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# Quality Improvement: Implementing a Foot Exam to Improve Care for Patients with Diabetes Mellitus

Emily Paprocki

*Children's Mercy Kansas City*, epaprocki@cmh.edu

Ryan McDonough

*Children's Mercy Hospital*, rjmcdonough@cmh.edu

Tiffany Musick

*Children's Mercy Hospital*, tsmusick@cmh.edu

Joseph Cernich

*Children's Mercy Hospital*, jcernich@cmh.edu

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Emily Paprocki DO, Ryan McDonough DO, Tiffany Musick DO, Joseph Cernich MD

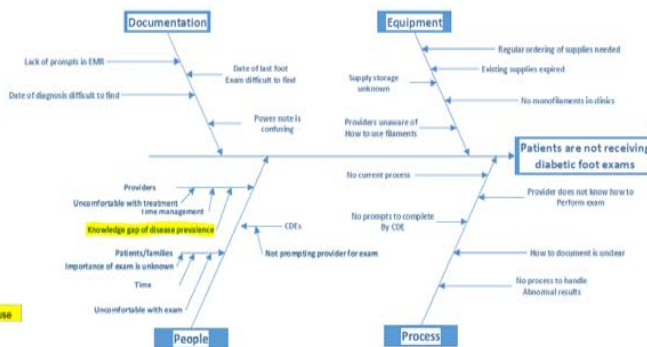
Children's Mercy Kansas City  
Division of Endocrinology and Diabetes

## Background

- Clarify the problem:** nerve conduction studies show up to 50% of youth with diabetes mellitus have peripheral neuropathy (PN)<sup>1</sup>
- The American Diabetes Association (ADA) guidelines recommend an annual foot exam in patients with type 1 and 2 diabetes who are ≥ 10 years of age and who have been diagnosed with diabetes ≥ 5 years<sup>2</sup>
- Children's Mercy Kansas City (CMH) does not have a standard for completing foot exams on our patients with diabetes
- Only 1% of eligible patients presenting to CMH Diabetes Clinics in September 2017 had a foot exam documented
- Break down the problem:** no established process for completing the exam, lack of knowledge about prevalence of PN in pediatric patients, unsure how to examine the feet, no clear documentation for the foot exam in the electronic health record (EHR), and monofilaments are not available in all clinics
- Aim statement:** By June 30, 2018, 50% of patients seen in CMH Diabetes Clinics with type 1 or 2 diabetes who are ≥ 10 years old and have had diabetes for ≥ 5 years will have a documented annual diabetic foot exam

## Defining the Problem: Fishbone Diagram

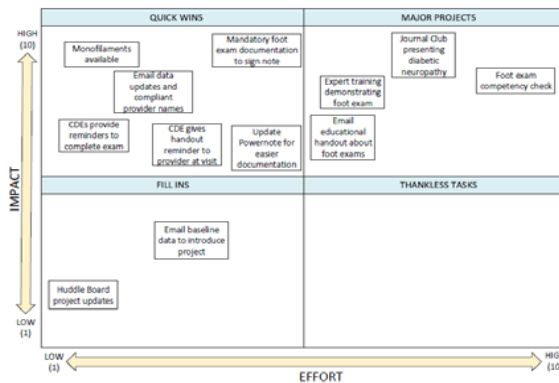
Identify root cause:



## Methods

- Provider Education:** Journal club on PN, adult endocrinology colleagues providing on-site training on proper exam technique, and educational handouts & online tutorials for future referencing
- Equipment:** Arranged for monofilaments to be available, updated the EHR for easier documentation, and handed out reminder cards for each patient with diabetes
- PDSA Cycles:** Assessed these interventions and how they impacted our objective
- Positive Findings:** We arranged treatment plans for positive screens including medication management and referral to CMH Neurology
- Data Collection:** Foot exam details collected using an automated monthly report from the EHR
  - Calculated percentage of patients who had documented foot exam on monthly basis
  - Collected provider names associated with each patient visit to help facilitate accountability in performing the foot exams

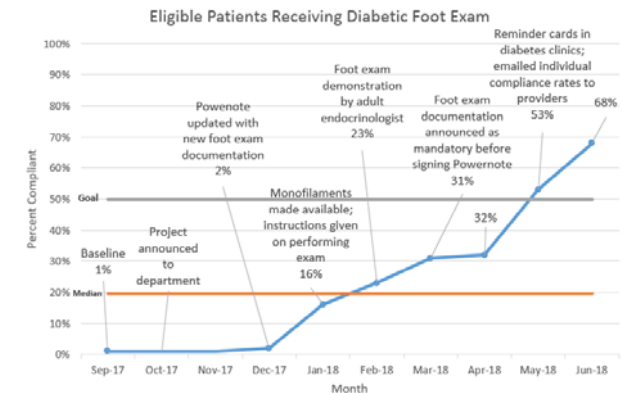
Diabetic Foot Exam Prioritization Matrix



## References

- Nelson, Danielle, et al. "Comparison of Conventional and Non-Invasive Techniques for the Early Identification of Diabetic Neuropathy in Children and Adolescents with Type 1 Diabetes." *Pediatric Diabetes*, vol. 7, no. 6, 2006, pp. 305-310.
- Chiang, Jane L., et al. "Type 1 Diabetes in Children and Adolescents: A Position Statement by the American Diabetes Association." *Diabetes Care*, vol. 41, no. 9, 2018, pp. 2026-2044.

## Results and Follow up



- Check results and process:** each month we updated our run chart and distributed it to the Division of Endocrinology/Diabetes showing our progress
- We received feedback at monthly provider meetings regarding the process and in order to identify any barriers to performing or documenting the exam
- We used "just in time" feedback to influence clinic processes, check monofilament supplies, and identify possible barriers
- Standardize and follow up:** We created a standard work tool to teach new providers the process of completing and documenting the foot exam

## Discussion

- Quality improvement tools were utilized to improve the care provided to our patients with diabetes by implementing an annual foot exam
- After our interventions, we increased the eligible patients receiving the diabetic foot exam to 68%
- Next steps include increasing compliance with performing the exams and focusing on sustainability long-term as the exam increases provider work load