From research to practice: dissemination of the Contraceptive CHOICE Project

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ABSTRACT

Unintended pregnancy is a public health problem with societal consequences. The Contraceptive CHOICE Project (CHOICE) demonstrated a reduction in teen pregnancy and abortion by removing barriers to effective contraception. The purpose of the study was to describe the dissemination approach used to create awareness of and promote desire to adopt the CHOICE model among selected audiences. We used a 4-stage approach and detail the work completed in the first 2 stages. We describe stakeholder involvement in the first stage and the process of undertaking core strategies in the second stage. We examine insights gained throughout the process. Through our dissemination approach, we reached an estimated 300,000 targeted individuals, not including the population reached through media. We were contacted by 141 entities for technical assistance. The completion and reporting of dissemination processes is an important component of research. There is a need to fully document and disseminate strategies that can help facilitate practice change.

Keywords

Result dissemination, Contraception, Community dissemination framework

BACKGROUND

Unintended pregnancy remains a serious public health problem. Each year, approximately half of all pregnancies that occur in the USA are unintended—a rate that has not changed over the past 20 years [1, 2]. Unintended pregnancy has been associated with adverse maternal behaviors such as delayed prenatal care and substance abuse during pregnancy which often results in poor birth and infant outcomes [3, 4]. The societal costs loom large; births resulting from unintended pregnancies cost state and federal governments 12.5 billion dollars in 2008 [5].

In 2007, the Contraceptive CHOICE Project (CHOICE) was launched to reduce unintended pregnancy in the St. Louis region. CHOICE removed three key barriers (education, access, and cost) in an effort to increase use of the most effective reversible methods of contraception known as long-acting reversible contraception (LARC: intrauterine devices

Implications

Practice: Public health researchers should plan and engage in meaningful dissemination activities with target populations to promote widespread knowledge and adoption of best practices in community health practice settings.

Policy: Removing financial barriers to long-acting reversible contraception for all women, including teens, will reduce unintended pregnancy, teen pregnancy, and abortion rates.

Research: Public health research funders should consider dissemination reporting requirements extending beyond publication to ensure results influence practice and related health outcomes in a timely manner.

and implants) [6]. The study enrolled nearly 10,000 St. Louis women aged 14–45 years and provided no-cost contraception for 2 to 3 years. By simultaneously removing these three barriers to commonly used reversible contraceptive methods, the study was able to demonstrate a greater than 50 % reduction in overall abortion and a 56 % reduction in teen pregnancy among women enrolled in the cohort compared to national rates [7, 8]. Findings from CHOICE hold promise for reducing unintended pregnancy rates nationwide and abroad. However, this requires the effective dissemination of research findings to facilitate change in practice.

Despite the billions of dollars spent on health research in the USA each year, many important discoveries are not translated into practice [9]. The most traditional methods to disseminate study results include peer-reviewed journals and academic conferences [10]. Although extremely important, employing these traditional methods alone is insufficient [11]. Traditional methods generally reach a limited audience, and often, the audience includes fellow researchers in academic settings rather than on-the-ground practitioners or policymakers. Different audiences often have conflicting priorities: while researchers may be concerned more with internal

rather than external validity [12, 13], practitioners and policymakers seek strategies or interventions that can be used immediately to solve problems in their community [14]. To meet the needs of multiple audiences, traditional dissemination methods should be supplemented by non-traditional methods. This paper describes the strategic approach used by CHOICE to disseminate our study results to a wide audience. We describe and evaluate the reach of each dissemination strategy and offer insights into non-traditional dissemination that could be adapted by other public health researchers.

