

Identifying Children in Foster Care and Improving Foster Care Documentation in Primary Care

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Abstract

Background: Children and youth in foster care (CYFC) are a population with special healthcare needs, and the American Academy of Pediatrics has healthcare standards to care for this population, but implementation challenges include identifying clinic patients in foster care (FC). Documentation of FC status in the Electronic Health Record (EHR) can support the identification of CYFC to tailor care delivery. Therefore, we aimed to improve the percentage of CYFC with problem list (PL) documentation of FC status from 20% to 60% within 12 months. **Methods:** This study used a five-cycle plan-do-study-act quality improvement model in two co-located primary care teaching clinics. The primary outcome was the weekly percentage of patients with FC status on EHR PL. Ishikawa cause and effect analysis and resident survey identified barriers and informed interventions: education, patient list distribution, documentation training, email reminders, and clinic champion. We constructed statistical process control charts of the primary outcome to assess for improvement. **Results:** Mean weekly percentage of patients with FC status on PL improved from 19.8% to 60.2%. The most extensive improvements occurred after designating a clinic champion and providing email reminders with enhanced patient lists. The sustainability of PL documentation (mean = 71.7%) was demonstrated 3–4 years after the completion of plan-do-study-act cycle interventions. **Conclusions:** Educating providers, collaborating with child welfare to provide patient lists to providers, standardizing documentation, and designating clinic champions are promising methods of improving EHR documentation of FC status. Identifying and documenting FC status are important initial steps to optimizing care for this vulnerable population in primary care. (*Pediatr Qual Saf* 2023;8:e699; doi: 10.1097/pq9.000000000000699; Published online October 7, 2023.)

INTRODUCTION

Approximately 400,000 children and youth are in foster care (CYFC) on any given day in the United States, and over 200,000 enter foster care (FC) each year.¹ CYFC have higher rates of

medical, mental health, developmental, and educational problems than their peers and are classified as a population with special healthcare needs.^{2–12} Recognizing that this population has more intensive healthcare needs, the American Academy of Pediatrics has published healthcare standards to ensure CYFC receive high-quality care.^{2,13} These standards are an important reference for pediatricians who may not routinely care for CYFC. They guide care delivery, including practice parameters for primary care and developmental/behavioral health care, laboratory screening, medical consent, and overall health care management. Once children and youth enter FC, it is recommended they are seen early and often to ensure health issues are addressed.¹³ Despite this recommendation, healthcare needs of CYFC remain unmet, and outcomes continue to be poor for CYFC.^{4,14–17}

Unmet healthcare needs may stem from poor adherence to these care standards (eg, medical examination timing after FC placement), pediatricians' unfamiliarity with this population's needs, fragmented care (eg, due to placement changes), and lack of identifying FC status.^{7,14,17–20} A recent quality improvement (QI) initiative conducted at The Duke Foster Care Clinic demonstrated improved timeliness to care by educating child welfare and pediatric staff on the standards of care; however, an underlying assumption was their ability to identify a

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patient in FC, as they are a FC-specific clinic.²¹ Delivering high-quality care that follows the standards is simplified in counties or states with systems to identify CYFC and consolidate care to specialized FC-specific clinics. In contrast, it is challenging to identify patients in FC where care is dispersed across numerous primary care clinics and where providers may not be routinely notified when patients enter or exit FC.

The problem list (PL) is one clinical tool in the Electronic Health Record (EHR) that can be used to identify CYFC and document FC status. PLs are essential to daily medical care in various clinical settings, from primary care to acute care settings such as inpatient and the emergency department (ED). A recent review identified several benefits of using the PL, including patient safety, workflow efficiency, clinical decision support alerts, care coordination and communication, and facilitating population-health research.²² Best practice guidelines for using the PL in the EHR include PLs containing clinically relevant physical and diagnostic problems, procedures, and psychosocial issues that may affect patients' health status and care.^{23,24} FC status is an example of a psychosocial issue to include on the PL.

As an initial step to improving clinic adherence to FC care standards, our goal was to enhance the identification of FC status in EHR documentation for primary care patients. Specifically, we aimed to improve the percentage of clinic patients in FC with EHR PL documentation of FC status from a baseline of 20%–60% within 12 months.

