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## Standardizing a federally qualified health center’s preventive care processes: Use of failure modes and effects analysis

**Angela L. Carman, DrPH [Assistant Professor],**

University of Kentucky College of Public Health, Lexington, Kentucky. [angela.carman@uky.edu](mailto:angela.carman@uky.edu).

**Robin C. Vanderpool, DrPH [Associate Professor],**

University of Kentucky College of Public Health, Lexington, Kentucky.

**Lindsay R. Stradtman, MPH [Project Coordinator],**

University of Kentucky College of Public Health, Lexington, Kentucky.

**Stephanie C. Moore, MPA [Chief Executive Officer]**

White House Clinics, Richmond, Kentucky.

### Abstract

A multisite federally qualified health center used a Failure Modes and Effects Analysis to identify and correct potential challenges to the implementation of the proactive office encounter model.

This model is designed to proactively identify and close preventive care gaps through electronic medical record use, new workflows, and staff training.

### Keywords

Appalachian region; community health centers; healthcare delivery; Kentucky; preventive health services

### The Problem

White House Clinics (WHC), a multisite federally qualified health center in rural Appalachian Kentucky, began implementation of a proactive office encounter (POE) model in 2014. POE is a systematic approach to providing patients with preventive care services at every office encounter. Developed by Kaiser Permanente, POE is designed to proactively identify and close preventive care gaps, such as uptake and adherence to guideline-recommended cancer screenings and immunizations. POE implementation is accomplished through the strategic use of electronic medical records to identify patient compliance with preventive care guidelines, development of new workflows, and staff training (Kanter, Martinez, Lindsay, Andrews, & Denver, 2010). Utilization of POE signaled a culture shift at WHC to increase emphasis on preventive care for patients, especially those traditionally seen for acute issues or chronic disease maintenance. POE focuses on using existing primary care services more efficiently and effectively to achieve gains in population health (Kanter et al., 2010).

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Preliminary 2015 Uniform Data System measures, representing the first year of POE implementation, indicate increases in breast and colorectal cancer screening (25% and 36%, respectively) among WHC's adult patient population. In addition, WHC conducted five times the number of HIV screenings (831 vs. 4,371) and eight times the number of Hepatitis C screenings (378 vs. 3,334) during the initial implementation year (Vanderpool et al., 2016). However, despite early successes, implementation of POE across six clinical sites was a complex undertaking. Implementation took approximately 1 year and was facilitated by an academic-community partnership with the University of Kentucky College of Public Health (UKCPH). In addition, new staff members were hired to identify care gaps and coordinate provision of relevant information to providers. WHC also needed to determine if POE was an effective, efficient, and sustainable part of clinic operations, capable of withstanding changing reimbursement models and staffing and patient variations across their clinical sites.

## Research

A basic tenet of quality improvement (QI) is the definition of critical processes or important sets of tasks that will determine if an organization can successfully meet goals and customer needs (Bialek, Duffy, & Moran, 2009). Several basic QI tools provide structure to the definition of organizational processes and problem solving for improvement. Tools include brainstorming, cause-and-effect diagrams, histograms, nominal group techniques, and flowcharts (Bialek et al., 2009). Tools can be combined for an advanced assessment, such as the Failure Modes and Effects Analysis (FMEA). An FMEA is "a systematic method of analyzing and ranking the risks associated with various product failure modes (both existing and potential), prioritizing them for remedial action" (Dailey, 2004). The FMEA combines brainstorming by team members and flowcharting to create a detailed process map with potential breakdowns or failure modes noted, ranked, and corrective action identified (Figure 1; Dailey, 2004). Furthermore, the FMEA process has been increasingly used in healthcare settings as a way to improve patient safety and minimize known risks (Askari, Shafil, Rafiei, Abolhassani, & Salarikhah, 2017).