METHODS

Our dissemination objectives were to increase awareness about LARC, describe the CHOICE model of contraceptive care, and highlight the relationship between greater access to effective contraception and its potential to reduce unintended pregnancy. Our approach was guided by Diffusion of Innovations, a theoretical framework that has been used for over 40 years to understand how, why, and at what rate public health innovations spread [14, 15]. The framework describes multiple phases of dissemination and factors influencing dissemination [16]. We adapted the existing framework into four key stages with clearly defined aims: (1) planning, (2) knowledge and persuasion, (3) adoption and implementation, and (4) maintenance and sustainability (Table 1). This paper describes our work in the first two stages: planning through knowledge and persuasion.

Stage 1: planning

Create a community engagement and dissemination (CE&D) work group; conduct formative research with local stakeholders and community members

CHOICE enrolled its first participant in August 2007 and published its first major findings in August 2010. In January 2011, we began to formalize our CE&D initiative. The overarching goals were to ensure that research participants were informed of study results and increase knowledge about LARC and study results to target populations. Table 2 presents the planning stage workflow, which includes the following: (1)

creating a workgroup to drive fulfillment of the CE&D goals; (2) defining target audiences who would benefit from an innovative model of contraceptive care, and might alter their practice or behavior after hearing about LARC and CHOICE results; (3) engaging the help of CHOICE participants, local stakeholders, and community experts to identify approaches to effectively reach target audiences; and (4) using results and insights from stakeholders to transition to the knowledge and persuasion stage.

Stage 2: knowledge and persuasion

Create awareness about the research results and intervention in a local, regional, and national context

The results from the participant surveys and insights from the stakeholder meetings (described in Table 2) guided the development of a multi-year dissemination approach with 6 non-traditional knowledge and persuasion strategies: (1) community events, (2) community presentations, (3) social media, (4) video production, (5) lay press, and (6) participant email blasts.

We involved all interested members of the CHOICE clinical, research, and administrative staff during this stage. A member of the CE&D workgroup was assigned to manage the planning and advancement of each of the 6 strategies. Members of the larger CHOICE team chose a strategy to participate in, and each small group (3–5 members) met weekly. During small group meetings, members were tasked with specifying their strategy's audience, structuring the dissemination approach, creating a timeline, defining measures for success, debriefing after activities, and troubleshooting.

Dissemination activities and timelines were often the result of a specific request. For example, a university sorority requested a presentation in April 2012. Therefore, the community presentations group had 1 month to develop the content for this strategy. The publication of a major peer-reviewed article precipitated the deadline for coordinating lay press and a video project release. The small group leaders provided weekly updates to the CE&D workgroup and completed an ongoing process and evaluation log. The CE&D manager reviewed the logs to track the progress of all 6 strategies as part of the overarching dissemination plan.

Table 1 | Key stages and aims of CHOICE dissemination

1: Planning	<ul style="list-style-type: none"> • Develop a formalized dissemination work group • Conduct formative research with local stakeholders and community members
2: Knowledge and persuasion	<ul style="list-style-type: none"> • Create awareness about the research results and intervention in a local, regional, and national context
3: Adoption and implementation	<ul style="list-style-type: none"> • Provide technical assistance to early adopters • Create toolkit to facilitate implementation
4: Maintenance and sustainability	<ul style="list-style-type: none"> • Local and national healthcare providers adopt intervention • Intervention is routinely used in practice and institutionalized over time with minimal external support

Table 2 | Planning stage workflow

Key task	Description
Create CE&D workgroup	<ul style="list-style-type: none"> Members included Principal Investigator, Project Director, four managers, and graduate-level student to coordinate initiative Met weekly to define target audiences, craft messaging, review progress, and plan next steps
Define target audiences	<ul style="list-style-type: none"> Target questions included: <ul style="list-style-type: none"> Who would benefit from hearing about these research findings? Who might alter their practice or behavior based on these findings? Create brief CE&D survey and complete with a representative sample of 100 participants <ul style="list-style-type: none"> Questions about experience participating in research, sources used to access health information, what study results would be most interesting to them and mediums to receive that information Hold a series of 5 90-min stakeholder meetings with local public health leaders, project participants, academicians with dissemination expertise, partner clinic site providers and administrators, and representatives of university regulatory groups <ul style="list-style-type: none"> Meeting objectives were to: (1) increase stakeholder knowledge about preliminary findings, (2) elicit input regarding the most important results to share with target audiences, (3) brainstorm strategies for how to share results, (4) test draft messaging, and (5) gain a better understanding of university media and policy regulations and establish rapport with regulatory groups
Transition to knowledge and persuasion stage	<ul style="list-style-type: none"> Analyze participant surveys Revise key dissemination messages based on stakeholder input Create full-time funded position for managing CE&D initiative