METHODS

Context and Setting

Primary Care Teaching Clinics

This QI project involved a multi-component educational intervention in two co-located academic, hospital-affiliated general pediatric and adolescent primary-care teaching clinics serving ~9000 patients, from July 2018 to June 2019. The general pediatric clinic provides primary care for patients from newborn to age 21, with 50 residents assigned as primary care providers (PCP). Half-day sessions are each staffed by 6–8 residents, and 50–100 patients are seen daily. The Adolescent and Young Adult (AYA) clinic provides primary care for ages 12–26. It has an attending or adolescent medicine fellow assigned as the PCP, with 2–4 residents conducting the primary care visits during their adolescent medicine rotation. Approximately 25 patients are seen in the AYA clinic daily. Additionally, two social workers are on-site to provide support services to each clinic team.

EHR

The clinics use Epic as an integrated hospital-wide EHR, serving outpatient, inpatient, and ED. Residents and other hospital providers are encouraged to update the EHR PL

for patient care. Historically, the clinics have not used standardized practices to identify CYFC or document FC status in the EHR. Additionally, there was no prior clinic training on FC status and PL documentation.

Identifying Patients in FC

Maryland child welfare agencies are organized at the county level. One county's child welfare agency uniquely contracts with a healthcare coordination program (from now on referred to as "the Program") to ensure CYFC receive required health-related services and assign children to various PCPs. Our health system does not have FC-specific clinics; both clinics have CYFC assigned to them as primary care patients. For this study, we developed a collaboration with the Program to obtain monthly lists of patients actively in one county's FC assigned to the clinics. The Program updates these lists, as children are assigned to the clinics at FC entry. Upon entry, some patients are known to the clinics, whereas others are newly assigned. Before this study, there was no formalized notification system to know which patients had entered FC. Instead, PCPs relied on notifications of FC entry or exit during clinic visits from biological parents, foster parents, kinship caregivers, adoptive parents, or child welfare workers.

Planning the Interventions

We assembled a multidisciplinary team that consisted of an adolescent medicine fellow, an adolescent medicine attending, two general pediatric attendings, a pediatric resident, and clinic social workers.

To inform our intervention design, we analyzed documentation barriers by conducting an Ishikawa cause and effect analysis (Fig. 1). We identified resident education, provider notification, and lack of standardized documentation practices as key contributing factors. These results were supported by a pre-intervention resident survey to delineate barriers and prioritize and develop interventions. Pediatric residents were surveyed ($n = 41$, response rate 44% with equal distribution across training years) to better assess the residents' level of exposure to CYFC and documentation practices (Table 1). Nearly all (93%) of survey respondents reported caring for CYFC in ED, inpatient, or clinic settings. Yet, they lacked a standard approach to documenting FC status and identified several barriers to documentation (Table 1). Specifically, only 7.3% reported adding FC to the PL, and residents identified "unsure where to put information in EHR" as the most common barrier to documentation.

Interventions

We conducted five iterative Plan-Do-Study-Act (PDSA) cycles to assess FC status documentation on the EHR PL (Table 2). During PDSA Cycle 1 (August 26, 2018–December 1, 2018), as almost two-thirds of surveyed residents were unaware of the standards of care for this population, a three-part education series of lectures was developed and presented during pediatric resident noon conferences. The