Utilizing QI processes and qualitative interviews, researchers from UKCPH evaluated the adaptation and implementation of the POE intervention at WHC and its impact on the provision and receipt of preventive care. Specifically, in-depth interviews with administrators, clinical personnel, and support staff were completed. Interviews lasted approximately 30 minutes and focused on challenges and barriers to implementation, workload impact, and steps taken to incorporate POE into the existing WHC workflow. Interview findings identified the challenge of maintaining fidelity to the POE process through staff turnover and across geographically separated clinics as well as new-hire orientation. Findings also suggested that an FMEA be conducted with an interdisciplinary team of WHC personnel. The exercise would focus on identifying strategies for increasing efficiency and sustaining POE processes across WHC's multiple sites.

## Research Implementation

The FMEA was conducted during a half-day session with 11 participants from WHC leadership, clinical and support personnel from each clinic using the POE intervention, and UKCPH researchers. The session included process mapping, failure-mode identification, and creation of a corrective action list. Participants agreed that the POE process begins with a patient chart review, identification of preventive care gaps, and provision of related information to the provider team and concludes with a patient's compliance with recommended steps (e.g., receipt of a mammogram).

UKCPH researchers provided training on the QI method of flowcharting to create a process map for the POE intervention at WHC. Participants were instructed to identify steps taken from day-to-day practice, even if those steps varied from the intended POE implementation procedure. Noted were the changes each site had made to the POE process since intervention launch. Some changes originated with clinicians whose chart review preferences (i.e., every 3 months) varied from the organizational chart review guidelines (i.e., once a month). These changes were viewed as breaks or failure modes in the process as they increased the likelihood of confusion and/or staff errors. The process map also enabled participants to identify other potential process failures such as provider variations in adhering to preventive care guidelines.

During the WHC FMEA exercise, the process was adapted from other documented FMEAs by removing the ranking of failure modes. Participants agreed that each potential failure mode had an equal likelihood of contributing to errors and placed all modes equally on the correction list. As a result, workload management for those team members charged with completing the correction list was viewed as the largest barrier to maximizing the impact of the FMEA on the POE process.

## Conclusion

The FMEA of the POE implementation process at WHC resulted in a corrections list from identified failure modes. The list included a comprehensive review of preventive care protocols for adult patients, such as exceptions or exclusion from screenings, by the clinical staff. These preventive care protocols drive the chart review as they determine at what ages or intervals patients should receive specific preventive care recommendations (e.g., colonoscopy, vaccinations). In addition, WHC committed to developing more written policies and procedures to guide the POE intervention workflow. The policies and procedures would serve as reference materials for current staff and training materials for new hires, thus increasing the standardization of process across WHC clinics. WHC clinic staff also created a Frequently Asked Questions document for quick reference of common POE-related operational issues. Each of these documents will need periodic review to ensure the process continues to support the needs of the organization or to incorporate new steps and improvements.

By conducting an FMEA, WHC identified and implemented standardized POE processes into operations at their clinical sites. These standardized processes reduce the potential for

staff confusion and/or errors and increase patient receipt of appropriate preventive care protocols. In addition, the standardized process allows staff to work more confidently knowing that following the same procedures equals delivering an organizational-wide agreed upon standard of care. The standardized process also supports a more equal distribution of work as WHC leadership corrects variation across sites in staff and provider work expectations.

Additional benefits for WHC of conducting the FMEA included development of a source guide for providers with quality measure details, documentation guidance for the electronic medical record, and improved understanding of efforts to increase clinical quality. The FMEA process also identified variances in the initial POE training between clinical team members and support staff, which were addressed via training and process guide use.

Last, completing the FMEA expanded the reach of POE within WHC. For example, initially, the POE process of reviewing patient charts was done only for patients whose appointments were scheduled in advance. Through the FMEA, staff identified workflow changes that would allow chart review and care gap identification for patients whose appointments were scheduled on the same day.

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# FMEA Process

Purpose: Assess the status of POE as a structured, sustainable part of WHC operations.