Our team approach in this stage required dedicated staff time. In addition to weekly meetings, staff time was required for content preparation, presenting to groups, and staffing tables at community events. Staff flexed their schedules to participate in community events and presentations when they fell outside of normal business hours. Once each initiative was launched, the time commitment diminished significantly as small group weekly meetings ceased and allocated staff time for dissemination was handled on a case-by-case basis. However, small group leaders continued to provide progress reports during the weekly CE&D workgroup meetings, and CE&D initiative updates were provided at all-staff biweekly meetings.

RESULTS

Table 3 presents a summary of the work completed from March 2012 through December 2013 for each of the 6 strategies and describes the aims, approach used to deliver the strategy, and the target audience reach. December 2013 marked the end of CHOICE participant data collection; over 90 % of our active involvement with knowledge and persuasion strategies were completed during this timeframe.

Community events—Our target audiences for community events included health professionals, students, the general public, reproductive-aged women, and faith-based communities. To participate in community events, we designed and constructed an engaging display to encourage visitors to stop at our exhibition table. We displayed models of contraceptive methods and provided study result sheets to help guide educational opportunities. We networked with our community partners and participants and used internet searches to identify potential events. From March 2012 through December 2013, we participated in 19 community events including health fairs, advocacy, and general public events. On average, 85 attendees stopped at the table during each event.

Community presentations—We focused community presentations to local and regional organizations that provide or promote reproductive healthcare including practitioners, home nursing programs, advocacy groups, and public health and social service professionals. Dissemination of study results and contraception education for this strategy required developing a presentation template (tailored based on the audience), training presenters, and marketing the presentation to target audiences. We provided nearly 40 community presentations across the Midwest.

Social media—Target audiences for our social media activities included CHOICE participants, reproductive health advocates, women of reproductive age, practitioners, and educators. Social media included obtaining university approval for the use of each platform, as well as developing and posting content and recruiting followers. Using Facebook, YouTube, and Twitter, we combined the sharing of our study results with referrals to other trusted reproductive health sites

Table 3 | Knowledge and persuasion strategies and reach; March 2012 through December 2013

