Impact of standing orders protocols on adult immunization rates

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ABSTRACT

Adult immunization rates are too low in the United States.[1] Standing orders protocols (SOPs) are known to improve immunization coverage rates,[2] but are underutilized by providers.[3] This study evaluated SOPs' impact on adult immunization rates and identified challenges with SOP implementation. Five diverse medical clinics implemented SOPs for influenza, Tdap, and up to four other adult vaccines. Immunization rates for the year before and the year after SOP implementation were compared. SOPs generated modest increases in vaccination rates (4% to 8% increase) for most vaccines at most sites. The greatest gains were generally found during the first quarter of SOP implementation. Sites encountered challenges with competing priorities and Medicare Part D reimbursement, as well as functionality of electronic medical records systems and state immunization registries. SOPs provide a critical foundation to facilitate immunization. Additional efforts, however, are needed to achieve and sustain high adult immunization coverage.

CHARACTERISTICS OF STUDY SITES

	Site A	Site B	Site C	Site D	Site E
Specialty	Primary care	OB/GYN	Primary care	Primary care	Primary care
Implementation Dates	8/15/2016	9/19/2016	10/20/2016	7/1/2016	10/31/2016
# of adult patients*	2,000-3,500	2,000-3,500	7,500+	5,000-7,500	3,500-5,000
Location	PA	DC	FL	CA	ND
Community Size	Suburban	Urban	Suburban	Rural	Suburban
Health system affiliation	No	No	Yes	No	Yes
Ownership	For-profit	For-profit	Mixed**	Non-profit	Non-profit

*Reflects the number of unique patients age ≥19 with at least one visit during the baseline year
**Part of a non-profit health system (owned by a for-profit subsidiary)

CALCULATION OF VACCINATION RATES

- **Numerator** = # of patients vaccinated
  - **Onsite** during the time period, or
  - **Previously** (considered "up to date" in accordance with the ACIP guidelines), or
  - **Off-site** during the time period
- **Denominator** = # of unique adult patients who were eligible for vaccine & had a clinic visit during time period
- Researchers conducted statistical analyses to compare vaccination rates within and between sites over time

RESULTS

Vaccination rates for baseline vs. intervention years

Influenza and Tdap

	Ages	Site A Pre	Site A Post	Site B Pre	Site B Post	Site C Pre	Site C Post	Site D Pre	Site D Post	Site E Pre	Site E Post
Influenza	≥19	44%	48%	3%	9%*	51%	54%*	18%	16%*	50%	51%
Tdap	19-64	20%	39%*	0%	1%	53%	59%*	24%	30%*	76%	80%*
Tdap	≥65	8%	12%	N/A	N/A	N/A	N/A	33%	38%*	75%	77%

* Indicates statistically-significant change from baseline year ($p < 0.01$)

Site A doubled its Tdap coverage for ages 19-64 by utilizing SOPs along with other interventions, but limitations on Medicare Part D coverage for Tdap reportedly hindered improvement in vaccination rates for older patients. Increases at other sites were attributed largely to SOPs.

RESULTS

Vaccination rates for baseline vs. intervention years

PPSV23 and PCV 13

	Ages	Site C Pre	Site C Post	Site D Pre	Site D Post	Site E Pre	Site E Post
PPSV23	≥65	63%	62%	21%	26%*	82%	82%
PPSV23 (high-risk**)	19-64	N/A	N/A	10%	23%*	24%	60%*
PCV13	≥65	84%	72%*	28%	36%*	71%	75%
PCV13 (high-risk**)	19-64	N/A	N/A	4%	100%*	30%	41%

* Indicates statistically-significant change from baseline year ($p < 0.01$)
** Details available upon request

Very few high-risk patients at Site D were eligible for PCV13; increased coverage was due to improvements in data extractions. Site E personnel programmed their EMR to flag high-risk patients eligible for both pneumococcal vaccines, which facilitated implementation of SOPs. Increases at other sites were attributed largely to SOPs.

