

Culture of Safety Quality Improvement Project: Longitudinal AHRQ Survey Results From a Family Medicine Residency Program

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Abstract

Objectives: This project analyzed the culture of safety quality improvement at the Family Medicine Center (FMC). The Agency for Healthcare Research and Quality (AHRQ) *Culture of Safety Survey* was used as a benchmark for internal and external comparison.

Methods: The AHRQ *Culture of Safety Survey* was administered to health care staff in 2015, 2017, and 2019, respectively, at the Family Medicine Center. Baseline perceptions of safety and quality were established using the data from the AHRQ *Culture of Safety Survey* in 2015. We performed multiple large-scale quality improvement projects that focused on identified deficiencies. The changes in perception were monitored over time every 2 years. We analyzed the results using the Kruskal-Wallis test ($P=.05$).

Results: The AHRQ *Culture of Safety Survey* showed statistically significant improvement in patient centeredness, effectiveness, timeliness, efficiency, equitableness, and overall patient safety from 2015 to 2019. Some inconsistencies were seen between different sections of responses, likely due to wording interpretations by the participants.

Conclusion: Overall, the AHRQ *Culture of Safety Survey* is an effective way to help monitor employee perception of multiple domains that lead to a safe and effective clinical environment as compared to other practices across the country. Clinic-wide implementation of quality and patient care strategies resulted in significant improvements in nearly every category of the survey.

Introduction

Patient safety has come to the forefront since the publication of the Institute of Medicine's report *To Err is Human: Building a Safer Health System* in 1999.¹ Tracking patient safety and clinic culture allows for continual improvement.²⁻⁶ The Family Medicine Center (FMC) used the Agency for Healthcare Research and Quality (AHRQ) *Culture of Safety Survey* to measure the clinic's patient safety culture by assessing physician and staff perceptions of clinic patient safety and quality outcomes. Teamwork is a core feature of successful health care quality improvement, yet there is little evidence on best practices for implementation and support of teamwork initiatives that directly impact safety and quality.^{2,7}

The Family Medicine Center (FMC) clinic is a recognized patient-centered medical home (PCMH) for a

community-based family medicine residency program. Senior leadership within the FMC sought to improve the culture of safety and quality through targeted, evidence-based systems improvement efforts. These efforts included error reporting mechanisms, regular safety meetings by department leaders, and the creation of a resident safety chief position.^{5,8} The goal of these initiatives has been to maintain high-quality health care despite regular resident turnover.⁹ The FMC utilized the AHRQ *Culture of Safety Survey* as a benchmark for internal and external comparison. The AHRQ's Medical Office Survey on Patient Safety Culture is broken down into several categories such as "Communication About Error" and "Office Processes and Standardization" with additional questions on patient safety issues and exchanging patient information with other entities, which are respectively referred to as the "A" and "B" series of questions in the survey tool. The FMC has been working to balance initiatives to enhance patient care and graduate medical education experience with staff's fatigue associated with frequent changes to processes, workflow, and reporting requirements in a fast-paced clinic.^{10,11}

The purpose of this study was to longitudinally evaluate the net impact on patient safety metrics when the organization's leadership set its improvement as a company-wide goal. As a community family medicine residency program, it is crucial to include a focus on patient safety outcomes as part of our mandate to graduate practice-ready physicians.

Methods

This study was conducted at the FMC with responses provided by physicians, nurses, pharmacists, and other clinic staff members. Printed surveys were made available throughout the facility.

Study Design and Data Collection

The medical office survey, an expansion of AHRQ's *Hospital Survey on Patient Safety Culture*, was designed to measure an office's patient safety culture. The survey consisted of 26 questions in five different series and an additional 22 survey questions about organizational culture. Paper surveys were made available to the approximately 80 FMC employees in 2015, 2017, and 2019. The printed surveys were made available throughout the clinic and administrative spaces. We used the Kruskal-Wallis test to analyze the data with an α of 0.05. This project was approved by the Lutheran Health Network Institutional Review Board (LHN# 18-511).

Results

A total of 112 surveys were completed by FMC employees. Statistically significant improvements in patient centeredness, effectiveness, timeliness, efficiency, equity, and overall patient safety were seen from baseline results to final results. In the 2015 baseline assessment 33 participants completed the survey, and in 2017 and 2019 48 and 44 participants, respectively, submitted the survey.

In the "A" series question about access to care within 48 hours, 55% in 2015, 65% in 2017, and 91% in 2019 of employees had a positive response. The FMC leadership set the goal of having a mean value ≥ 5 for the "A" series questions (Figure 1). We met these goals for access to health care providers, chart access, and properly working medical equipment. This study demonstrated significant improvement in five the of the nine areas, while only four the nine areas met the leadership's target.