Strategy	Aims	Approach	Reach
Community events	<ul style="list-style-type: none"> • Share study results • Educate about contraception • Debunk common misconceptions • Display contraceptive methods models • Refer to community health services • Refer to other research opportunities • Support St. Louis community events • Promote other dissemination activities (i.e., community events, videos, social media sites) 	<ul style="list-style-type: none"> • Designed table display to be visually appealing, informative, interactive, and easily transportable • Identified potential events through networking with community-based organizations, requests from CHOICE participants engaged in various events, and web searches • Asked staff to participate and created staffing schedule 	<ul style="list-style-type: none"> • Presentation table at 19 community events including faith-based health fairs, allied health professional and university-sponsored events and workshops, local and regional public health conferences, and community-wide events including St. Louis Earth Day and the Pride Festival • Average of 85 people per community event visited the table and received information
Community presentations	<ul style="list-style-type: none"> • Increase knowledge of highly effective reversible contraceptive methods • Review evidence-based provision guidelines for contraceptive methods • Discuss how study findings could influence organization's mission and services • Promote other dissemination activities 	<ul style="list-style-type: none"> • Developed standard presentation format and slide sets • Created list of frequently asked, challenging questions about contraception • Identified list of local organizations serving the target audiences • Created and sent letter to organizations representing target audiences to promote presentations • Trained presentation team 	<ul style="list-style-type: none"> • Formal presentations to 38 local and national groups including safety net practice executive staff and clinicians, teen pregnancy prevention, business, and maternal health coalitions, home visit nursing organizations, local and regional health departments, and healthcare capacity-building organizations
Social media	<ul style="list-style-type: none"> • Share study results • Educate about contraception • Debunk common misconceptions • Promote current media articles and reports from trusted sources • Connect with other organizations promoting LARC • Encourage followers to ask questions and get answers about contraception • Promote other dissemination activities 	<ul style="list-style-type: none"> • Facebook • YouTube channel • Twitter 	<ul style="list-style-type: none"> • 784 "Likes" • At least 1 post per day (approximately 455 total posts) • 24,982 views and 56 subscribers • 858 tweets and 247 followers
Video projects	<ul style="list-style-type: none"> • Provide outlet for study participants to describe their CHOICE research experience • Demonstrate impact of CHOICE Project on unintended pregnancies in St. Louis and potential if adopted nationally • Replicate face-to-face contraceptive counseling developed and provided in CHOICE Project in video format in English and Spanish 	<ul style="list-style-type: none"> • <i>Open the Dialogue</i> • <i>Pathway to Choice</i> • <i>What Method is Right for You?</i> 	<ul style="list-style-type: none"> • 1138 views on YouTube • 8413 views on YouTube • English: 8769 views and 127 requests for DVD copies • Spanish: 1178 views and 127 requests for DVD copies

Lay press	<ul style="list-style-type: none"> • Provide CHOICE study results to broader audience that does not access scientific journals • Encourage conversation regarding contraception and unintended pregnancy among the general public • Promote dissemination activities <ul style="list-style-type: none"> • Thank participants for their research involvement • Thank recruitment partners and referring providers • Inform participants and providers of study findings • Promote other dissemination activities 	<ul style="list-style-type: none"> • Notified university media affairs department of upcoming journal publications • Identified spokespersons to represent CHOICE, including study participants • Coordinated interviews with media • Followed media guidelines instituted by the university (i.e., HIPAA releases from interviewees) • Crafted email • Included 1-page attachment with study findings, with emphasis on health literacy • Worked with university IT to coordinate mass emailing 	<ul style="list-style-type: none"> • Research was highlighted in more than 500 local, national, and international media outlets including: Reuters, Associated Press, New York Times, Wall Street Journal, TIME, USA Today, NBC, Huffington Post, National Public Radio, and additional local radio, television and print mediums • 10,012 emails sent • <20 % returned undeliverable
Email blasts			

for contraception education. We encouraged followers to ask questions so that we could debunk myths and correct misinformation. We posted on Facebook and tweeted at least once per day and attempted to overlap the content between Facebook and Twitter for consistency and efficiency. Using this strategy, we accumulated 784 Facebook likes and 247 Twitter followers. Our YouTube channel experienced nearly 25,000 views during this time frame and established 56 subscribers.

Video productions—We produced three major video projects to: (1) highlight the CHOICE experience told by study participants and their desire for excellent contraceptive care services, (2) describe what could happen if we could replicate the CHOICE experience nationally, and (3) provide contraceptive education. Video production involved deciding what videos should be prioritized, coordinating scripts, persons involved, and production, as well as timing releases to coincide with publishing of peer-reviewed articles with major study findings. *Pathway to CHOICE* and *Open the Dialogue* (<https://www.youtube.com/user/WUSTLChoiceProject/feed>) were both developed and released in conjunction with high impact peer-reviewed articles [7, 17] and resulted in nearly 9000 views and 1200 views, respectively, through December 2013. During this same time frame, our English-version counseling video was viewed nearly 9000 times and serves as a stand-alone educational tool used in a clinic or office.

