or no-cost contraceptive and reproductive health care services are provided to adolescents	43 (90)	47 (98)	+4 (8)
Confidential contraceptive and reproductive health care is available to adolescents without need for parental or caregiver consent	46 (96)	46 (96)	0 (0)
Infrastructure			
Systems in place to facilitate billing third-party payers for contraceptive and reproductive health care services provided	41 (85)	46 (96)	+5 (10)
Utilize electronic medical records	43 (90)	43 (90)	0 (0)
Participate in the federal 340B Drug Discount Purchasing Program	40 (83)	39 (81)	−1 (−2)
Environment			
Counseling area available that provides both visual and auditory privacy	34 (71)	38 (80)	+4 (8)
Examination room available that provides visual and auditory privacy	36 (75)	38 (80)	+2 (4)
Display information (pamphlets, posters, flyers, fact sheets) on issues related to adolescent sexual and reproductive health (e.g., confidentiality, cost, what services are available to adolescents)	31 (65)	33 (69)	+2 (4)
Provide brief evidence-based or evidence-informed video or other interventions designed for adolescents (e.g., “What Could You Do?”)	8 (17)	9 (19)	+1 (2)
Have teen-focused magazines or posters on the walls	35 (73)	35 (73)	0 (0)

CDC = Centers for Disease Control and Prevention; IUD = intrauterine devices; STD = sexually transmitted diseases; USPSTF = U.S. Preventive Services Task Force.

To address cost, confidentiality, and consent, four (8%) health centers reported an increase in low- or no-cost contraceptive and reproductive health care services provided to adolescents. Forty-six (96%) health centers reported no change in confidential contraceptive and reproductive health care available to adolescents, without need for parental or caregiver consent because the

evidence-based clinical practice was already being implemented in the health centers before the initiative.

To improve health center infrastructure, five (10%) health centers reported an increase in having systems in place to facilitate billing third-party payers for contraceptive and reproductive health care services. Forty-three (90%) reported no change in



**Table 3**

Summary of interview participants, by roles and responsibilities within the health center

Role	n
Senior administrator, nonclinical (e.g., chief executive officer, executive director)	22
Senior administrator, clinical (e.g., medical director)	6
Mid-level administrator (e.g., clinic director or manager)	4
Mid-level administrator/clinician (dual role)	14
Clinician (e.g., doctor, nurse practitioner)	20
Clinical support staff (e.g., medical assistants)	11
Care coordinators or social workers	5
Other administrative staff (e.g., clerical or billing staff)	3
Total	85

using electronic medical records (e.g., eClinicalWorks, Centricity, Epic, NextGen).

Finally, in efforts to improve the health center environment, four (8%) health centers reported an increase in having a counseling area that provides both visual and auditory privacy, two (4%) reported an increase in having an examination room that provides visual and auditory privacy, and two (4%) reported an increase in displaying information (pamphlets, posters, flyers, fact sheets) on issues related to adolescent sexual and reproductive health (e.g., confidentiality, cost, services available to adolescents).

### Qualitative results

Qualitative interview participants by their roles are summarized in Table 3.

Analysis of qualitative interview data indicated that factors operating at both the health systems and community levels influenced health center implementation of evidence-based clinical practices. At the health systems level, the most commonly cited facilitators included support from senior clinical and administrative leadership, communication between leadership and staff to ensure that staff understood their roles and responsibilities in facilitating the implementation of the evidence-based clinical practices, staff support for the Community-Wide Initiatives goals and objectives, and the regular use of data for continuous quality improvement. An additional subanalysis of high-performing health centers—those that adopted four or more new practices between 2012 and 2013—indicated that these health centers tended to have all or most of these facilitators in place. Of particular importance was the presence of engaged leadership and communication between leadership and staff, as representatives from almost three quarters of high-performing health centers cited this factor as critical to practice implementation. One clinical leader explained the importance of setting expectations and clearly communicating them from the top-down:

We have always done best practices here.... If it is ACOG's recommendations we do something, or AAP's.... We do not lag behind.... So from the beginning, [clinical staff] come in knowing that, you know, you may have personal views about anything that we do here, but when you are here, you are going to work under our standing orders, our clinical protocols, and so everything is scripted out. Everything—all [of our] protocols outline what we are going to do. And they then understand that they are working under our licenses, and they do what we are expecting them to do, or they need

to find a different [place to work]. So... that is the message that [we] set from the beginning.

Senior clinical administrator, county health department

While support and communication from leadership were reported to be particularly important to initially mobilize staff and resources to facilitate practice implementation, the regular monitoring and use of data for continuous quality improvement (CQI) were also indicated to be necessary to ensure consistent and quality implementation across practices. Among health centers reporting regular use of data to monitor systems changes, leaders also indicated that this process was not only important for CQI but also for facilitating staff buy-in for efforts to change systems and processes. As one administrator explained:

[The data] is absolutely the critical piece. And using it. If you can't use your data, then the data is no good.... I have been told the main reason they [hired me] is [because of] my quality improvement background and wanting to move in that direction.... So [our staff] collect their data every month...and we compared to last year to see if we are doing better, doing worse, and all of that. So yeah... we definitely are moving in a positive direction.... And that really helps to motivate us, and encourage our work.

Mid-level administrator, county health department

However, it should be noted that regular use and monitoring of data for CQI was also commonly reported as a barrier for health centers, with almost half of health centers reporting challenges related to data monitoring and reporting. These challenges were largely due to insufficient staffing within the health center information technology department; inaccurate and/or inconsistent coding of services provided; or the health center lacking or having non-user-friendly electronic medical record systems.

