Contraception 99 (2019) 27–31

Contents lists available at ScienceDirect

Contraception

journal homepage: www.elsevier.com/locate/con

Original research article

Feasibility study of family planning services screening as clinical decision support at an urban Federally Qualified Health Center network☆,☆☆

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ARTICLE INFO

Article history:
Received 10 March 2018
Received in revised form 29 September 2018
Accepted 8 October 2018

Keywords:
Family planning services
Primary care
Family medicine
Contraception
Preconception
Reproductive intention screening

ABSTRACT

Objective: The objective was to assess the feasibility of an intervention introducing family planning services screening clinical decision support to improve provision of contraception and/or preconception services for women of reproductive age in our primary care Federally Qualified Health Center (FQHC) network.
Study design: We implemented a family planning services screening prompt for support staff to ask women 13–44 years at nonobstetric visits at specified time intervals. The response was displayed in the electronic medical record for the provider to review, linked to a documentation tool. We evaluated staff comfort with the screening before and after rollout at all seven FQHC sites. At the pilot site, we examined implementation feasibility by assessing screening rate and the outcome measure of family planning (contraception and/or preconception) documentation during visits by women 13–44 years before and during the intervention's first year.
Results: At baseline, support staff reported high level of comfort (60% very, 25% somewhat) in asking the family planning services screening question; this increased to 80% reporting they were "very comfortable" in the postsurvey ($p = <.01$). From mid-December 2016–mid-January 2018, the screening question was displayed for 1503 visits at the pilot site, of which 96% had a documented response. Family planning documentation rate at the pilot site showed a 6% increase from 64% during the preintervention period to 70% during the 13-month intervention period ($p<.01$). Time series analysis demonstrated more positive upward trend attributed to the intervention period (intervention $R^2=0.15$ vs. preintervention $R^2=0.01$).
Conclusion: Our study demonstrated high staff acceptability of the intervention at all sites and a high screening rate with a significant increase in family planning documentation rate at the pilot site during the intervention period. This suggests that this family planning services screening decision support intervention is feasible in an FQHC setting.
Implications: Implementation of a family planning services screening decision support intervention is feasible in an FQHC setting. Further evaluation of performance at multiple sites, accounting for variable site characteristics, is needed.

1. Introduction

In order to improve reproductive health care for women in the United States (US), national public health and medical organizations endorse recommendations on eliciting reproductive life planning [1] and pregnancy intention/family planning services screening [2] in the context of quality family planning services [3]. All of these recommendations acknowledge the importance of the primary care setting for contraception and preconception care (referred to as "family planning services").

Primary care sites and, in particular, federally qualified health centers (FQHCs) are important settings for expanding access to comprehensive family planning services [4]. In the US, over 1367 FQHCs provide primary care to 25.8 million patients, of which 27% are women of reproductive age [5]. FQHCs receive national government funding to help provide primary care and preventive services particularly to those who are underserved, underinsured or uninsured [6]. Since FQHCs serve as safety-net health centers for populations with relatively high rates of unintended pregnancy as well as maternal and infant morbidity [7–9], access to family planning services in FQHCs is of immense importance. To date, the limited studies on reproductive

☆ Declarations of interest: none.
☆☆ Funding: The intervention is supported by grant funding from the Public Health Solutions, New York, NY. The funding source was not involved in the study design; in the collection, analysis and interpretation of data; in the writing of the report; or in the decision to submit the article for publication. Dr. Shah received salary support from the Empire Clinical Research Investigator Program.
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https://doi.org/10.1016/j.contraception.2018.10.004
0010-7824/

intention screening interventions in primary care demonstrate its acceptability by patients but show an inconsistent effect on outcomes such as patient contraceptive knowledge and use [10].

Thus, in an effort to enhance family planning care for women of reproductive age in our family medicine FQHC network, we developed a clinical decision support intervention which includes a family planning services screening question prompt for support staff and a linked provider tool with preset order and documentation options to support service provision. In this feasibility study, we assessed acceptance of the family planning services intervention by examining support staff attitudes and comfort. We assessed implementation feasibility by examining the pilot site screening rate and changes in family planning (contraception and/or preconception) documentation rates during visits by reproductive-age women.