Lay press—We sought to share our work with a broader audience that would not have access to peer-reviewed articles. This involved notifying the Washington University Media Affairs office of upcoming publications to prompt a press release, and subsequent identification and coordination of interviews with the appropriate spokespersons from the study staff or participants. When study participants were contacted, we explained the implications of being interviewed and completed media release forms. From March 2012 to December 2013, we published 24 peer-reviewed articles and were subsequently highlighted in over 500 local, national, and international media outlets. Through July 2015, CHOICE has published 63 journal articles.

Participant email blasts—We prioritized dissemination activities directed toward study participants and recruitment partners. We sent emails to announce the end of study recruitment and the end of study follow-up. In addition to announcing these two milestones, the main message was to thank the participants and our partners for their contributions. The email included an attachment with a summary of study results in an easy-to-understand format. We sent over 10,000 emails to study participants, partner clinics, and referring providers; less than 20 % of the emails were returned as undeliverable.

As a result of the knowledge and persuasion strategies completed through December 2013, we were contacted by 7 state health departments, 33 city or

county health departments, 27 hospitals, 33 community agencies and health centers, 26 private providers, 6 government agencies, 5 pharmaceutical companies, 3 Planned Parenthood affiliates, and 1 insurance company. Each organization requested additional information about the CHOICE model of contraceptive care, project materials, and technical assistance in implementing the model.

DISCUSSION

There is a gap between research and practice which has led to the increased prioritization of dissemination of research findings within health services [11, 15, 18]. Yet, we found it difficult to identify published manuscripts where the process of disseminating study results is described in detail. This may be due in part to the ongoing uncertainty about whose responsibility it is to disseminate research findings and to whom [19]. Publications and systematic reviews have focused on either theoretical frameworks and planning tools to guide dissemination, or the factors impacting adoption of specific interventions, while omitting actual case studies of dissemination processes undertaken by public health researchers [11, 20, 21]. In the absence of a published dissemination plan from a research study that we could adapt or replicate, we developed a multifaceted approach to bring attention to our study results. Through this process, we gained valuable insights into effective dissemination strategies for this burgeoning field and the challenges dissemination presents.

Effective dissemination strategies from CHOICE

Although some of our dissemination strategies had greater reach than others, we retained all 6 components throughout the knowledge and persuasion stage to evaluate their impact over time. In retrospect, the most effective non-traditional dissemination strategies used by CHOICE to supplement traditional dissemination strategies were video productions, lay press, and participant email blasts. We evaluated each strategy based on the volume of individuals reached, the ability to easily disseminate results at defined time points at minimal effort and costs, and the continuation of reach to target audiences with minimal effort after an initial strategic push.

Share results with participants and community partners—At important study milestones, we individually sent result summaries to and thanked our research participants and community partners. Although some researchers see sharing research results with participants as an ethical obligation, Brownson's recent study of dissemination among public health researchers found that only one third of researchers always or usually produced summaries for non-research audiences [22, 23]. Our strategy required minimal staff time and was a quick way to send our results to thousands of women and healthcare providers. This simple investment

returned tremendously positive feedback from participants and community partners stating their appreciation for being included in the celebration of study results. In the words of one participant “Thank you so much for sending this update and the preliminary results. It seems like it is very rare for researchers to follow-up with participants and share study results.”

Focus on self-sustaining strategies that catalyze an ongoing reach—We found the most effective strategies were those that could sustain themselves and continue to reach target audiences nationally without additional resource commitment. For example, once a video was produced and housed on our YouTube channel, it did not involve any further attention, yet could be accessed by new users as they became aware of LARC or CHOICE. Our YouTube channel has grown from 25,000 views and 56 subscribers in December 2013 to over 134,000 views and 353 subscribers in July 2015 with no additional staff time or financial investment. Finally, when our Principal Investigator or a participant was interviewed by a reporter for the Associated Press, it was picked up by hundreds of additional lay press outlets. Lay press articles are archived online and can be shared electronically. These articles can be built upon as a source for other publications while requiring no additional resources from the research team once they are published.