Tables 1 and 2 represent the results of the next 11 areas of the AHRQ survey. The bold font entries in the tables show where the FMC leadership's goal was achieved. There were instances where significant changes were observed even if the leadership's goal wasn't achieved.

In the "B" series of questions, values of ≤ 2 were desired for negative questions, and ≤ 4 for positive questions.

Results were below the national average for interfacing with various external medical settings. From 2015 to 2019 we saw significant improvement in teamwork, with three out of four responding “very good” to the prompt “when someone in this office gets really busy, others help out.” We also saw significant improvement in employee perceptions of patient care tracking and follow-up. The questions concerning organization learning showed there was a significant decrease in positive responses.

Figure 2 shows the results of employee’s rating their clinic on six different areas. The leadership set a score of 4 out of 5 or more as the target for each category. All six areas showed a significant increase in the employee’s rating of their office.

Limitations

This study had several limitations. First, we had a small number of participants, and some of the participants did not complete all components of the survey. Some parts of the survey inexplicably had as few as five participants respond (Table 1, 2017 data set). Missing data and nonresponse bias may be present, and those with strong negative or positive feelings may have been more likely to respond. Additionally, there were some survey questions with interpretation variances leading to inconsistent results from similar questions. Also, we were unable to gather specific baseline characteristics regarding employees’ role in the clinic and years of practice at the clinic as many of the surveys were left blank for these questions. Therefore, the anonymous paper-based survey format did not allow for intra-cohort analysis between physicians, nurses and other staff participants. Finally, since we followed the AHRQ representative’s advice on how to make the surveys available to the employees we were not able to determine the actual response rate.

Discussion

We improved patients’ access to care at the FMC, interclinical communication, and team and interprofessional interactions. Overall perception of patient safety and quality has shown statistically significant improvement in four out of four responses. However, multiple areas still need improvement to reach benchmarks and the national average for top box responses. The organizational learning survey indicated a discordance between questions F1 and F5 (change management perceptions). These discordances could be attributed to inconsistent interpretation of survey questions or could be due to safety inertia, where easily modified issues are addressed but larger, global issues are not addressed. Another area where we noted a discordance was between questions D8 and D12. Providers and staff do not reportedly speak openly about problems in the office in the first question. However, staff are willing to report mistakes they observe in the office in the second question. The wording of “talk openly about office problems” allows for variations in interpretation, eg, venting dissatisfaction openly versus discussing concerns in appropriate settings.

In addition to the learning opportunities for our family medicine residents, the quality improvement projects focused on identified workflow inefficiencies such as implementation of a new electronic medical record and telephone system, along with robust screening protocols. Key activities that affected the described changes included daily team huddles to foster communication, clinical staff uniforms to build a sense of community, development of an FMC committee with diverse participants, and the creation of a resident quality safety chief to identify and correct errors. Finally, to the best of our knowledge there are no previous publications that used AHRQ’s *Culture of Safety Survey* for longitudinal patient care benchmarks as part of a family medicine residency’s physician training.

The results from our study helped compare patient safety culture survey results from the FMC with other medical offices. Our clinic has progressed significantly from 2015 to 2019, but there is room for continued improvement through more focused projects.

Tables and Figures

Figure 1: FMC's mean response scores from 2015, 2017 and 2019 to the Series A Questions From the AHRQ Survey