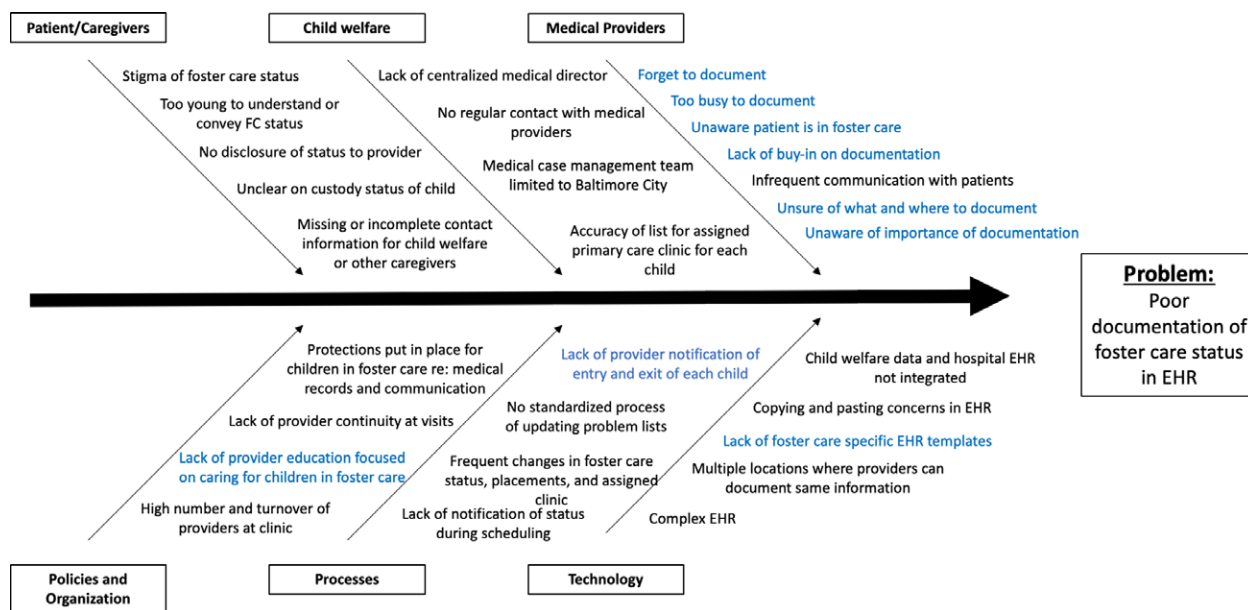


Fig. 1. Ishikawa Fishbone Cause and Effect diagram of contributors to poor EHR documentation of FC status. Note: Concepts highlighted in blue represent specific targets for intervention in this study.

three didactics were: (1) Child Welfare 101 for Pediatric Providers; (2) Health Care Needs and Standards of Care for Children and Adolescents in FC (including the importance of documenting FC status for identification and care coordination); and 3) Medical Decision-Making, Consent, and Confidentiality for Patients in FC.

During PDSA Cycle 2 (December 2, 2018–February 2, 2019), intervention components included tools to change specific documentation behavior by distributing FC patient lists to residents and providing resident training on standardized documentation to have FC status on the PL. PCP notification of patient entry into and exit out of FC and current patients continuing in FC occurred through the distribution of monthly patient lists via secure, HIPAA-compliant online storage. Lists were sorted by PCP for easier identification. A documentation tip sheet was posted in clinic work rooms serving as a visual reminder of specific PL problems of “child in FC” or “FC (status).” Residents were instructed to, at minimum, update PLs monthly (add or remove FC status) at the time of list distribution and reminded they could update the PL at any time to keep PLs accurate.

During PDSA Cycle 3 (February 3, 2019–March 16, 2019), supervising preceptors were sent email reminders to remind residents to check the list. During the review of PDSA 3, we discovered that a large sample (55%) of patients assigned to the AYA clinic lacked FC status on the PL. Thus, for PDSA Cycle 4 (March 17, 2019–May 11, 2019), we identified an AYA clinic champion as responsible for PL documentation of FC status due to the unique structure of attendings and fellows listed as PCPs with rotating residents conducting primary care visits. We did not select a general pediatric clinic champion as we encouraged active documentation by residents to increase

awareness of FC status for their empaneled patients with a longer-term goal of improved care delivery. Finally, in PDSA Cycle 5 (May 12, 2019–June 30, 2019), additional email reminders for FC Awareness Month and color-coded lists were sent to preceptors and residents to indicate which patients had newly entered and exited FC.

After the project in July 2019, the educational tools developed in PDSA Cycle 2 were integrated for sustainability into the clinic handbook and provided to all residents and preceptors each year.

Measures

The primary outcome measure was the percentage of clinic patients in one county’s FC, with FC status accurately reflected on the EHR PL, indicated by “child in FC” or “FC (status).” This measure was assessed weekly from July 1, 2018 to June 30, 2019. Specifically, the primary outcome was defined as the number of patients in one county’s FC assigned to our clinics who had FC status on their EHR PL divided by the number of active patients in one county’s FC assigned to our clinics for that month as provided by the Program. The Program assigns CYFC in one county to our clinics for primary care. Thus, the denominator for each month varied given various children and youth entering and exiting FC each month. For a balancing measure, we assessed the percentage of patients with FC status incorrectly remaining on the PL after exiting FC. All measures (Table 3) were extracted from our Epic EHR.