On the other hand, activities like Facebook, Twitter, and community events require constant maintenance and expenditure of staff time. Even though social media is free and has the potential to reach our target audiences nationally, our overall reach remained low and resource input was high in comparison to other strategies. With dedicated staff and daily posting, our Facebook likes only grew from 784 in December 2013 to 941 in January 2015, which marked the last post specific to our CHOICE dissemination initiative. With Twitter, our followers grew from 247 in December 2013 to 359 in January 2015. Similarly, community events require staff time yet were not effective in reaching a high volume of individuals. Furthermore, the reach was limited to individuals present at a defined point in time, as opposed to other strategies that could be archived and catalyze ongoing reach. We did not participate in any community events past December 2013, and therefore, our reach for this strategy did not change from 2013 to 2015.

Dedicate a staff position to dissemination—A common reason that dissemination efforts are not undertaken is lack of time on the part of the researchers. One qualitative study suggests that for research to impact practitioners, at least 12 % of project resources and time should be dedicated to dissemination [24]. However, Brownson’s study also reported that 73 % of the respondents estimated spending less than 10 % of their time on dissemination and only about half had a person or team dedicated to dissemination [23]. Without a CHOICE staff position dedicated to CE&D, progress

would have been minimal. Our CE&D manager completed literature reviews, spearheaded strategies, and coordinated a workgroup that remained action- and goal-oriented. The CE&D manager was the point-person for providing information and technical assistance to the community.

Involve everyone—Rather than create a dissemination plan that was solely executed by the study investigators through scientific manuscripts and academic presentations, we chose to involve all staff. Research suggests that using multiple mediums to reach different specific target audiences is most effective [25], yet this can be time consuming and requires diverse skill sets. We distributed responsibilities and utilized existing staff’s skills to ensure quality and completion. For example, staff brought skill diversity including artistic creativity, public speaking, and working knowledge of social media platforms. Most importantly, involving staff in this final phase of the project strengthened morale.

Furthermore, involving target audiences can enhance the effectiveness of a dissemination strategy [21]. We involved CHOICE participants who were enthusiastic when asked to collaborate in a dissemination initiative. Keeping track of participants who are willing to be spokespersons was particularly helpful for grant submissions, testimonials, advisory boards, and media interviews.

Use a varied approach—Our 6 strategies were developed in response to feedback from stakeholders and participants. Most of our strategies used non-traditional tools in conjunction with traditional methods such as scientific manuscripts and academic conferences. This dual approach was particularly effective in that it allowed us to reach fellow researchers, on-the-ground practitioners, and policymakers with the same messaging. Videos were embedded into slide sets used in academic presentations, conference presentations were often accompanied by our event table in the exhibition area, and our social media sites were marketed through conference slides and networking. Our materials were available in multiple formats including videos on the internet or on DVD and study results available as single-page handouts, slide sets, or in a web-based format.

Revisit the process—Dissemination did not occur at a single point in time; rather, it was a constantly evolving and cyclical process. After each strategy was employed, staff would debrief, reevaluate, and revise a strategy if necessary. For example, after the first community event, we recognized that our table lacked activities and did not attract attention. The volume of individuals reached was low, yet we were still expending high effort in staff time. We revisited the design to incorporate engaging and relevant activities, and after our second community event, we noticed higher reach numbers. A successful dissemination plan should be evaluated regularly to ensure that time is not wasted on ineffective strategies and that goals are met. In evaluating non-traditional dissemination strategies, researchers should consider the volume of

individuals reached, the frequency, effort, and cost, and the ability to continually reach individuals after the initial targeted push.