2. Materials and methods

2.1. Setting

The Institute for Family Health (Institute) is one of the largest FQHC networks in New York state, providing comprehensive primary medical care including reproductive health and family planning services, mental health and dental care to over 98,000 patients annually in New York City (NYC) and the Mid-Hudson Valley. In 2015, Institute family physicians and family nurse practitioners provided primary care to approximately 17,400 women 13–44 years at health centers in NYC. Institute providers use EPIC® electronic medical record (EMR). The Institute does not receive Title X funding.

In mid-December 2016, we implemented the family planning services clinical decision support intervention at the pilot site which was selected for initial rollout given its overall high performance on quality metrics and relatively stable staffing. In the first months, we refined the screening tool and implemented the final version February 2017. We rolled out the intervention in a phased manner at six other Institute sites from March 2017 to September 2017. Prior to this intervention, the Institute EMR did not have a routine family planning services screening prompt. This study was approved by the Institute for Family Health Institutional Review Board.

2.2. Family planning services intervention

Our EMR-based clinical decision support consists of a family planning services screening question prompt for support staff linked to a provider tool for documentation and orders. The screening question automatically displays in the EMR for all nonpregnant women age 13–44 years who come for a medical visit and do not have a hysterectomy or tubal ligation history already documented.

The clinical decision support is integrated into patient care as follows: upon visit intake, the nurse or medical assistant asks all eligible patients the screening question "Would you like your provider to help you with birth control or pregnancy planning today?" and documents one of the following responses: "Yes, help with birth control"; "Unsure"; "Yes, help plan pregnancy"; "No, happy with method"; "No, not sexually active"; "No, not sexually active with men" and "Not asked/Defer to next visit." The screening response is displayed in the provider's EMR alert section, linked to a documentation tool with order sets for a range of contraception, preconception and other reproductive-health-related services. Providers are expected to review the alert section during a patient's visit and address a patient's need. Depending on the response selected, the screening question automatically refires when the patient next comes into the center, in 3 days (for response: "Not asked"), 3 months (for responses: "Yes, help with birth control or pregnancy", "Unsure", or "No, not sexually active"), 6 months (for response: "No, happy with method") or 12 months (for response: "No, not sexually active with men").

Based on existing screening studies including One Key Question® [2], we tailored our family planning services screening question for our setting. We piloted our initial question, "Do you want to get pregnant soon?", with staff and received feedback that they preferred a concrete, service-oriented question with standard response categories. We also recognized that a planned behavior perspective for pregnancy may be limited, particularly among low-income women [11]. Thus, our final screening question addresses service provision, not pregnancy intention.

Prior to implementing the clinical decision support at a site, we conducted staff training on the family planning services screening question, the provider documentation and order set, and workflow. We supplied sites with patient contraception and preconception handouts as well as contraceptive models. Implementation support continued for approximately 1 month after the clinical decision support rollout. We also provided sites with monthly feedback regarding screening performance.

2.3. Feasibility evaluation

2.3.1. Staff survey

We conducted anonymous staff surveys to assess attitudes and comfort with a family planning services screening and similar activities that are part of their usual job responsibilities, such as asking a patient's sexual history, depression screening and offering HIV testing. We surveyed staff prior to intervention implementation and again 4–5 months after rollout. Staff size varied in the pre- and postsurvey periods due to turnover and open positions. We performed descriptive statistical analyses on the responses.

2.3.2. Pilot site screening and outcome measures

To assess the feasibility of implementing standardized family planning services screening at the pilot site, we tracked the total number of reproductive-age female patients who came for visits and, if eligible for screening, the proportion with a documented response in the EMR.

To assess impact of the intervention on patient-related outcomes, we compared family planning documentation rates at the pilot site before and following intervention implementation. Our outcome measure of family planning documentation included EMR documentation of a contraception and/or preconception method or service provision during a reproductive-age woman's visit. We operationalized contraception documentation in the EMR as (a) use of contraception management diagnosis code during the index visit; (b) active prescription on the medication list for pill, patch, ring, injection, emergency contraception, intrauterine device or implant; or (c) tubal ligation, hysterectomy, intrauterine device or implant listed in the chart's history sections during the index visit. The methods selected from the history sections were those that may not show on the active medication list. We excluded documentation of condoms and withdrawal because they are inaccurately captured in our EMR. We defined preconception documentation as use of preconception diagnosis code during the index visit or active prescription of folic acid or prenatal vitamin on the medication list.

