Improving Pneumococcal Vaccination Rates in pSLE Patients: Lessons Learned Using the EMR's Subspecialty Comments Feature

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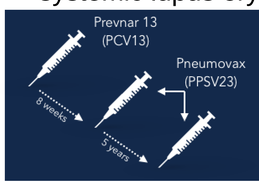
Background

- Lupus patients are up to 26x more likely to get invasive pneumococcal disease (IPD) than the general population[1,2]
- The CDC recommends that patients on immunosuppression receive an extended pneumococcal vaccine series[3]
- Many immunosuppressed children, including those with pediatric systemic lupus erythematosus (pSLE), are undervaccinated[4,5]



Extended Pneumococcal Vaccine Series

3 vaccines (unless PCV already given)

PCV13 = 13-valent conjugate vaccine
PPSV23 = 23-valent polysaccharide vaccine

Aims

1. Characterize baseline pneumococcal vaccination rates in a pSLE cohort
2. Identify approaches to improve median biweekly pneumococcal vaccination rates for eligible encounters to 75% and total cohort vaccination rate to 80% over a 6-month period

Methods

- Brainstorm sessions with pSLE providers identified key barriers to pneumococcal vaccination
- Best practice vaccination guidelines with consensus from key stakeholders (lupus providers) led to an operational definition for vaccine-eligible encounters
  - ➢ Eligible encounter = an encounter between the medical provider and pSLE patient excluding a hospital follow-up, escalation of care, rituximab administration in the preceding 6 months, or up-to-date vaccination status
- A targeted intervention focusing on provider education and utilizing a subspecialty comments (SC) tool in the EMR were employed at two general pediatric rheumatology clinics and a specialty pediatric lupus clinic in November 2019
- Various outcome, process, and balance measures were tracked for five months (April 2020)
- Data was collected by chart review and monthly provider and medical staff surveys
- PDSA methodology was employed for continuous process improvement

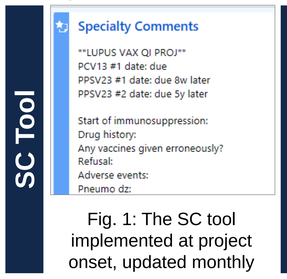


Fig. 1: The SC tool implemented at project onset, updated monthly

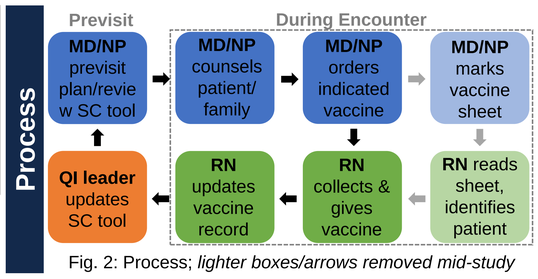
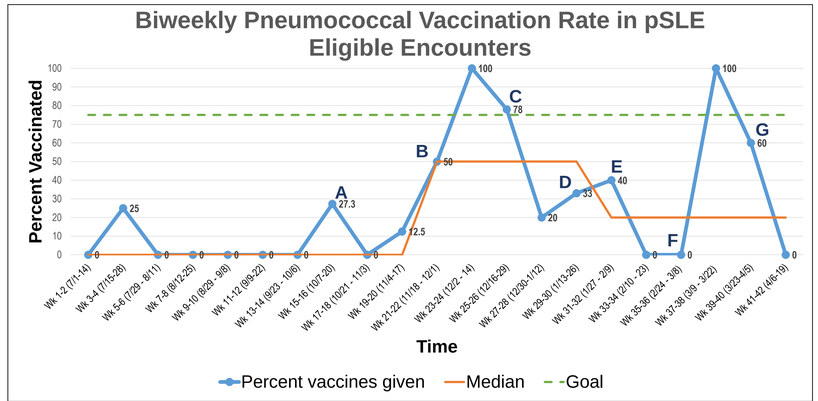


Fig. 2: Process; *lighter boxes/arrows removed mid-study*

Results



A. First project brainstorming meeting
B. Project start. PDSA Cycle 1: provider education, SC tool, vaccine sheet
C. PDSA Cycle 2: address issues accessing SC tool, implement at other clinics
D. PDSA Cycle 3: plan to make a Best (*cont'd*) Practice Advisory; eliminate vaccine sheet
E. EMR changes layout, including location of SC tool
F. PDSA Cycle 4: infographic for vaccine hesitancy; attempt to involve medical staff more in project
G. COVID19-related decrease in visits

Fig. 3: Changes in median biweekly vaccination rate over time, with significant dates marked