Considerations for adapting the CHOICE CE&D approach

There are limitations researchers should consider prior to using our dissemination approach. First, there is little literature on the relative effectiveness of our dissemination strategies, which makes it difficult to truly know the precise impact of each strategy on practice change. We did not ask those who contacted us for technical assistance how they heard about CHOICE, which could have provided us with additional valuable information to evaluate which dissemination strategy or approach worked best. We can only gauge impact based on numbers reached. We would urge researchers to collect information about how people heard about their programs or projects to better evaluate dissemination approaches. It is too soon to tell if the CHOICE model will be widely adopted and lead to better health outcomes. In addition, it is unclear to what extent the subject matter of the CHOICE Project has influenced the dissemination process. Family planning is a much debated and polarizing topic. The general population's interest in and the political atmosphere surrounding the research may play a role in the success of a dissemination initiative. However, we believe that this approach can be successful if researchers think creatively about how to tailor the process to meet their needs and view dissemination as an ongoing process.

Allocate resources for maximum impact—CHOICE was able to allocate funds for dissemination activities including hiring a full-time CE&D manager, retaining a large staff to assist with dissemination activities, and producing videos. However, many of our strategies were inexpensive and could be performed with minimal staff. Sharing results with participants and community partners, participating in community events, and giving presentations to community groups are all low-cost strategies. We had to think differently about staff scheduling to accommodate activities that took place outside of normal work hours, but found the response of audiences and staff was worth the effort. An evaluation process will help research teams recognize ineffective strategies so time and money can be allocated elsewhere.

Promote results to the media—A dedicated media department is helpful in connecting research with mainstream news outlets; however, an institutionalized public relations department often means more restrictions and regulations. Establishing a rapport between the research team and media department early in the dissemination process is critical for ensuring that all parties have a mutual understanding and expectation of lay press coverage. Small projects and organizations may have greater freedom to direct their results to the target audience, especially if there are political implications the researchers want to highlight. Researchers should consider writing letters to the editor and contacting media outlets directly.

CONCLUSION

Through a strategic planning process that involved study staff, participants, and community stakeholders, we implemented a dissemination initiative to increase LARC awareness and share study results. Our 6 knowledge and persuasion strategies reached an estimated target audience of over 300,000 through December 2013, not including individuals who received information through media outlets. We experienced a high volume of requests for technical assistance which suggests a genuine need to transition into the third dissemination stage of adoption and implementation. This will entail creating and packaging user-friendly materials, further collaboration with dissemination partners, and identifying meaningful evaluation measures. The CE&D workgroup has begun the strategic planning for this stage. However, we recognize that the transition between stages is not linear. We continue to increase awareness through our 6 knowledge and persuasion strategies to create further demand. The completion and reporting of dissemination processes is an important, yet often missing, component of clinical research [19]. There is a need to fully document and disseminate strategies that effectively increase knowledge and persuade action toward implementation of public health innovations.

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Compliance with ethical standards

Conflict of interest: Jeffrey Peipert received research support from Merck, Bayer, and Teva and serves on Advisory Boards for Teva and Perrigo. All other authors declare that they have no conflict of interest.

Adherence to ethical principles: The Contraceptive CHOICE Project was approved by the Institutional Review Board at Washington University School of Medicine.

- Finer LB, Zolna MR. Unintended pregnancy in the United States: incidence and disparities, 2006. *Contraception*. 2011; 84(5): 478-485.
- Finer LB, Henshaw SK. Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. *Perspect Sex Reprod Health*. 2006; 38(2): 90-96.
- Schwarz EB, Smith R, Steinauer J, Reeves MF, Caughey AB. Measuring the effects of unintended pregnancy on women's quality of life. *Contraception*. 2008; 78(3): 204-210.
- Hellerstedt WL, Pirie PL, Lando HA, et al. Differences in preconceptional and prenatal behaviors in women with intended and unintended pregnancies. *Am J Public Health*. 1998; 88(4): 663-666.
- Sonfield A, Kost K. Public costs from unintended pregnancies and the role of public insurance programs in paying for pregnancy and infant care: estimates for 2008. New York: Guttmacher Institute; 2013.
- Secura GM, Allsworth JE, Madden T, Mullersman JL, Peipert JF. The contraceptive CHOICE Project: reducing barriers to long-acting reversible contraception. *Am J Obstet Gynecol*. 2010; 203(2): 115 e111-117.
- Peipert JF, Madden T, Allsworth JE, Secura GM. Preventing unintended pregnancies by providing no-cost contraception. *Obstet Gynecol*. 2012; 120(6): 1291-1297.
- Secura GM, Madden T, McNicholas C, Mullersman J, Buckel CM, Zhao Q, Peipert JF. Provision of no-cost, long-acting contraception and teenage pregnancy. *N Engl J Med*. 2014; 371(14): 1316-1323.

