

Pneumococcal Polysaccharide Vaccination in Patients with Type 1 Diabetes Mellitus

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Project Initiation & Current State Analysis

Problem Statement

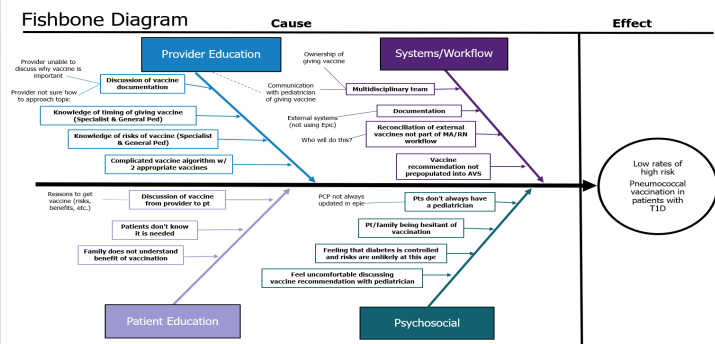
The CDC recommends vaccination for patients with type 1 diabetes mellitus (T1D) with high-risk pneumococcal vaccination (PPSV23 or PCV20), an additional pneumococcal vaccination not routinely included in the standard vaccine schedule, due to their increased risk for invasive pneumococcal disease. We suspect many patients with T1D are not receiving this recommended vaccine.

SMART Aim Statement

We aim to increase rates of high-risk pneumococcal vaccination from 3% to 10% of our overall patient population with Type 1 Diabetes Mellitus in 1 year.

Project Scope

Current patients of Ann & Robert H. Lurie Children's Hospital Division of Endocrinology and Diabetes diagnosed with Type 1 Diabetes Mellitus.



Measurement

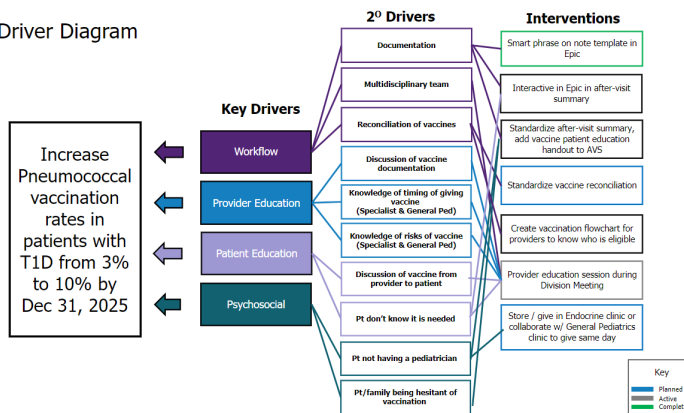
| Type | Measure | Baseline | Target | Frequency | Source |
|---------|--|----------|--------|-----------|------------|
| Outcome | Percent of active patients in our practice with T1DM that have completed a high-risk pneumococcal vaccination series | 2.9% | 10% | Monthly | EMR (Epic) |
| Process | Tracking of vaccine reconciliation from I-CARE after implementation of new process | 0% | 100% | Monthly | EMR (Epic) |
| Process | Tracking of use of Dot Phrase to populate vaccination history | 0 | 100% | Monthly | EMR (Epic) |

Future State Design

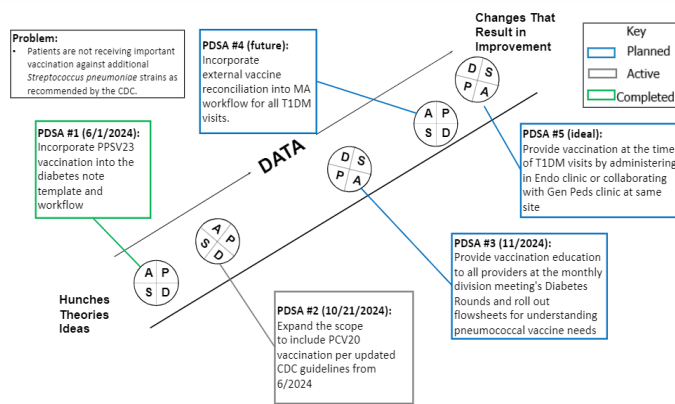
The current workflow includes a PPSV23 vaccination field in the note which is automatically populated by the EMR.

Future interventions will focus on adding PCV20 vaccination to the prepopulated field, creating a workflow for vaccine reconciliation to include vaccines given at any IL facility and logged into I-CARE (Illinois State Immunization Registry).

Driver Diagram

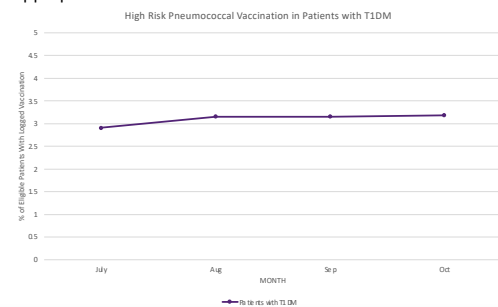


Testing and Implementation



Results

There were 1237 active patients in the T1D Registry in July 2024. Of these, 36 (2.9%) had documented vaccination with the PPSV23 vaccine at baseline. As of October 22, 2024, the addition of the PPSV23 vaccine status to the note template between these two data points resulted in 6 additional patients with logged high-risk pneumococcal vaccinations. After PDSA Cycle #1, 40 (3.1%) of active patients had appropriate vaccine documentation.



Next Steps

Lessons Learned

The pneumococcal vaccination rate in current patients with Type 1 Diabetes Mellitus is low. Tackling this problem will require a multidisciplinary approach, utilizing partners in health informatics, MA/RN's, primary and subspecialty clinicians, and families.

Next Steps

- Educate diabetes clinicians at a future division meeting
- Create an immunization knowledge flowchart
- Create a new immunization reconciliation workflow to pull external immunizations from the state system
- Provide clearer patient education about the need for a vaccine
- Explore barriers to having PCP or endocrine provide PPSV23

References

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- Center for Disease Control. Members of the Advisory Committee on Immunization Practices. (2013). Use of 13-Valent Pneumococcal Conjugate Vaccine and 23-Valent Pneumococcal Polysaccharide Vaccine Among Children Aged 6–18 Years with Immunocompromising Conditions: Recommendations of the Advisory Committee on Immunization Practices (ACIP). Morbidity and Mortality Weekly Report, 62(25), 521–524. [Atlanta, Ga.] :U.S. Dept. of Health, Education, and Welfare, Public Health Service, Center for Disease Control.
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- Tan TQ. Pediatric invasive pneumococcal disease in the United States in the era of pneumococcal conjugate vaccines. Clin Microbiol Rev. 2012 Jul;25(3):409-19. doi: 10.1128/CMR.00018-12. PMID: 22763632; PMCID: PMC3416489.