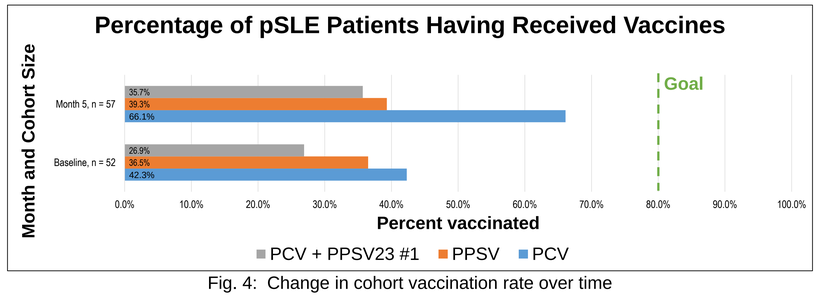
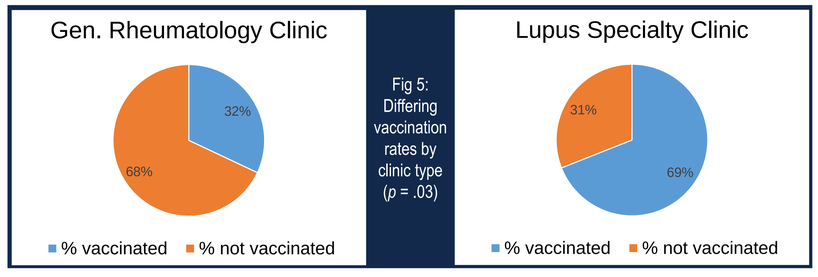


Fig. 4: Change in cohort vaccination rate over time



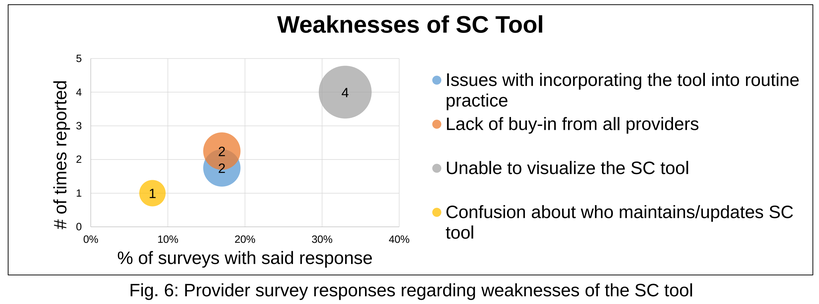


Fig. 6: Provider survey responses regarding weaknesses of the SC tool

Results

- Cohort size = 52 patients at onset, 57 patients at completion
- Of 92 pSLE encounters, 38 were eligible for vaccination. 17 (45%) resulted in vaccination, 3 (8%) in vaccine refusal, and 18 (48%) in missed vaccine opportunity
- Outcome measures:
  - ➢ Total cohort vaccination rate increased
    - PCV13 (42% → 66%)
    - PPSV23 #1 (36% → 40%)
    - PCV13 + PPSV23 #1 (27% → 36%)
  - ➢ Median biweekly vaccination rate rose to 50% for the first half of project but decreased to 20% for second half (p > .05)
  - ➢ No reported cases of IPD or pneumonia
- Process measures:
  - ➢ Median time spent did not increase over 2 minutes for MD/NP record review, MD/NP counseling, and RN updating vaccine records, and not over 5 minutes for RN collecting/giving the vaccine
  - ➢ Giving PCV13/PPSV23 took 1-2 min longer than flu vaccine
- Balance measures:
  - ➢ No reported vaccine adverse reactions, and rates of vaccination for non-lupus encounters was low at 0.6%
- Percentage of encounters resulting in vaccination was greater for lupus specialty clinic (69%) than for general rheumatology clinic (32%), $p = .03$
- Providers found the SC tool useful in previsit planning (25%) & during visits (50%), though identified weaknesses (Fig. 6)

Discussion

- Provider education and use of a subspecialty comments feature initially improved biweekly vaccination rates; however, this was not sustained.
  - ➢ Specific concerns about the subspecialty comments section included issues locating and maintaining the tool as well as incorporating it into practice
- Added time burden on providers was limited, though may have been more significant for medical staff
- A disease-focused clinic, rather than a general clinic, may be better suited to deliver pSLE standards of care
- Future QI efforts will look at exploring the utility of a best practice advisory notification to alert providers when pneumococcal vaccines are due

References

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4. Pelton SI, Weycker D, Farkouh RA, Strutton DR, Shea KM, Edelsberg J. Risk of pneumococcal disease in children with chronic medical conditions in the era of pneumococcal conjugate vaccine. Clin Infect Dis 2014;59:615-23.
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