9. Glasgow RE, Vinson C, Chambers D, Khoury MJ, Kaplan RM, Hunter C. National Institutes of Health approaches to dissemination and implementation science: current and future directions. *Am J Public Health*. 2012; 102(7): 1274-1281.
10. Kerner J, Rimer B, Emmons K. Introduction to the special section on dissemination: dissemination research and research dissemination: how can we close the gap? *Health Psychol*. 2005; 24(5): 443-446.
11. Carpenter D, Nieva VTA, Sorra J. Development of a planning tool to guide dissemination of research results. In: Henriksen K, Battles JB, Marks ES, eds. *Advances in patient safety: from research to implementation*, vol. 4. Rockville: Agency for Healthcare Research and Quality; 2005.
12. Green LW, Glasgow RE. Evaluating the relevance, generalization, and applicability of research: issues in external validation and translation methodology. *Eval Health Prof*. 2006; 29(1): 126-153.
13. Glasgow RE, Emmons KM. How can we increase translation of research into practice? Types of evidence needed. *Annu Rev Public Health*. 2007; 28: 413-433.
14. Oldenburg B, Glanz K. Diffusion of innovations. *Health Behav Health Educ Theory Res Pract*. 2008;313-333.
15. Wilson PM, Petticrew M, Calnan MW, Nazareth I. Disseminating research findings: what should researchers do? A systematic scoping review of conceptual frameworks. *Implement Sci*. 2010; 5(1): 91.
16. Haider M, Kreps GL. Forty years of diffusion of innovations: utility and value in public health. *J Health Commun*. 2004; 9(S1): 3-11.
17. Winner B, Peipert JF, Zhao Q, et al. Effectiveness of long-acting reversible contraception. *N Engl J Med*. 2012; 366(21): 1998-2007.
18. Mendel P, Meredith LS, Schoenbaum M, Sherbourne CD, Wells KB. Interventions in organizational and community context: a framework for building evidence on dissemination and implementation in health services research. *Admin Pol Ment Health*. 2008; 35(1-2): 21-37.
19. Glasgow RE, Marcus AC, Bull SS, Wilson KM. Disseminating effective cancer screening interventions. *Cancer*. 2004; 101(5 Suppl): 1239-1250.
20. Greenhalgh T, Robert G, MacFarlane F, Bate P, Kyriakidou O. Diffusion of innovations in service organizations: systematic review and recommendations. *Milbank Q*. 2004; 82(4): 581-629.
21. Scullion PA. Effective dissemination strategies. *Nurse Res*. 2002; 10(1): 65-77.
22. Scullion P. *Nurse Training at Gulson Road Hospital 1954-1967*. Project Report. Coventry University. 2001.
23. Brownson RC, Jacobs JA, Tabak RG, Hoehner CM, Stamatakis KA. Designing for dissemination among public health researchers: findings from a national survey in the United States. *Am J Public Health*. 2013; 103(9): 1693-1699.
24. Huberman M. Linkage between researchers and practitioners: a qualitative study. *Am Educ Res J*. 1990; 27(2): 363-391.
25. Freemantle N, Watt I. Dissemination: implementing the findings of research. *Health Libr Rev*. 1994; 11(2): 133-137.