Analysis

A statistical process control (SPC) chart (Fig. 2) with weekly time intervals was constructed, using QI Macros 2017 (Denver, Colo.), of the primary outcome to assess intervention effects on the percentage of clinic patients

Table 1. Pediatric Residents' Exposure to Care of Patients in FC, Documentation Practices, and Barriers to Documenting FC Status in the EHR.

	Baseline Survey
	% (n)
Resident exposure to care of patients in foster care	
Clinical settings in which resident has cared for patients in foster care*	
Inpatient	82.9% (34)
Emergency department	80.5% (33)
Outpatient primary care	68.3% (28)
Outpatient subspecialty	26.8% (11)
I have never taken care of a patient in foster care	7.3% (3)
Are you aware that the American Academy of Pediatrics has primary care practice guidelines for children and adolescents in foster care?	
Yes, and I am familiar with them	2.4% (1)
Yes, but I am not familiar with them	34.2% (14)
No, I am not aware	63.4% (26)
Documentation practices and barriers	
Frequency of documenting foster care status	
Always	17.1% (7)
Most of the time	48.8% (20)
About half the time	4.9% (2)
Occasionally	9.7% (4)
Never	12.2% (5)
Missing	7.3% (3)
Usual location of documentation of foster care status*	
Body of note	53.7% (22)
Social history tab	43.9% (18)
Care coordination note	9.7% (4)
Problem list	7.3% (3)
FYI flag	4.9% (2)
Visit diagnosis	2.4% (1)
I don't routinely document foster care status	14.6% (6)
Barriers to documenting foster care status*	
Unsure where to put information in EMR	65.8% (27)
Not aware I should document foster care status	46.3% (19)
I forget	34.2% (14)
Time	21.2% (9)
No barriers identified	9.7% (4)
I am able to identify my patients in foster care	
Strongly agree/agree	48.8% (20)
Disagree/strongly disagree	48.8% (20)
Missing	2.4% (1)

*Residents could select multiple responses thus percentages add up to greater than 100%.

in FC with EHR PL documentation of FC status. Charts were annotated with PDSA cycle numbers and interventions. Upper and lower control limits were set at 3 SDs from the mean to identify special-cause variation by applying standard criteria. A run of 8 or more consecutive points above or below the center line represented a center-line shift.²⁵ To assess sustainability, we reviewed PL documentation during the time frame for which FC lists were consistently provided post-COVID from the Program, which was 3 years after our last PDSA cycle from September 2022 to March 2023.

Ethical Considerations

This study was reviewed and approved as exempt by the Johns Hopkins Medicine institutional review board.

RESULTS

From July 1, 2018 to June 30, 2019, 121 CYFC were identified as being assigned to our co-located clinics.

The monthly FC patient lists had an average of 79 patients assigned to our clinics (range 76–82). Figure 2 displays the statistical process control chart demonstrating the weekly percentages of patients with EHR PL documentation of FC status. Improvement in the weekly percentages was observed with each intervention, with the largest improvements occurring after designating an AYA clinic champion and providing email reminders with enhanced patient lists during FC Awareness Month. At baseline, only 19.8% of CYFC had FC status on the PL. With PDSA Cycle 1 (educational series) and PDSA Cycle 2 (patient list distribution and documentation training), we saw significant shifts in the data for PL documentation to 31.3% and 42.9%, respectively. After PDSA 3 (preceptor reminders), PL documentation showed some improvement, although we saw another shift in the data to a mean of 60.2% after PDSA Cycle 4 (designating AYA clinic champion). Finally, PDSA Cycle 5 (FC awareness month reminders and enhanced patient lists) showed continued improvement. For our balancing measure, 89% (n = 9) of patients who exited FC during our evaluation period had FC status incorrectly remaining on the PL at the study conclusion.

Sustainability

Between September 2022 and March 2023, an average of 71.7% (range 66%–80%) of CYFC had FC status on their PL. A majority (65%, n = 46/71) of CYFC assigned to our clinic in September 2022 newly entered FC since the end of our project in 2019. Additionally, 63% (n = 36/57) of accurate PL documentation of FC status in September 2022 was added after study completion. In March 2023, 34% (n = 26/76) of CYFC assigned to our clinics did not have FC status on the PL; 9 had care coordination notes with FC status.