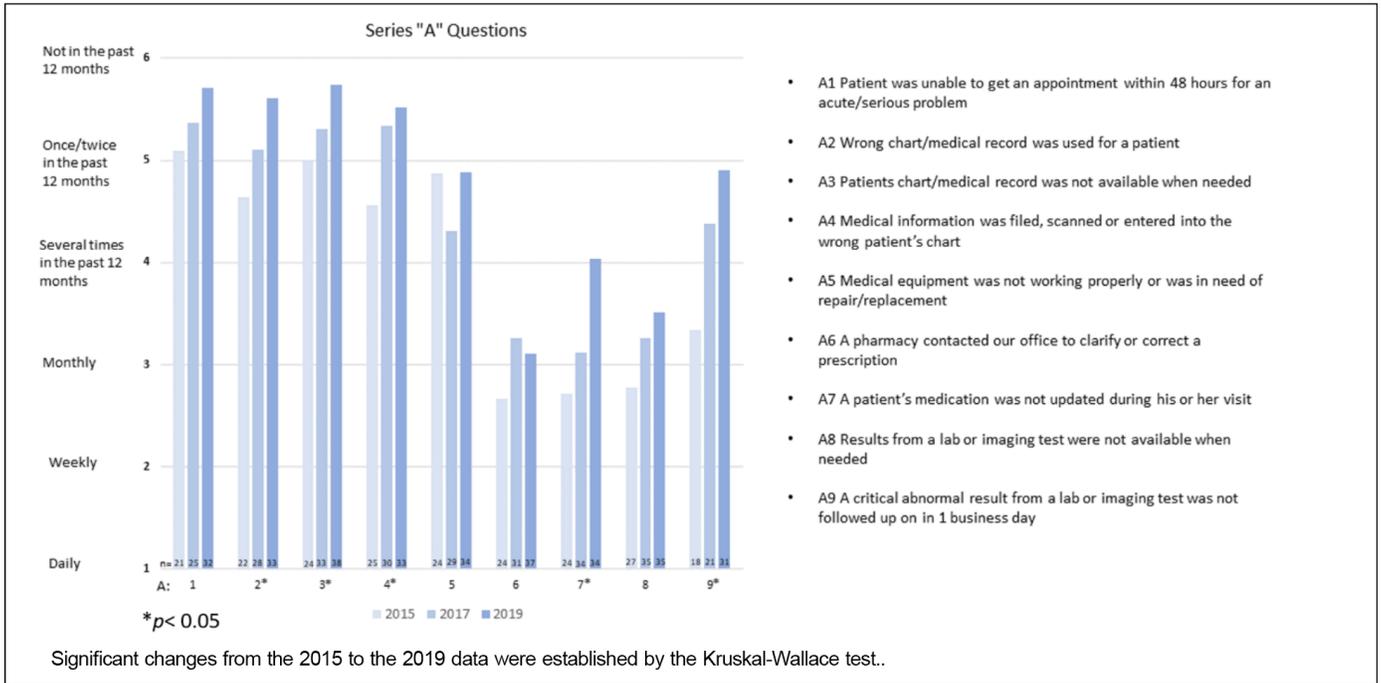


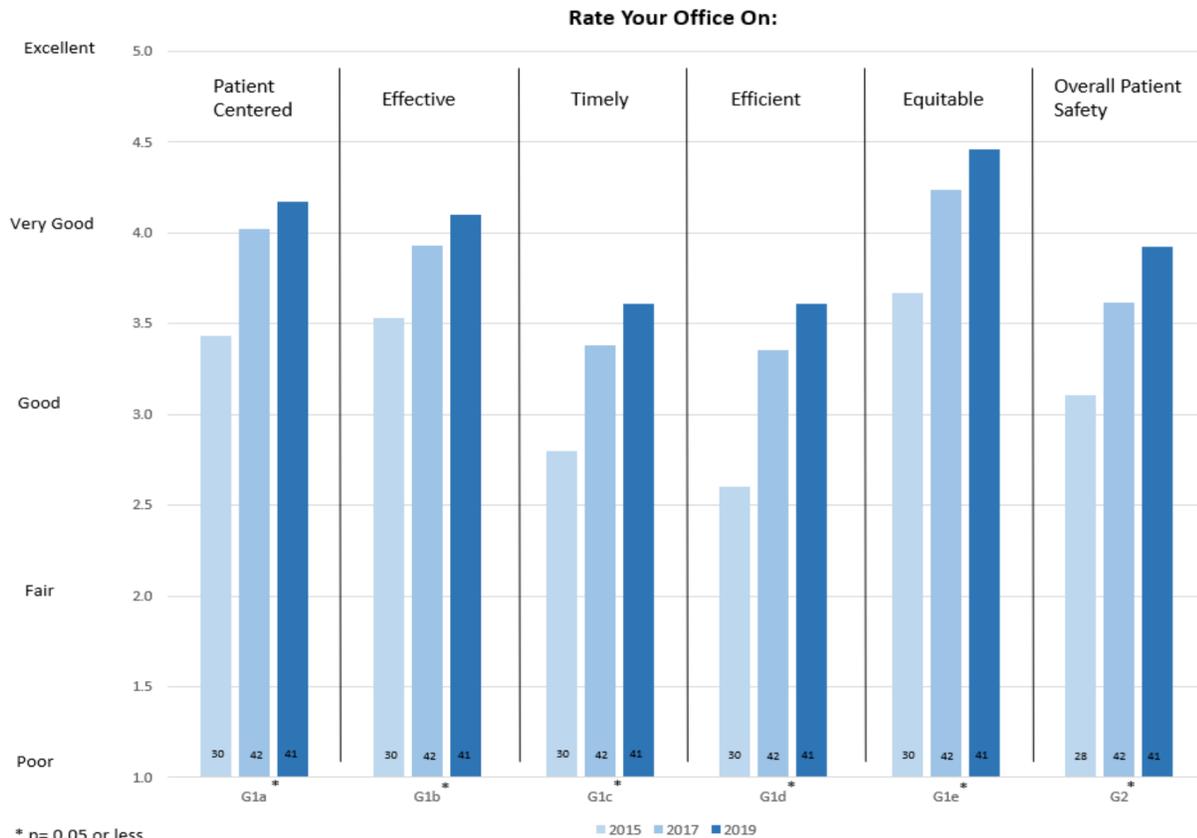
Table 1: AHRQ Survey Data, 2015-2019, Topic Areas 1-6

