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A systematic approach to improving intrauterine device services in family planning clinics☆

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Abstract

Objectives: To improve the quality of intrauterine device (IUD) services at Title X clinics.
Study Design: Failure Modes Effects and Criticality Analysis (FMECA) is a step-by-step approach, adopted for healthcare, in which team members evaluate the systems and processes of a specific type of clinical care (e.g., IUD care) in order to identify practices that contribute to poor quality, unsafe, unreliable, or inefficient care. These weaknesses are termed "failures." The FMECA uses qualitative (e.g., meetings) and quantitative (e.g., clinical operations) data to determine failure frequency and impact in order to prioritize the parts of a clinical care system or process to be redesigned and improved.
An FMECA was conducted in three community-based Title X family planning clinics on the South and West Sides of Chicago, IL with all care team members; IUD clients were also interviewed regarding their visit. Clinic administrative data was also assessed to determine the frequency and impact of the identified failures.
Results: After combining the FMECA and clinical operations data, "critical" areas across all three clinics were: (1) client does not show up for or cancels appointment; (2) client is ineligible for an IUD insertion due to unprotected intercourse; and (3) limited time for counseling, informing, and placing IUDs. As most insertions were successful, failed IUD insertion was not considered a high-risk failure.
Conclusions: This process revealed that the failures most in need of improvement and redesign were the scheduling and intake processes and the lack of time for counseling during certain types of visits.
Implications: A systematic assessment of the underlying problems in IUD-care revealed three important issues across three clinics: (1) client does not show up for appointment or cancels appointment; (2) client recently had unprotected intercourse; and (3) limited time for counseling, informing, and placing IUDs.

Keywords: Adolescent; Contraception; Young adult; Quality improvement; Risk assessment

1. Introduction

In the United States, young women have the highest rates of unintended pregnancy: 88 per 1,000 for 18–19-year-olds and 104 per 1,000 for 20–24 year-olds [1]. Contraception is the cornerstone of pregnancy prevention and the intrauterine device (IUD) is one of the most effective methods available. The IUD is especially well suited for young women, as it requires few behaviors to maintain it, is highly efficacious, and is long acting, yet only eight percent of US contraceptive users choose the IUD [2]. Thus, it is critical to remove unnecessary barriers for women who seek an IUD. Prior research has focused on the role of client and provider-level barriers, yet systems-level barriers are prevalent as well. Our own research demonstrated that a "two-visit" protocol decreases the likelihood that an IUD will be obtained [3].

This research examines a novel methodology: Failure Modes Effects and Criticality Analysis (FMECA), a step-by-step approach for identifying "failures" that contribute to

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poor quality, unsafe, unreliable, or inefficient care. The term "failure" is used to denote instances when a system fails or might fail to consistently produce a desired outcome. For example, a failure in a scheduling system occurs if a patient calls and cancels her appointment, but the cancellation is not entered into the electronic schedule. Such a failure leads to an unrecognized, unfilled appointment in the schedule. If this occurs frequently, patients may have difficulty being seen and the clinic sees fewer patients overall, generating less revenue. The FMECA provides a systematic way to identify failures and to prioritize the most important ones for improvement. The FMECA approach was originally developed by engineers to study complex systems and is typically applied to high-risk industries, such as nuclear power and commercial aviation, where an error can have serious consequences [4,5]. These fields have a long-standing tradition of continuously improving processes and redesigning systems to achieve maximum quality, safety, reliability and efficiency. However, these step-by-step evaluation methods have increasingly been used to maximize the safety and quality of clinical care in many healthcare settings (e.g., door-to-balloon time in the emergency room for patients with ST segment elevated myocardial infarction, delivery of chemotherapy to pediatric cancer patients, and intravenous infusions) [6–17]. The Institute for Healthcare Improvement has disseminated many of these approaches and techniques for use in a variety of specializations, but not yet to family planning [18].

The Title X program provides family planning services for more than 5 million women and men across the US through a network of more than 4400 community-based, clinical sites. Thus, optimizing the care provided by Title X clinics has tremendous public health benefits. In this paper, we provide a detailed account of an FMECA implemented across three Title X family planning clinics serving low-income communities in Chicago. The goal of the FMECA was to systematically identify vulnerable steps in the systems and process of IUD care in order to create targeted redesigns to ensure optimal quality, safety, reliability, and efficiency for young women, who comprise the majority of Title X program clients.

2. Methods

2.1. Study design and setting

This study was conducted between January and May 2011 at three community-based Title X family planning clinics located on the South and West Sides of Chicago, Illinois. These clinics serve populations with similar demographic characteristics: more than 90% of the client population living at or below the Federal Poverty Line, more than 92% of clients being female, and more than 75% of clients under age 30. At Clinics A and B, more than 90% of the client population is African American and the remaining population is Latino or multi-racial. At Clinic C, 59% of clients are African American and 22% are Latino, with the remaining population being white, multi-racial or of unidentified race/ethnicity. At all three sites, the client population reflects the surrounding communities. The study was approved by the Institutional Review Boards at the University of Chicago and Northwestern University and the research review board of Planned Parenthood Federation of America.

2.2. Failure mode effects and criticality analysis

The FMECA was conducted by inviting all clinicians and staff engaged in IUD care to a series of meetings at each of the three clinics. Participants included front desk clerks, managers, reproductive healthcare assistants (who conduct contraceptive counseling), and nurse practitioners (who insert IUDs). Two (Clinic C) or three (Clinics A and B) meetings were held at each clinic. A researcher took notes during the meetings to capture themes of the discussion [19].

Five additional, in-depth interviews were held with clients from Clinics A and C, including clients who had successfully obtained an IUD and clients who desired an IUD but had not obtained one. Eligible clients were identified by clinic staff and, if interested, gave permission for their contact information to be given to the research team. All participants provided informed consent. All meetings and interviews were digitally recorded and professionally transcribed.

At the first clinic meeting, the FMECA process was explained to participants. Then, each participant was asked to describe in his/her own words the steps and tasks that he/she engages in when providing IUD care, beginning with the client scheduling an appointment (e.g., she arrives at the clinic, she waits in the waiting room, she is counseled) and ending with the client receiving (or not receiving) an IUD. Participants were encouraged to report on what they *actually do* rather than report on formal rules or operating procedures.

Following the meeting, the research team created a process map depicting each step in IUD care for each site using Microsoft Visio (Microsoft Visio 2010; Microsoft Corporation, Redmond, WA, USA) (Fig. 1). The research team then provided the process map to participants at each site to review for accuracy before the next meeting.

At subsequent meetings, clinical staff reviewed the modified process map and verified the accuracy of each step depicted on the map. For each step of IUD care, they were then asked to describe: What can go wrong? Why does it go wrong? How often does it go wrong? What happens as a result of it going wrong? What mechanisms are in place to prevent things from going wrong? In the meeting, participants were asked to consider, from a client's perspective, how each step of the process could influence IUD awareness or uptake. In individual interviews, clients were asked to review the process map of IUD care and identify potential barriers that a client might face when seeking an IUD.

The information from these meetings and interviews was organized in a table (Table 1), noting each identified failure