DISCUSSION

Our multi-component intervention targeting pediatric residents with FC-specific education, provider notification of FC entry, standardization of FC-specific documentation practices, and designating a clinic champion significantly improved EHR PL documentation of FC status over 12 months (19.8% to 60.2%). Through iterative PDSA cycles, we recognized the need to alter our strategy to fit the unique characteristics of the clinics and their providers, especially as our primary care clinics do not solely serve CYFC. We also showed continued improvement and sustainability of the shift in documentation culture 3 years after our last PDSA cycle intervention and amongst a new set of residents. Furthermore, most PL documentation was completed for CYFC newly in FC since project completion; thus, sustainability was not simply residual documentation from 2019. Finally, care coordination notes with FC status and placement information indicate the sustainability of our education efforts (including integration into the clinic handbook) and greater awareness

Table 2. PDSA Cycles and Timeline of Interventions.

PDSA Cycle	Intervention Dates	Description of Intervention	Lessons Learned
Baseline period	July 1, 2018– August 25, 2018	Planning of intervention including Ishikawa Cause & Effect Analysis and Resident Survey on Exposure to Care of Patients in Foster Care, Awareness and Comfort with Care, Documentation Practices & Barriers	Resident education, provider notification, and lack of standardized documentation are key barriers to documentation
<i>PDSA Cycle 1:</i> Educational series	August 26, 2018– December 1, 2018	Delivered 3-part resident education series at noon conferences on (1) Child Welfare 101 for Pediatric Providers, (2) Health Care Needs and Practice Guidelines for Children and Adolescents in Foster Care, & (3) Medical Decision-Making, Consent, and Confidentiality for Patients in Foster Care	Increased awareness of the unique health needs of children in foster care stimulated initial improvement in problem list documentation
<i>PDSA Cycle 2:</i> Patient list distribution and documentation training	December 2, 2018– February 2, 2019	Started distributing monthly foster care patient lists to resident providers Educated residents on standardized foster care-specific documentation of placing “child in foster care” or “foster care status” on the EHR problem list	Increased identification of FC patients led to more engagement of clinic social workers due to identification of complex social needs
<i>PDSA Cycle 3:</i> Preceptor reminders	February 3, 2019– March 16, 2019	Sent email reminders about the distributed foster care patient lists to attending preceptors of each group of residents	A large majority of patients assigned to the Adolescent & Young Adult Clinic were missing foster care status on the problem list
<i>PDSA Cycle 4:</i> Designating an adolescent clinic champion	March 17, 2019– May 11, 2019	A clinic champion for the Adolescent & Young Adult Clinic was identified as the responsible provider for adding foster care status to EHR problem list	Providers had a difficult time discerning which patients were new to their list vs. those that were removed from the list to maintain accurate problem lists
<i>PDSA Cycle 5:</i> Foster care awareness month reminders and enhanced patient lists	May 12, 2019– June 30, 2019	Email reminders about foster care patient lists were sent to residents, general pediatric attendings, and adolescent medicine faculty during Foster Care Awareness Month Foster care patient lists were color coded green to indicate which patients were new to the list by entering foster care in the past month and red to indicate which patients had exited foster care	Preceptors were able to encourage residents to review foster care patient lists Improving the foster care patient lists by making it easier for providers to quickly update problem lists from month to month aided adherence to documentation practices

Table 3. Study Measure Definitions and Target Goals

Measure Type	Measure Description	Numerator	Denominator	Target Goal
Primary Outcome	% of patients with foster care status on the EHR problem list indicated by “child in foster care” or “foster care (status)”	No. patients in one county’s foster care assigned to the two co-located clinics who had foster care status on their EHR problem list	No. active patients in one county’s foster care assigned to the two co-located clinics for each month, as indicated on the monthly patient list from the local child welfare health care coordination agency	60%
Balancing Measure	% of patients with foster care status inaccurately remaining on EHR problem list	No. patients with foster care status incorrectly remaining on the EHR problem list after exiting foster care, as indicated on the monthly patient list from the local child welfare health care coordination agency	No. patients in one county’s foster care assigned to the two co-located clinics who exited foster care and previously had an accurate foster care status on EHR problem list	0%

among residents of FC-specific information used for care delivery despite some CYFC not having FC status on the PL in March 2023.