AHRQ Survey Categories	Target Mean	2015 (n)	2017 (n)	2019 (n)	P value
Series B					
B1. Outside labs/imaging centers	>4.0	2.7 ±0.3 (23)	3.5 ±0.3 (31)	3.7 ±0.2 (32)	.06
B2. Other medical offices/outside physicians	>4.0	2.7 ±0.3 (25)	3.4 ±0.3 (30)	3.6 ±0.2 (30)	.058
B3. Pharmacies	>4.0	3.4 ±0.4 (21)	3.6 ±0.3 (31)	3.9 ±0.3 (30)	.521
B4. Hospitals	>4.0	3.3 ±0.3 (25)	3.8 ±0.3 (31)	3.9 ±0.3 (30)	.425
Team Work					
C1 – When someone in this office gets really busy, others help out	>4.0	3.9 ±0.2 (31)	4.2 ±0.1 (43)	4.5 ±0.1 (42)	.02
C2 – In this office, there is a good working relationship between staff and providers	>4.0	4.0 ±0.2 (31)	4.1 ±0.1 (43)	4.4 ±0.1 (42)	.16
C5 – In this office, we treat each other with respect	>4.0	3.6 ±0.1 (31)	4.1 ±0.1 (43)	4.3 ±0.1 (42)	.003
C13 – This office emphasizes teamwork in taking care of patients	>4.0	3.7 ±0.1 (31)	4.1 ±0.1 (43)	4.3 ±0.1 (42)	.012
Patient Care Tracking/Follow-Up					
D3 – This office reminds patients when they need to schedule an appointment for preventative or routine care	>4.0	3.3 ±0.1 (26)	3.9 ±0.1 (35)	4.5 ±0.1 (42)	.0001
D5 - This office documents how well our chronic-care patients follow their treatment plans	>4.0	3.2 ±0.1 (25)	3.6 ±0.1 (34)	3.8 ±0.1 (35)	.004
D6 – Our office follows up when we do not receive a report we are expecting from an outside provider	>4.0	3.2 ±0.2 (26)	3.5 ±0.2 (28)	4.1 ±0.1 (38)	.003
D9 This office follows up with patients who need monitoring.	>4.0	3.2 ±0.2 (27)	3.9 ±0.1 (36)	4.0 ±0.1 (40)	.001
Overall Perception of Patient Safety and Quality					
F2 – Our office processes are good at preventing mistakes that could affect patients	>4	3.3 ±0.1 (26)	4.2 ±0.4 (5)	3.9 ±0.1 (32)	.005
F3 – Mistakes happen more than they should in this office	<2	3.2 ±0.2 (24)	2.8 ±0.4 (5)	2.5 ±0.1 (31)	.03
F4 – It is just by chance that we don't make more mistakes that affect our patients	<2	3.3 ±0.2 (23)	2.4 ±0.4 (5)	2.1 ±0.1 (32)	.0002
F6 – In this office, getting more work done is more important than quality of care.	<2	2.9 ±0.2 (24)	1.6 ±0.2 (5)	2.1 ±0.2 (32)	.003
Organizational Learning					
F1 - When there is a problem in our office, we see if we need to change the way we do things	>4	3.7 ±0.2 (26)	4.6 ±0.2 (5)	4.2 ±0.1 (31)	.02
F5 – This office is good at changing office processes to make sure the same problems don't happen again	>4	3.1 ±0.2 (24)	4.4 ±0.2 (5)	4.1 ±0.2 (31)	.0006
F7 – After this office makes changes to improve the patient care process, we check to see if the changes worked	>4	3.4 ±0.1 (25)	4.4 ±0.2 (5)	3.9 ±0.1 (31)	.004
Staff Training					
C4 – This office trains staff when new processes are put into place	>4	3.5 ±0.2 (31)	3.8 ±0.2 (41)	4.0 ±0.1 (40)	.07
C7 – This office makes sure staff get the on the job training they need	>4	3.3 ±0.2 (30)	3.9 ±0.1 (38)	4.2 ±0.1 (40)	.0004
C10 – Staff in this office are asked to do tasks they haven't been trained to do	<2	2.6 ±0.2 (28)	2.5 ±0.1 (38)	1.9 ±0.1 (38)	.003