RESULTS

Vaccination rates for baseline vs. intervention years

Zoster, Hepatitis B, and HPV

	Ages	Site C Pre	Site C Post	Site E Pre	Site E Post
Zoster	60-64	37%	42%	45%	52%
Zoster	≥65	N/A	N/A	58%	61%
Hepatitis B **high-risk who completed series	≥19	N/A	N/A	8%	8%
HPV (Females)	19-26	N/A	N/A	46%	48%
HPV (Males)	19-26	N/A	N/A	12%	24%*

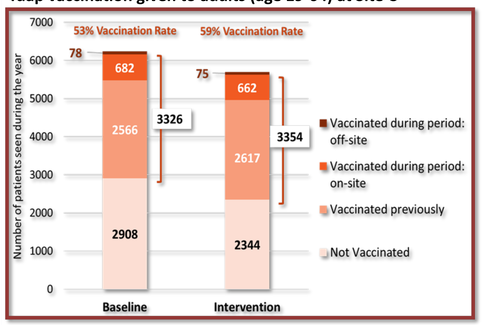
* Indicates statistically-significant change from baseline year ($p < 0.01$)
** Details available upon request

During the study period, Site E was not able to automatically flag risk indicators within their EMR for Hepatitis B, resulting in no improvement in coverage rates. Increases at other sites were attributed largely to SOPs.

RESULTS

Drilldown of Tdap coverage yields additional information

Tdap vaccination given to adults (age 19-64) at Site C

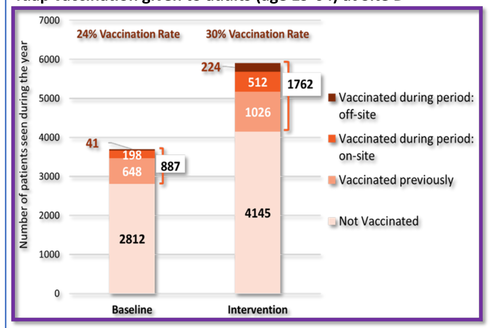


The statistically significant increase at Site C was due to a decrease in the denominator, rather than an increase in vaccine administration.

RESULTS

Drilldown of Tdap coverage yields additional information

Tdap vaccination given to adults (age 19-64) at Site D



Statistically significant increase at Site D occurred in the context of increases in both the numerator and denominator, due to the acquisition of another practice during the study period.

QUALITATIVE RESULTS

Insights from study sites on vaccination of adults

Clinic staff	• Current workflow during patient visits does not allow time for vaccine-related activities • Staff turnover is expected and ongoing training is needed • Education on vaccines can help providers respond to questions and concerns • Find that quality improvement (QI) metrics do not prioritize adult vaccination
EMR and IIS	• EMRs ideally flag vaccine eligibility based on elapsed time and co-morbid conditions • SOP implementation is facilitated by bi-directional access to adult history in IIS
Vaccine champions	• Helpful to coordinate SOP approval, oversee procedures, field staff questions • Can build accountability by sharing frequent reports on vaccine coverage rates
Tdap & Zoster for adults ≥65	• Reimbursement issues hinder efforts to increase vaccination rates (e.g., Part D)

CONCLUSION

- Utilizing SOPs, sites:
  - Generated modest increases of 4%-8% for most vaccines at most study sites
  - Empowered nurses and medical assistants (in accordance with state laws and regulations) to independently assess patient eligibility and administer vaccine to patients
- Interventions beyond SOPs may be required to increase immunization rates and sustain gains, including:
  - Patient reminders and recalls
  - Expanded vaccine access options
  - Provider and staff education
  - Automated EMR flags for eligible patients
  - Bi-directional access to IIS immunization data
  - Ongoing reporting to staff about immunization rates
- Some challenges may be beyond the capability of individual practices (Medicare Part D reimbursement, enhanced IIS and EMR functionality, quality incentives for personnel)
- To support consistent and correct immunization of adult patients, SOPs should be part of a plan to increase adult immunization coverage rates

REFERENCES

1. www.cdc.gov/mmwr/volumes/66/ss/pdfs/ss6611.pdf
2. www.thecommunityguide.org/sites/default/files/assets/Vaccination-Standing-Orders.pdf
3. Albert, et al. *BMC Fam Pract*. 2012;13(1):22.

ADDITIONAL RESOURCES FOR SOPs

www.immunize.org/standing-orders
www.IDCareLive.com/StandingOrders

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