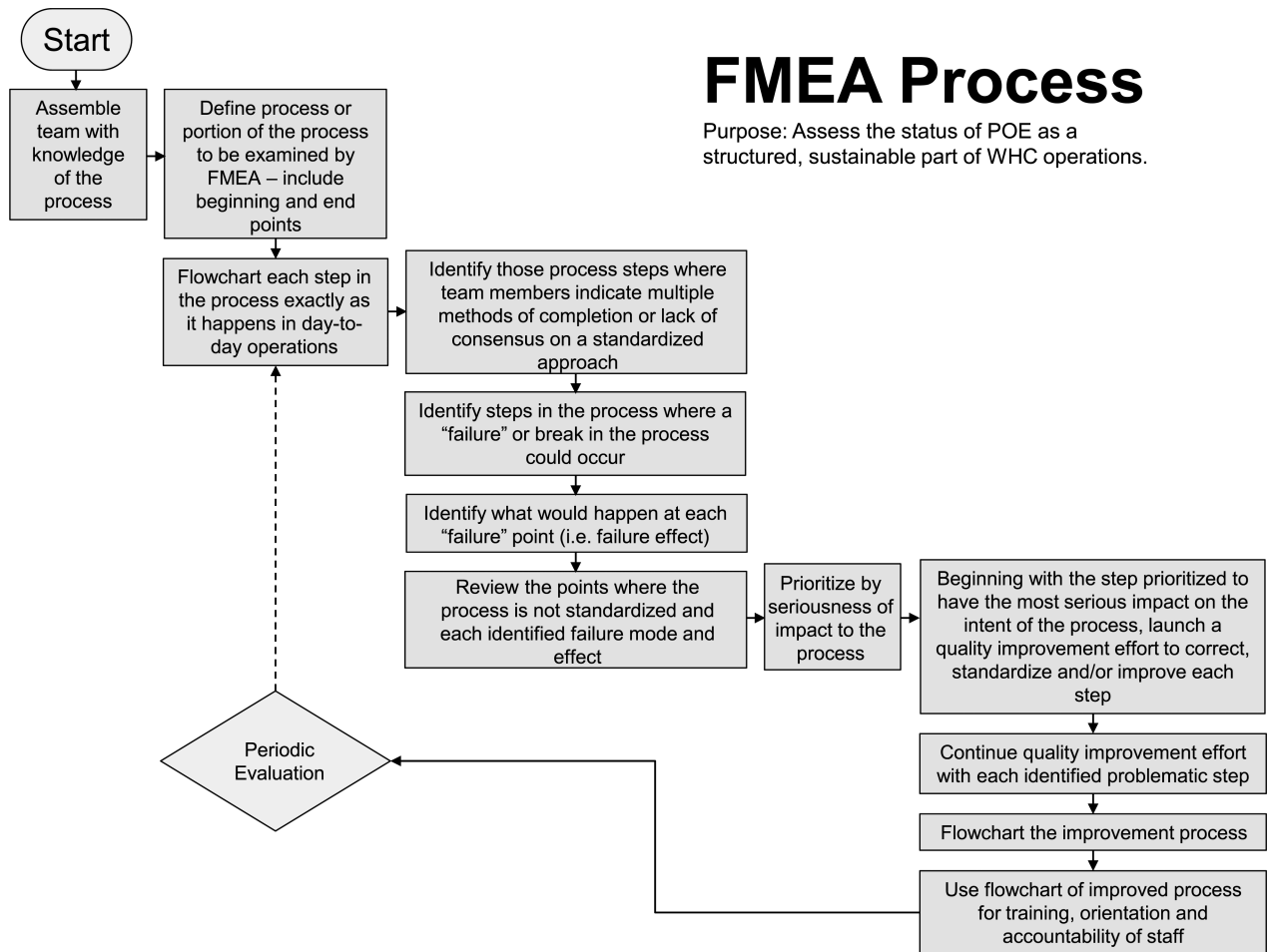


Figure 1. Failure modes and effects analysis process