Table 2: AHRQ Survey Data for Topic Areas 7-11

AHRQ Survey Categories	Target Mean	2015 (n)	2017 (n)	2019 (n)	P value
Communication About Errors					
D7 – Staff feel like their mistakes are held against them	<2	3.0 ±0.2 (25)	2.3 ±0.1 (27)	2.3 ±0.2 (30)	.003
D8 – Providers and staff talk openly about office problems	>4	3.3 ±0.1 (31)	3.8 ±0.2 (37)	3.8 ±0.1 (41)	.014
D11 – In this office, we discuss ways to prevent errors from happening again	>4	3.5 ±0.1 (31)	4.3 ±0.1 (41)	4.5 ±0.1 (41)	.0002
D12 – Staff are willing to report mistakes they observe in the office	>4	3.3 ±0.1 (29)	4.4 ±0.1 (33)	4.3 ±0.1 (39)	.00001
Communication Openness					
D1 – Providers in this office are open to staff ideas about how to improve office processes	>4	3.5 ±0.1 (30)	4.1 ±0.1 (42)	4.0 ±0.1 (37)	.004
D2 – Staff are encouraged to express alternative viewpoints in this office	>4	3.2 ±0.2 (30)	4.2 ±0.1 (37)	3.9 ±0.1 (40)	.0001
D4 – Staff are afraid to ask questions when something doesn't seem right	<2	2.9 ±0.2 (27)	2.2 ±0.1 (35)	2.2 ±0.1 (38)	.007
D10 – It is difficult to voice disagreement in this office	<2	3.1 ±0.2 (29)	2.4 ±0.1 (38)	2.3 ±0.1 (40)	.001
Office Processes and Standardization					
C8 – This office is more disorganized than it should be	<2	3.8 ±0.2 (31)	3.1 ±0.2 (41)	2.7 ±0.1 (41)	.0002
C9 – We have good procedures for checking that work in this office was done correctly	>4	3.0 ±0.2 (30)	3.5 ±0.2 (37)	3.7 ±0.1 (40)	.009
C12 – We have problems with workflow in this office	<2	4.1 ±0.2 (31)	3.8 ±0.2 (41)	3.2 ±0.1 (42)	.001
C15 – Staff in this office follow standardized processes to get tasks done	>4	3.1 ±0.2 (30)	3.6 ±0.2 (39)	3.9 ±0.1 (42)	.012
Leadership Support for Patient Safety					
E1 – They aren't investing enough resources to improve the quality of care in this office	<2	2.6 ±0.2 (23)	2.5 ±0.2 (30)	2.2 ±0.2 (21)	.515
E2 – They overlook patient care mistakes that happen over and over	<2	2.6 ±0.2 (21)	1.8 ±0.1 (28)	1.9 ±0.2 (20)	.008
E3 – They place a high priority on improving patient care processes	>4	4.0 ±0.2 (25)	4.1 ±0.1 (33)	4.2 ±0.2 (21)	.537
E4 – They make decisions too often based on what is best for the office rather than what is best for patients	<2	3.1 ±0.2 (24)	2.0 ±0.2 (31)	2.1 ±0.2 (20)	
Work Pressure and Pace					
C3 – in this office, we often feel rushed when taking care of patients	<2	3.8 ±0.2 (30)	3.9 ±0.2 (39)	3.1 ±0.2 (41)	.003
C6 – We have too many patients for the number of providers in this office	<2	2.7 ±0.2 (29)	2.5 ±0.1 (39)	1.9 ±0.1 (42)	.003
C11 – We have enough staff to handle our patient load	>4	3.1 ±0.2 (31)	3.3 ±0.2 (40)	4.0 ±0.1 (40)	.005
C14 – This office has too many patients to be able to handle everything effectively	<2	3.1 ±0.2 (29)	2.5 ±0.2 (37)	2.0 ±0.1 (41)	.003

FMC's Mean Response Scores From 2015, 2017, and 2019 to the Rate Your Office Questions From the AHRQ Survey



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