Implementation of Multi-Modal Intervention to Increase Adult Vaccination Rates in a Large Integrated Healthcare System

Paul E. Kilgore, MPH, MD, Abdulkasem M. Salim, MD, MPH, Tyler Prentiss, BA, Linda Kaljee, PhD, Lois Lamerato, PhD, Shirley Zhang, MPH, George Divine, PhD, Helina M. Misikir, MPH, Marcus J. Zervos, MD

1Eugene Applebaum College of Pharmacy and Health Sciences, Wayne State University, Detroit, MI; 2Henry Ford Health System, Detroit, MI

INTRODUCTION

- In the U.S., adult vaccination rates to prevent influenza, pneumonia, pertussis, and herpes zoster (HZ) fall short of targets set by Healthy People 2020.
- Healthy People 2020 aims to achieve:
  - 80% and 90% vaccination coverage for influenza vaccine for individuals aged 18—64 years and 65 and older, respectively. 1
  - 60% and 90% vaccination coverage for pneumococcal vaccine for individuals aged 18—64 years (at high-risk of pneumococcal disease) and 65 and older, respectively. 1
  - 30% vaccination coverage for HZ vaccine among individuals aged 60 years and older. 1
- Data from the 2015 National Health Interview Survey (NHIS) showed low rates of uptake for adult vaccines:
  - In the 2014-2015 influenza season, influenza vaccine uptake among adults aged ≥29 years old was 48.4%.2, and in the 65 years and older group, influenza vaccine coverage was 73.5%.2
  - Overall pneumococcal vaccination coverage among adults aged ≥65 years was 53.3%.2
  - 23.1% of adults aged ≥29 years were vaccinated with tetanus-diphtheria-acellular pertussis (Tdap).2
  - 36.8% of adults aged ≥65 years received herpes zoster vaccine.2
- Significant disparities in rates of adult vaccination found across racial/ethnic backgrounds.2

AIM

To describe baseline vaccination rates for influenza, HZ, Tdap, and 13-valent pneumococcal conjugate (PCV13) and vaccination rates after implementation of a multi-modal intervention to improve vaccination in primary care clinics of Henry Ford Health System (HFHS).

METHODS

- Fifteen primary care clinics of the HFHS were identified for participation in this project.
- A bundle of interventions (Table) were introduced in these 15 clinics. Selected interventions were also provided to the entire group of HFHS primary care clinics.
- In 2014, more than 160,000 patient visits have occurred in those 15 selected primary care clinics.
- Clinics were selected based on their geographic locations and representation of racial/ethnic groups.
- In the 15 study clinics, we estimated vaccination rates during the pre-intervention baseline period (May 2014—April 2016), and during the early intervention period (May 2016—May 2017) among patients aged 18 years and older.

Table Definition and measurement of interventions to improve adult immunization rates in HFHS primary care clinics

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Definition</th>
<th>Process Measurements</th>
<th>Outcome Measurements</th>
</tr>
</thead>
</table>
| Healthcare provider education | Facilitate class of the immunization education program delivered to clinic staff | OIs of educational programs among program attendees | Increase knowledge level
| Vaccine reminders | A clip-on note card is distributed to all patients being seen by a primary care provider reminding them to request a vaccine | % of patients who request a vaccine within the same visit | Increase in vaccine rate
| Pharmacy patient education | Reminders in the pharmacy informing patients regarding adult vaccination | OIs of educational programs among program attendees | Increase knowledge level
| Pharmacy patient education | Reminders in the pharmacy informing patients regarding adult vaccination | % of patients who request a vaccine within the same visit | Increase in vaccine rate
| Pharmacy patient education | Reminders in the pharmacy informing patients regarding adult vaccination | % of patients who request a vaccine within the same visit | Increase in vaccine rate

RESULTS

Influenza vaccination rates:
- During the baseline period, 77,833 (46.4%)—2014—2015) and 82,694 (50.5%)—2015—2016) eligible patients received influenza vaccine (Figure 1).
- During the intervention period, 64,591 (66.8%) eligible patients received influenza vaccine in 2016—2017 influenza season.

Tdap vaccination rates:
- During the baseline period, 76,504 (54.9%)—2014—2015) and 86,873 (62.3%)—2015—2016) eligible patients were vaccinated with Tdap from May 2014—April 2015 and from May 2015—April 2016, respectively (Figure 2).
- During the intervention period, 93,817 (66.8%) of patients were vaccinated with Tdap from May 2016—May 2017.

HZ vaccination rates:
- During the baseline period, 21,227 (36.4%) and 24,165 (40.6%) of patients were vaccinated with HZ from May 2014—April 2015 and from May 2015—April 2016, respectively (Figure 2).
- During the intervention period, 26,858 (43.7%) of patients were vaccinated with HZ from May 2016—May 2017.

13-valent pneumococcal (PCV13) vaccination rates:
- Measurement during two time frames in the baseline period (May 2014—April 2015 and May 2015—April 2016), PCV13 immunizations increased from 6,639 (14.03%) to 22,998 (52.4%), respectively (Figure 3).
- During the intervention period, 32,630 (71.52%) of patients were vaccinated with PCV13 from May 2016—May 2017.

CONCLUSIONS

- A bundled approach of electronic health record alerts, vaccine champions, provider education and pharmacy intervention were used to increase adult immunization in 15 ambulatory care clinics.
- Through the baseline and into the intervention period, vaccination rates for influenza, HZ, Tdap, and PCV13 vaccines increased.
- Adult vaccination rates in HFHS are far above the national average.
- Analysis is ongoing to evaluate the contribution of study interventions to increased vaccination over baseline rates as well as differences across key sociodemographic groups including age, sex and racial/ethnic group.
- Results of this program may benefit other healthcare systems to reduce observed disparities in vaccination among adult patient populations.

REFERENCES


This study is supported by Merck & Co., Inc., a subsidiary of Merck & Co., Inc. 1