For health systems with integrated EHRs across clinical settings, the benefit of adding FC status to the PL can impact care delivery and care coordination beyond primary care. For example, if a primary care patient in FC arrives at the health system’s ED and needs consent for a procedure, “child in FC” or “FC (status)” on the PL can cue the ED provider that proper authorization needs to be considered (ie, who can legally consent). Additionally, as residents in our residency program reported caring for CYFC in multiple clinical settings (ie, ED, inpatient), the education and documentation practices developed

through these interventions may have spill-over effects as residents rotate through other departments. We advocate for PL identification of CYFC in health systems as a necessary step for care coordination to begin shifting outcomes for this vulnerable population that persistently has poor outcomes.^{26,27}

Facilitating effective information sharing and collaboration between child welfare and health care systems has been suggested as a best practice to improve outcomes for CYFC.²⁸ This was a critical component to the success of our project. Before this intervention, surveyed residents reported low rates of FC entry awareness, which they identified as a barrier to FC status documentation. The developed collaboration between the local child welfare

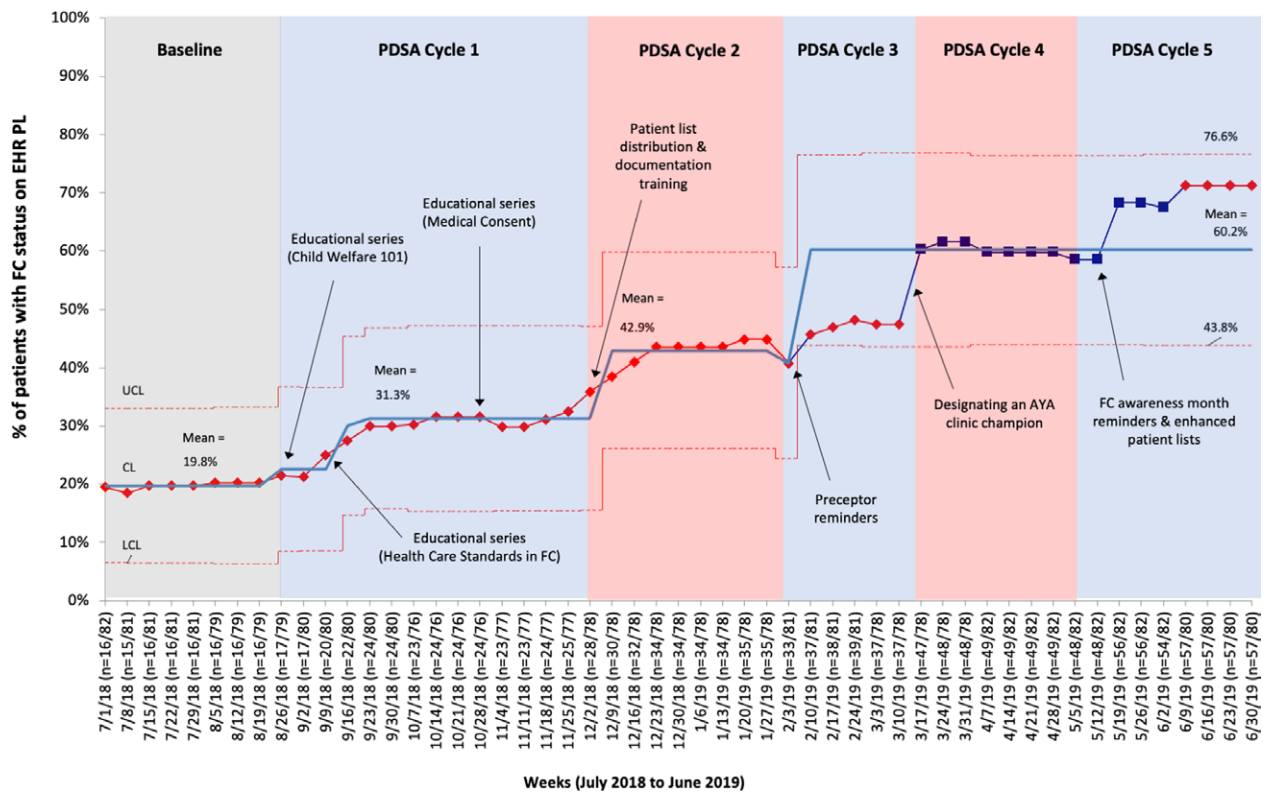


Fig. 2. Statistical process control charts for percentage of clinic patients with FC status on EHR problem list. UCL, upper control limit; CL, control limit; LCL, lower control limit.

health care coordination agency and our clinics was essential to addressing this barrier by distributing accurate monthly patient lists notifying providers of FC entry/exit. As a result of this project’s collaboration, monthly patient lists continue to be distributed, even after an interruption in distribution due to COVID-19 staffing shortages, and quarterly meetings are now held as an additional strategy to improve care delivery.