2.3.2.1. Data set. We abstracted EMR data for all medical visits by female patients 13–44 years old, starting 6.5 months prior to the pilot site's rollout (preintervention period: June–mid-December 2016) and continuing for 13 months (intervention period: mid-December 2016–mid-January 2018). We excluded patients who made visits for prenatal care or had a prenatal diagnosis at the visit. For each eligible visit, we abstracted the following information from EMR history and/or medication sections: presence or absence of the specified contraceptive methods in the sexual history (Y/N); hysterectomy and/or sterilization in the surgical history or on the problem list as a diagnosis code (Y/N); active contraception prescription associated with the index encounter (Y/N); active folic acid/prenatal vitamin prescription associated with the index encounter (Y/N). Limited patients came in for repeat visits during the same week; therefore, we did not exclude repeat cases in the analysis.

Table 1
Medical assistant and nursing staff comfort asking patients' history and screening questions before and after family planning services intervention implementation.

		PRE n=85	POST n=83	p value
Who in the health center do you think should ask female patients a screening question about preventing or planning pregnancy? (can check multiple boxes)	Nurse	45 (54%)	52 (63%)	.24
	Medical assistant	46 (55%)	59 (71%)	.03
	Clinician	72 (86%)	70 (84%)	.72
How comfortable or uncomfortable would you feel asking a female patient a screening question about preventing or planning pregnancy? Would you feel…	Very comfortable	50 (60%)	66 (80%)	<.01
	Somewhat comfortable	21 (25%)	10 (12%)	
	Somewhat uncomfortable	12 (14%)	4 (5%)	
	Very uncomfortable	0 (0%)	3 (4%)	
How comfortable or uncomfortable do you feel asking the patient's sexual history questions in Epic?	Very comfortable	43 (52%)	48 (58%)	.50
	Somewhat comfortable	24 (29%)	25 (30%)	
	Somewhat uncomfortable	12 (14%)	9 (11%)	
	Very uncomfortable	4 (5%)	1 (1%)	
How comfortable or uncomfortable do you feel asking the patient's PHQ-2 (depression screening) questions in Epic?	Very comfortable	51 (61%)	54 (65%)	.94
	Somewhat comfortable	23 (28%)	21 (25%)	
	Somewhat uncomfortable	8 (10%)	7 (8%)	
	Very uncomfortable	1 (1%)	1 (1%)	
How comfortable or uncomfortable do you feel asking the patients if they want HIV testing?	Very comfortable	72 (87%)	74 (89%)	.71
	Somewhat comfortable	10 (12%)	8 (10%)	
	Somewhat uncomfortable	1 (1%)	0 (0%)	
	Very uncomfortable	0 (0%)	1 (1%)	
How comfortable or uncomfortable do you feel asking patients if they want to talk with the provider about birth control or pregnancy planning?	Very comfortable		67 (81%)	
	Somewhat comfortable		12 (14%)	
	Somewhat Uncomfortable		3 (4%)	
	Very Uncomfortable		1 (1%)	

2.3.2.2. Analysis. We first conducted descriptive analyses of age, race and insurance status of the patient visits overall and comparing the preintervention period to the intervention period applying a χ^2 test for significant differences across the two time periods. We compared the family planning documentation rate during the intervention period to the preintervention period applying a χ^2 test for significant difference in family planning documentation (contraception, preconception or both). Lastly, we performed a time series analysis of family planning documentation rates by 4-week blocks to determine pre- vs. intervention period trends in relation to time (R^2).

3. Results

3.1. Staff survey

Response rates to the pre- and postsurveys by medical assistants and nurses were 84% (85/101) and 90% (83/92), respectively. In the presurvey, support staff reported that they would feel very (60%) or somewhat (25%) comfortable asking a female patient this new family planning services screening question; in the postsurvey, 80% felt very comfortable (p<.01). The staff comfort level with the family planning services screening question compared similarly to the proportion who feel very/somewhat comfortable conducting similar activities that are part of their current job responsibilities, such as sexual history, depression screening and HIV testing. In the postsurvey, more respondents believed that asking a family planning services screening question is within a medical assistant's scope of work (55% pre vs. 71% post, p=.03) (Table 1). The majority (67%) of respondents agreed that having support staff ask a family planning services screening question will improve the likelihood that a patient will get services. This proportion was unchanged after the intervention. In the postsurvey, 72% of support staff reported that the screening question took less than 1 min, 83% believed that patients were okay being asked the question ("always" or "most of the time") (data not shown).

