



Effective Vaccine Care: An Improvement Project to Increase Vaccination Rates in an Outpatient Rheumatology Practice

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Background

National Problem

- Adult vaccination rates are consistently low in the U.S.¹
- The U.S. spends nearly \$27 billion treating vaccine-preventable diseases (VPDs).¹
- 99% of deaths from VPDs are in the adult population.¹

Local Problem

- New Jersey's vaccination rates remain lower than U.S. averages.²
- Cumberland County is the poorest county and has the lowest health indicators in the state.⁶
- A chart audit (N = 61) at Arthritis and Rheumatology Associates revealed that 58% of patients were missing the pneumococcal conjugate polysaccharide vaccine, 54% were not current with the herpes zoster series, and 23% needed a pneumococcal polysaccharide vaccine.
- Of surveyed patients (N = 31), 80% felt comfortable receiving recommended vaccines, and 90% were comfortable asking their provider questions by indicating ≥4 on a 5-point Likert survey (1 = not comfortable, 5 = very comfortable).
- The mean team satisfaction score was 3.7 on a 5-point Likert survey (1 = not satisfied, 5 = very satisfied).

Available Knowledge

- Certain minority groups are disproportionately affected by common autoimmune conditions.⁴
- Individuals with comorbidities are at an increased risk of hospitalization, long-term sequelae, and death from VPDs.¹
- Vaccine coverage is lower among specific ethnic and socioeconomic groups.⁵

Aim

The aim of this quality improvement (QI) project was to increase vaccination rates to 70% in an outpatient rheumatology practice over 90 days.

Methodology

Context

- Outpatient rheumatology practice
- Two full-time and one part-time physicians and one full-time Nurse Practitioner (NP)
- Approximately 400 patient visits per week
- All NP patients included by default



Plan-Do-Study-Act (PDSA)³ QI Model

Developed based on the Institute for Healthcare Improvement's PDSA QI model, implementing tests of change every two weeks driven by quantitative and qualitative data.

Tests of Change

Core Intervention	PDSA 1	PDSA 2	PDSA 3	PDSA 4
Vaccine Screening	Implement vaccine screening tool	Provided staff education and references	Improved screening tool	Revised readiness screening question
Effective-Care Audit	Track effective-care steps	VIS booklets at check-in	Assess readiness	Implemented vaccine declination form

Acknowledgments

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Results

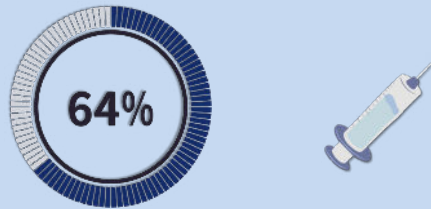


Figure 1: Percentage of patients with one or more risk factors indicating additional vaccine needs compared to age-related Recommendations alone

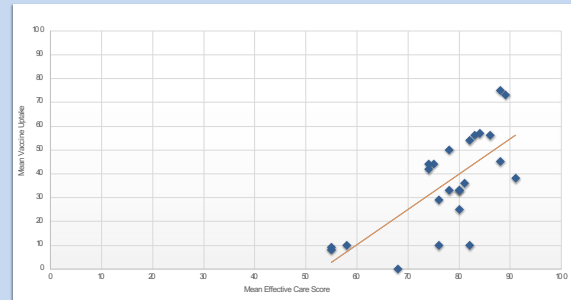


Figure 2: Scatter plot showing a moderately positive correlation ($R = .5$) between mean effective care scores and vaccine uptake.

Intervention	Process Measure		Outcome Measure					
	n	N	%	n	N	% or M		
Screening tool	352	375	94	251	352	71		
Effective-care audit	251	251	100	-	-	86		
Team engagement						3.3		
Vaccine uptake						86	237	36

Table 1: Final process and outcomes measures, team engagement, and vaccine uptake.

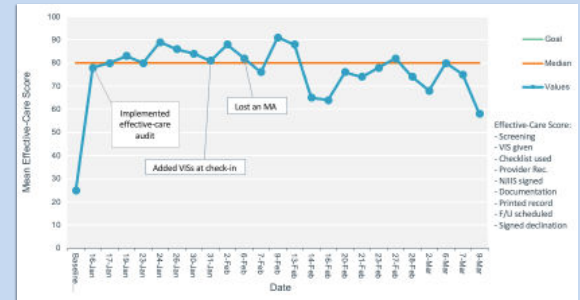


Figure 3: Run chart illustrating a shift that coincided with project initiation and decreased staffing, indicating a statistically significant change.

Measures

Core interventions		
Intervention	Tool	Operational definitions
Standardized vaccine screening	Immunization intake form	Process: # patients screened / # patients seen
		Outcome: # patients screened positive / # patients screened
Care audit	Effective-care audit	Process: # audits performed / # patients screened positive
		Outcome: Mean effective-care score

References

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2. New Jersey Department of Health. (2023). *Adult immunization coverage in New Jersey* [Data Brief: Adult Vaccination]. New Jersey Communicable Disease Service.
3. Ogrinc, G. S., Headrick, L. A., Barton, A. J., Dolansky, M. A., Madigosky, W. S., & Miltner, R. S. (2018). *Fundamentals of health care improvement: A guide to improving your patients' care*, (3rd ed.). Joint Commission Resources.
4. Roberts, M. H., & Erdei, E. (2020). Comparative united states autoimmune disease rates for 2010–2016 by sex, geographic region, and race. *Autoimmunity Reviews*, 19(1), 302423.
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Conclusions

Implications for practice

- All healthcare providers must consistently use standardized screening and effective care techniques to communicate a common message to increase trust and help mitigate misconceptions about vaccinations.

Limitations/Generalizability

- Self-created tools—unvalidated
- Implemented in outpatient specialty practice with chronically ill patients—may not translate
- Included only NP patients
- Only assessed for herpes zoster, pneumococcal, flu, and Tdap vaccine needs

Sustainability

- Incorporate screening form in new patient paperwork and redistribute yearly.
- Use effective-care audit to train new staff

Next Steps

- Focus further research on reasons for vaccine hesitancy and refusal to guide interventions addressing those concerns.

Lessons Learned

- Full autonomy of the project lead to develop and implement the initiative led to its success.
- Barriers included decreased staffing levels and major organizational changes during the implementation phase.
- Standardization, staffing levels, and team satisfaction impact outcomes.
- Health literacy can affect patients' participation in preventative care activities, including vaccination.
- Teamwork is crucial to quality improvement efforts. Teams must strive to communicate effectively and work cohesively to improve outcomes.