In designing this study, our goal was to improve the identification and documentation of FC status as an initial step to facilitate clinic initiatives to improve care delivery and adherence to standards of care^{2,13} for this population. This work came to fruition during the COVID-19 pandemic, when our clinics conducted targeted outreach to our medically and socially high-risk populations to ensure needs were being met.²⁹ As a result of this study, we used PL FC status as an EHR identifier to create an outreach list. While this study only tracked documentation for children from one county, the outreach list extracted from Epic included patients from multiple counties, suggesting that resident documentation practices extended to CYFC from other counties. Thus, there is now an opportunity to use EHR-derived patient lists to identify our patients in FC and improve their health and well-being through primary care-based QI activities, such as Duke’s initiative to improve the timeliness of medical evaluations.²¹

Overall, we attribute the greatest PL documentation improvements and sustainability to a culture shift in clinic where providers recognized the importance of

documenting FC status and key contact information and were given the tools to do so efficiently. This shift in culture and practice behavior is demonstrated not only by the improved documentation years after the active intervention, but also by the spillover effect observed in documenting FC status for children in other counties. Although prior studies similarly show that educating providers,^{30–32} standardizing processes,^{30,31} and selecting clinic champions³² are effective methods in PL improvement initiatives, there were additional factors that contributed to the sustained success. Such factors included adding a FC section to the clinic handbook (See document, Supplemental Digital Content 1, which shows summary information included in the ambulatory clinic handbook referencing caring for patients in foster care and SmartPhrases to use in documentation. <http://links.lww.com/PQ9/A525>), which is provided annually to every pediatrics resident and preceptor, and maintaining a partnership with the child welfare medical case management program. Although selecting a specific clinic champion in adolescent clinic was an effective strategy to improve documentation, it was likely that the active participation in PL documentation and active engagement by all residents in the general pediatrics clinic, as opposed to one champion, led to the sustained culture shift.

A challenge with using the EHR PL is ensuring that the information is accurate. Prior studies have shown that PLs are often incomplete or inaccurate, and providers face

difficulties keeping them current.^{30,33,34} Our study similarly noted that FC often remained on the patient's PL even after they exited FC. While there is a benefit in knowing a patient has a prior history of being in FC (eg, offering trauma-informed supports), providers should carefully review the PL at each encounter to ensure medical and psychosocial issues are appropriately updated. FC status inaccurately remaining on the PL may confuse medical consent processes if providers follow previous consent information from when the child was in FC. Additionally, families may continue to be stigmatized with the potential for emotional harm if FC status remains on the PL. For these reasons, FC status incorrectly remaining on PL was chosen as our balancing measure.

Limitations

Our study has limitations that deserve mention. First, we were able to collaborate with only one local child welfare healthcare coordination agency to obtain patient lists. This county is unique because the Program assigns CYFC to a medical home and keeps track of changes; therefore, patient lists were readily available through this collaboration, albeit monthly. Although we could not capture all clinic CYFC from other counties, we noted that resident documentation practices extended to patients in other counties, as our social workers were consulted to support additional patients. Ideally, we should have access to receive real-time FC status from child welfare agencies integrated into our EHR, such as IDENTITY (<https://www.icare2check.org/identity>), which is an information-sharing system between health care and child welfare systems.³⁵ However, we relied on the monthly notifications from the Program. Second, we analyzed data from only two clinics within a single institution served by our residency program. We designed PDSA cycles to meet the needs of these co-located sites. As such, interventions may not be equally effective at other resident clinical sites, and generalizability may be limited. Finally, PL documentation is a process measure. Due to regulatory constraints of conducting research with CYFC, health outcome measures could not be evaluated. This challenge speaks to the difficulty in conducting research with vulnerable populations and further discussions on balancing the protection of this population, with the need to improve outcomes through evidence-based research.³⁶

Conclusions

Educating providers, collaborating with child welfare, standardizing documentation, and designating clinic champions are promising methods of improving EHR documentation of FC status. Identification and documentation of FC status are critical first steps when caring for CYFC in primary care instead of FC-specific clinics. With the ability to identify CYFC, further QI strategies can be developed to optimize health outcomes for this vulnerable group of children and adolescents.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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