3.2. Pilot site screening and outcome measures

For the pilot site, the screening question displayed for 1503 patient visits with an overall 96% screening rate for the 13-month intervention period, ranging from 93% to 100% by month. Of women with documented screening responses at the pilot site, 20% indicated wanting help with "birth control," 5% help with planning a pregnancy and 3% were unsure. Over half (51%) reported being happy with their current method, 14% not being sexually active, 2% not sexually active with men and 5% defer/ask at next visit.

Table 2 presents the demographic characteristics of patient visits comparing the pre- and intervention periods and shows no difference in age, race/ethnicity or insurance status between the two study periods

Table 2
Demographic characteristics of patient visits by reproductive-age women pre- vs. intervention periods.

		Total N (% column)	Preintervention period (N=1525)	Intervention period (N=3950)	p value
Total		5475 (100.0)			
Age	13–17	602 (11.0)	11.3%	10.9%	.81
	18–24	1306 (23.9)	24.4%	23.6%	
	25–34	1885 (69.3)	34.5%	34.4%	
	35–44	1682 (30.7)	29.8%	31.1%	
Race/ethnicity	Non-Hispanic white	31 (0.6)	0.5%	0.6%	.95
	Non-Hispanic black	1436 (26.5)	26.9%	26.3%	
	Hispanic/Latino	3727 (68.7)	68.5%	68.8%	
	Asian or Pacific Islander	50 (0.9)	0.9%	0.9%	
	Other/multiple	181 (3.3)	3.3%	3.4%	
	Missing	50			
Insurance Status	None	183 (3.5)	3.5%	3.5%	.98
	Any	5101 (96.5)	96.5%	96.5%	
	Missing	191			

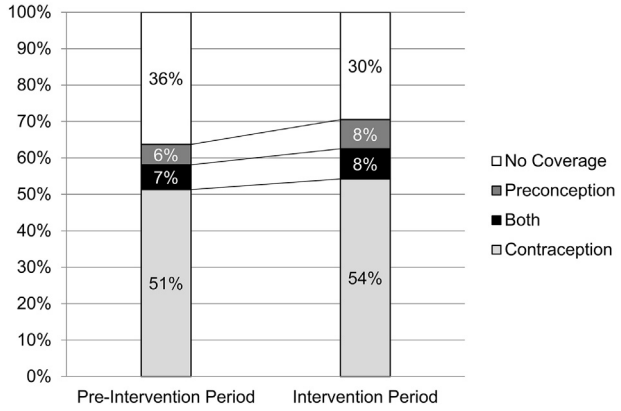

Fig. 1. Family planning documentation rates pre- vs. intervention periods.

at the pilot site. Overall family planning documentation during visits of reproductive-age women increased in the intervention period (70%) compared to the preintervention period (64%) ($p<.01$) (Fig. 1). The time series analysis (Fig. 2) also demonstrates improvement. In addition to an initial jump in the documentation rate from the end of the preintervention period to the start of the intervention period, the stronger positive slope of the intervention period shows a slightly steeper increase, and the larger R^2 suggests that time, correlating to the intervention period, is a greater predictor of change after rollout (preintervention $R^2=1\%$ vs. intervention $R^2=15\%$).

4. Discussion

We implemented an intervention introducing an EMR-based clinical decision support consisting of a family planning services screening question linked to a provider documentation tool in order to improve contraception and/or preconception service delivery for women of reproductive age across sites in our primary care FQHC network. We found relatively high baseline support staff comfort in asking a family planning services screening question, whether theoretically prior to the intervention or after rollout. In fact, more staff shifted to "very comfortable" after the intervention. Staff did not feel the question added much time to their work flow. In addition, after the intervention, more nursing and medical assistants felt that asking this question was within their job scope.

