Focusing on the Patient Encounter to Improve Adult Immunization Rates

THE UNIVERSITY OF ARIZONA | COLLEGE OF MEDICINE PHOENIX

David Moore, MS4
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ABSTRACT

Objective: *Healthy People 2010* established target goals for the percentage of adults immunized against Pneumococcus and seasonal influenza. Our objective was to create a vaccine program to allow our family practice clinic to reach *these* goals.

Methods: Initial chart review (*n*=50) determined our clinic's baseline percentages for Pneumococcus and billing records identified the number of seasonal influenza vaccines administered the previous year. We developed a vaccine program focused on direct intervention and executed it in two six-month phases; the first focused on seasonal influenza, and the second targeted Pneumococcus. We determined program efficacy of phase one (influenza) via shot volume and phase two by measuring post-program vaccine percentages thru a second chart review (*n*=104).

Results: Pneumococcal coverage for adults age ≥65 dropped from 47 to 39% [95% CI: 23-71% & 22-56%], well short of the *HP 2010* target of 90%. We measured a 16% volume increase in the administration of the seasonal influenza vaccine.

Significance: Vaccines have tangible and positive effects on patient health. Direct intervention is an effective method for physicians to improve vaccine percentages but is time consuming.

INTRODUCTION

Vaccinations against seasonal influenza and community-acquired pneumonia exist and have proven benefits[1,2]. Yet, in the U.S., 20,000 – 40,000 influenza-associated deaths still occur annually, and community-acquired pneumonia [*S. Pneumoniae*] carries a 15% mortality rate in the elderly[3,4]. Additionally, hospitalizations for these illnesses (which further burden the patient and the health care system) have increased substantially over the last two decades, largely in part to the aging of the population[4,5]. *Healthy People 2010* set targets of 80% coverage against seasonal influenza for non-institutionalized adults ages 18-64, and 90% coverage against pneumococcal disease and seasonal influenza for non-institutionalized adults ages ≥65[6]. Our objective was to develop a vaccine program that would allow us to reach *HP 2010* adult immunization target percentages for seasonal influenza and Pneumococcus, be tailored to include other adult vaccines, and be reproducible in family practice clinics across the country. Our planned timeline was six months.

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METHODS

We believed the primary reason for low vaccine rates was missed opportunity, vice often cited barriers such as cost, fear of needles, adverse effects, or even patient disbelief in vaccine efficacy. Multiple techniques were available (postcards, phone calls, office posters) to help improve vaccine rates, but we felt the best response would be direct intervention and designed our vaccine program solely around the patient encounter.

We began with an initial 50-chart review to determine our clinic's baseline vaccine percentages for Pneumococcus, Zoster, and Tetanus in our adult population (Tetanus and Zoster served as parallel measures to determine if our program could be expanded to include other vaccines). To determine baseline for seasonal influenza, we utilized shot volume from the previous flu season (2008-09).

Because of the broad differences between influenza and other vaccines (annual basis, seasonal, all ages), we split our program into two separate six-month studies. Phase one focused on seasonal influenza and coincided with the 2009-10 influenza season; the second phase targeted Pneumococcus, Zoster, and Tetanus. Regardless of phase, the program was defined by two major concepts: priority and efficiency. First, we mandated that during the program, every adult patient appointment would include a vaccine discussion. Second, we established standing orders for our Medical Assistants to administer any vaccines that patients were eligible for. Third, we improved our vaccine screening process and distributed vaccine questionnaires to patients while they were in the waiting room. Lastly, we stressed the importance of documentation.

At program conclusion, we conducted a 104-chart review, identical to the first in regards to vaccines and demographics. We compared pre and post-program vaccine percentages for Pneumococcal, Zoster, and Tetanus to determine program effectiveness of Phase 1. For Phase 2, we compared pre and post-program influenza shot volume.

RESULTS

Seasonal Influenza: 939 adult seasonal influenza vaccines were administered during the 2009-10 flu season, compared to 737 the year prior, resulting in a 16% increase in volume when adjusted for patient population growth. When matched against patient demographics, we achieved minimum season-end percentages of 86% for age ≥65, and 59% for ages 19-64.

Pneumococcus, Zoster, and Tetanus: *Table 1* summarizes our beginning and ending vaccine percentages for Pneumococcal, Zoster, and Tetanus vaccines based on our two chart reviews. Our post-program Pneumococcal coverage of 39% was below the national average of 60% and fell well short of the 90% coverage goal for adults age ≥65 established in *Healthy People 2010*[6,7]. We increased our Zoster coverage of adults age ≥60 from 4% to 30%, achieving *Healthy People 2020* target of 30% in non-institutionalized adults age ≥60[6]. We raised our Tetanus percentage for adults age ≥19 from 16% to 45%, but remained below the 60% national average for Tetanus[7].