Interview respondents also acknowledged the importance of community-level factors in influencing implementation of evidence-based clinical practices. Of particular importance was the support of community leaders—whether political or business leaders—as well as health center leadership and staff perceptions of community support. Both leadership and staff noted that, given the highly politicized nature of adolescent sexual and reproductive health, it was important for them to know that their work in this area was something that the community supported. In communities where mayors or other elected officials expressed their public support of the Community-Wide Initiatives, health center leaders and staff alike noted that it helped increase the motivation and buy-in of health center staff. As one clinic director explained:

And, I think working in the community where you not only have local clinics, but you also have youth-serving programs and the mayor's office all wanting to [lend] a hand... it makes everything a lot easier when you know you're not fighting this fight on your own. And not just that, but you're on the frontlines of this fight, and it's a struggle for a good cause that people understand, and you're all on board together. Just knowing that—that goes a long way.

Mid-level administrator, community health center

### Discussion

This study demonstrates that improvement in the implementation of evidence-based clinical practices among health

center partners in the Community-Wide Initiatives has been successful when efforts include assessing the health centers' needs, identifying the barriers and facilitators to implementation of evidence-based clinical practices, and tailoring technical assistance and training to address the identified needs and barriers. Efforts to increase the implementation of best practices require time investments of leadership and staff and policy decisions that influence practice. While training and technical assistance are needed to support the implementation of best practices, leadership and provider support are needed for full implementation of best practices and building support can take considerable time.

Our findings indicate that across the 10 communities, most health centers reported an increase in the implementation of evidence-based clinical practices from the first to the second year of implementation, with the most frequently reported increases occurring in contraceptive access and Quick Start. Of the health centers that reported no change in implementation, the majority reported that practices were already being implemented before the initiative. Among health centers that reported a decrease in implementation of evidence-based clinical practices, the majority reported a decrease of only one practice among the 31 evidence-based clinical practices.

These findings reflect how the needs assessment was used to identify focus areas for improvement, including tailoring technical assistance and training efforts and activities to meet health centers' needs. Efforts included improving contraceptive access by providing appointments at times that adolescents can access services; working with health care providers to create a health care experience for adolescents that ensures their reproductive health care needs are assessed and addressed every time they visit a health center; and, though not an evidence-based clinical practice per se, providing a tiered, client-centered counseling approach in which the most effective contraceptive methods (LARCs) are discussed first among the range of methods that meet priorities expressed by the client.

Among health centers that reported no change in implementation, the majority reported that the evidence-based clinical practices were already being implemented in the health centers before the initiative; thus, there was little to no room for change. Nevertheless, even high-performing health centers can benefit from technical assistance, such as activities that support health center capacity and needs to ensure consistent and quality implementation of evidence-based clinical practices.

Finally, among the health centers that reported a decrease in implementation of evidence-based clinical practices, the respective decreases reported were all among three practices—the availability of hormonal contraception or IUD at every visit that the adolescent makes to the provider, HIV rapid testing, and participation in the federal 340B Drug Discount Program. For those health centers with a decrease in implementation of an evidence-based clinical practice, it was reported during follow-up interviews with the national organization providing technical assistance and training that staff may have incorrectly judged, and thus reported that a practice was being implemented at the first assessment. This might have occurred because the staff member, who was not familiar with the extent to which certain clinical practices were being implemented in the health center, did not understand the full scope of what was entailed in implementation of a given best practice, or because of staff turnover in

the health center, different staff completed the assessment for the 2 assessment years analyzed. With training and technical assistance specific to implementation of these practices, health center staff may have recognized a given practice was not being implemented consistently, and thus their follow-up assessment would reflect this.

### *Lessons learned*

Lessons learned from the Community-Wide Initiatives indicate that change in implementation of evidence-based clinical practices in individual health centers often does not happen quickly. However, health system level changes—those factors relating to the day-to-day operations of the health center, including health center leadership, communication between leadership and staff, staff attitudes and beliefs, and use of data for CQI—work together to influence implementation of new practices in adolescent reproductive health. When health system level changes do occur, they can have a direct and immediate impact on implementation of evidence-based clinical practices and may be more likely to be sustained over time. Results from the qualitative analyses indicate that successful implementation is often contingent upon buy-in from the health center leadership, multidisciplinary improvement teams that identify barriers need to have the authority to implement changes, and monitoring improvement efforts are important for CQI. It was also found that realigning current health center resources, processes, and strategies so that evidence-based and youth-friendly reproductive health care services are available at every adolescent visit is often needed. This can ensure high-quality, client-centered, affordable and confidential reproductive health services are available to youth. Finally, the presence of a health care center technical assistance provider in each community also helps keep the health centers motivated and focused on improving their services for adolescents.

### *Limitations*

Although as many as 62 health centers provided data in 2013, only 48 health centers contributed data in both years. This was because in the first year of implementation, many of the funded communities were still working to establish formal partnerships with health centers; by the second year of implementation, the funded communities had secured formal partnerships with health centers and a commitment to participate in the Community-Wide Initiatives. Thus, the sample of 48 health centers reporting data for this analysis is not representative of all health centers participating in the Community-Wide Initiatives. Therefore, the generalizability of our findings is limited. In addition, data on implementation of evidence-based clinical practices were self-reported by 48 health centers and not verified using clinic records; thus, their validity is unconfirmed.

To increase adolescent use of high-quality, client-centered, affordable and confidential reproductive health services, health centers can work to improve the implementation of evidence-based clinical practices. Efforts to identify the barriers and facilitators for this improvement process can inform health centers of opportunities to enhance their capacity and ensure that evidence-based clinical practices are being implemented.

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