Over the course of 13 months, the initial pilot site performance demonstrated high feasibility of implementing the intervention. Of the 96% of eligible patients with documented screening responses, approximately 25% indicated a need for family planning services. These findings are comparable to results from two recent family planning quality improvement initiatives at FQHC sites, where pregnancy intention screening rates reached 68%–80% [12,13].

While past studies have shown variable change in outcomes like patient knowledge and contraceptive use from pregnancy intention screening in primary care settings [10,14], our pilot site results support such screening decision support tools to improve family planning documentation. It is encouraging that a similar study evaluating a checklist decision support intervention for women visiting a family planning clinic for pregnancy testing showed improvements in patient contraceptive knowledge and uptake of more effective contraception [15]. We suggest exploring how approaches to improve family planning services provision may differ in a focused family planning versus primary care setting where providers address a broader scope of health needs.

Our feasibility study has a number of limitations. Due to restrictions in our EMR, we were not able to isolate the denominator to the subgroup of women who are at risk for pregnancy (e.g., sexually active and with males) and therefore cannot ascertain family planning documentation for the true group at risk. Our screening question uses the term "birth control," which may not be understood by all to include the full scope of contraceptive options. Yet, we selected the term "birth control" because, on piloting, our support staff preferred it to the word "contraception." Additionally, we encountered several challenges in capturing the outcome measure of contraception and/or preconception documentation. We were relying on some EMR documentation that may not accurately capture the patient's up-to-date clinical information, e.g., due to outdated or incomplete history and/or medication lists. Due to data extraction methods, we included emergency contraception in the contraception documentation variable although it is a less effective method, potentially overestimating contraception documentation rate. Finally, the pilot site chosen is one of the highest-performing sites of our network, which is likely not representative of other sites, but it was best for testing feasibility in a more controlled setting. While we ultimately rolled out the family planning services intervention at other sites, these sites have limited follow-up data.

Notwithstanding these limitations, this feasibility study adds to the growing literature on interventions to improve family planning services in the primary care setting. Overall, our study demonstrated high support staff acceptability of conducting family planning services screening and promising pilot site data on improving family planning service delivery. Decision support tools are common for improving primary care quality measures such as preventive screenings and vaccinations [16]. This study suggests that family planning services can be improved by decision support prompts and documentation tools as well. Because our network includes areas in New York City with relatively high rates of unintended pregnancy [17] and maternal morbidity and mortality [18,19], any means of improving family planning services could lead to improved patient outcomes. For next steps, we will explore 1-year performance of all sites once available and site-specific characteristics potentially affecting implementation and outcomes. We also hope to partner with other primary care sites to implement and evaluate the impact of this family planning services screening decision support intervention.

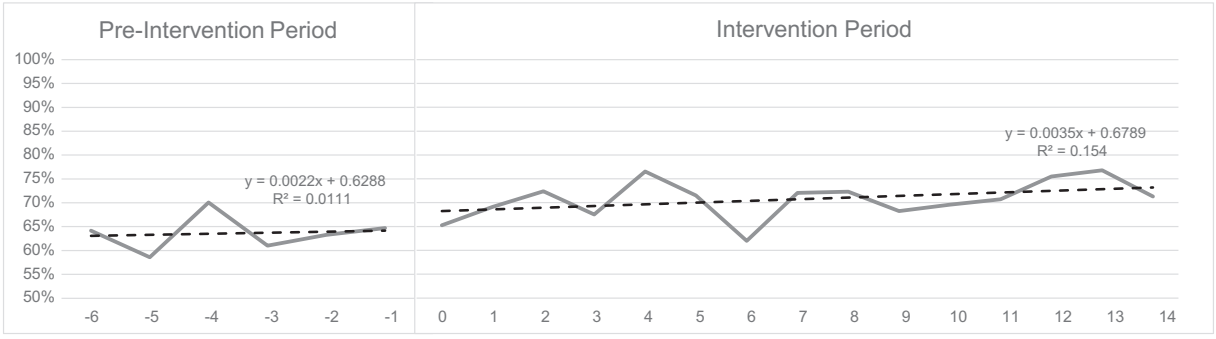

Fig. 2. Times series analysis of monthly family planning documentation rate pre- vs. intervention periods.

Acknowledgments

The intervention is supported by grant funding from the Public Health Solutions, New York, NY. The primary author received salary support from the Empire Clinical Research Investigator Program.

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