During Phase 2 of the program, a total of 752 Pneumococcal, Zoster, and Tetanus vaccines were administered over a six-month period, compared to our clinic's baseline six-month vaccine average of 488. On the surface, this 54% increase in vaccine volume reads as program success, however it was short-lived. This is best illustrated in *Figure 1,* which compares

RESULTS (continued)

bi-weekly vaccines rates during Phase 2 to pre-program extrapolated data. Had we ignored the first three months of our program, we likely would have not seen any measurable differences in vaccine rates compared to the previous year. In other words, the program was not sustainable.

We predicted weekly vaccine averages would decrease (largely due to staff fatigue) over the course of the program before leveling off, but we expected that decline to be slow (i.e. over the course of months). We also expected our new baseline rate, once it leveled off, to be higher that pre-program. The data, unfortunately, shows us wrong on both accounts. We believe staff fatigue is already evident between weeks 2 and 4, indicated by the immediate downward trend in vaccine delivery, *Figure 1*. We also consider weeks 16 and 18 to be outliers, meaning steady state was reached at week 14, much sooner than we anticipated. And our program ended with weekly rates no better than before the program.

Vaccine	Age	Initial Review	Follow-up
Pneumo	≥65	7 of 15 (47%) [95% CI: 23-71%]	11 of 28 (39%) [95% CI: 22-56%]
Zoster	≥60	1 of 26 (4%) [95% CI: 1-11%]	16 of 54 (30%) [95% CI: 19-41%]
Tetanus	≥19	8 of 50 (16%) [95% CI: 6-26%]	47 of 104 (45%) [95% CI: 36-54%]

Table 1: Summary of Chart Reviews

Figure 1: Bi-weekly vaccine rates

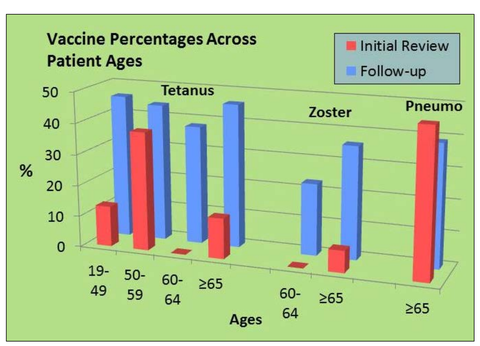

Figure 2: Pre and post-program vaccine percentages

DISCUSSION

Seasonal Influenza: Phase 1 coincided with the 2009 swine flu "epidemic". Media coverage likely encouraged many individuals to get their seasonal influenza vaccines that otherwise might not; contributing to shot volume. On the contrary, increased demand for vaccines overwhelmed our supply capabilities at times, negatively impacting our ability to vaccinate. Whether a 16% net increase qualifies as a success depends on one's interpretation of two these two factors.

Pneumococcus, Zoster, and Tetanus: Despite not cresting the 50% mark with any vaccine we achieved significant improvement with Zoster and Tetanus, *Figure 2*. The decrease in Pneumococcal coverage was not expected and is likely a function of small sample size. We gave a bolus of 752 recommended vaccines to the community making our program worthwhile, even if not technically successful.

Focusing on the Patient Encounter: Our program boosted vaccines across the board and created a more equitable distribution among age groups, *Figure 2*. This indicates our staff executed the program as designed and did not key in on one particular demographic. Handing out vaccine forms in the waiting room saved time, gave patients the opportunity to consider vaccines, and served as a visible reminder to both patient and provider to discuss vaccines during the visit. The unifying concept to our program was *give the patient two opportunities to say 'no'.* The first opportunity occurred in the waiting room with an opt-out section on the vaccine form. The second opportunity took place during the patient encounter when the topic of vaccines surfaced. In the exam room, we purposefully took advantage of human curiosity and a natural desire for personalized attention by using a classic "soft sell" approach to make patients more receptive to immunizations.

Reproducibility and Expandability: Timing vaccines to seasons or life events makes patients more receptive to immunization (i.e. influenza in the fall). This selective approach is a proactive way to mitigate community health risks, whether seasonal or behavioral. The 2-3 month life-span of our program makes it ideally suited to accomplish specific and short-term vaccine goals. Short, focused programs are more manageable for staff, particularly in light of the ever-growing number of vaccines, their indications, and contraindications. Our success with Tetanus and Zoster – despite their marked differences – demonstrates that our program is expandable to include other vaccines.

CONCLUSION

Vaccine programs focused on the patient encounter eliminate the most common reason for low vaccine rates – missed opportunity. By making vaccine reviews a priority during clinical encounters, our family practice office increased the overall percentage of patients vaccinated against Zoster, Tetanus, and seasonal influenza, and likely increased the overall percentage of Pneumococcal coverage. Giving patients "two opportunities to say no," discussing immunizations during the patient encounter and using scripted "soft sell" tactics increases vaccine likelihood. Vaccine programs that rely on time-consuming efforts of medical staff (i.e. initiation of vaccine discussion during each patient encounter) are not sustainable, primarily due to staff fatigue. Although applicable to all vaccines, intensive programs work best as short term projects focused on specific immunization deficiencies.