Health-system pharmacists’ role in improving immunization rates

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Despite the availability of safe and effective vaccines against the deadly illnesses of influenza and pneumococcal disease, immunization rates continue to fall short of national public health goals. Alarmingly, tens of millions of American adults who have an indication for pneumococcal vaccine do not receive it, and each year many more forego annual influenza vaccination, placing themselves and those around them at risk for illness and death.1,2

In 2010, the American Society of Health-System Pharmacists (ASHP) implemented the Pharmacy Practice Model Initiative, which calls on hospital and health-system pharmacists to be responsible and accountable for patient outcomes. A critical part of that accountability is taking leadership in areas of disease prevention and wellness where data have shown that the care of a pharmacist can have a significant impact.3

Two very serious—yet preventable—diseases. Influenza can have serious health consequences, including death, in people of all ages. Every year in the United States, influenza results in more than 200,000 hospitalizations and up to 49,000 deaths.4 Influenza can lead to pneumonia, bronchitis, sinusitis, and ear infections; it can also worsen chronic conditions and has been linked to heart attacks.5,6

The most common manifestation of pneumococcal disease is pneumonia, but invasive forms of the disease (bacteremia and meningitis), though far less common, are far deadlier. Mortality rates are 30% for pneumococcal meningitis, 20% for pneumococcal bacteremia, and 5–7% for pneumococcal pneumonia. Death rates for all types of pneumococcal disease are higher in the elderly.7,8 Pneumococcal disease sometimes occurs as a complication of influenza, but it also occurs as a primary disorder.

Effective—yet still underused—vaccines. The Centers for Disease Control and Prevention (CDC) now calls for universal influenza vaccination of Americans six months of age and older, emphasizing the importance of prevention throughout life.9 The vaccine is 70–90% effective in preventing the flu in healthy adults younger than 65 years of age. In late 2009, a new high-dose vaccine capable of inducing a stronger immune response in patients 65 years of age and older became available.10

Pneumococcal vaccination is recommended for all adults 65 years of age and older and also for younger adults (19–64 years of age) who smoke or have asthma.11 Others who should be vaccinated are patients with alcoholism; people with chronic heart, lung, liver, or kidney disease; and patients with diabetes, splenectomy, or immunocompromising conditions.

The pneumococcal vaccine for adults, 23-valent pneumococcal polysaccharide vaccine (PPSV23), is the most effective means of protection against pneumococcal disease. For most adults, a single one-time dose of PPSV23 is 60–70% effective against the pneumococcal strains responsible for more than 90% of invasive disease.11 The vaccine can be given at any time of the year and at the same time as an annual influenza vaccination (in the opposite arm).

These potentially lifesaving vaccines continue to be underused in institutional settings, including hospitals, emergency rooms, and long-term-care facilities.12 It is critical...
that pharmacists caring for patients within the health system take a leadership role in identifying those who need protection and ensuring that they are vaccinated.

**Health-system pharmacists’ role.**
There are several interventions that can improve influenza and pneumococcal vaccination rates; the most effective, by far, is implementing a change at the organizational level through a standing-orders program.\textsuperscript{12,13} Any pharmacist willing to take the lead in implementing such a program can help improve vaccination rates at his or her own institution.

A standing-orders program for influenza and pneumococcal vaccination authorizes medical personnel, where allowed by state law, to assess patients and administer vaccines if indicated without individual physician orders for each patient. The CDC Advisory Committee on Immunization Practices recommends the use of standing-orders programs in both outpatient and inpatient settings to improve vaccination rates.\textsuperscript{12} In addition, since 2002 the Centers for Medicare and Medicaid Services has recommended the implementation of standing orders for vaccination in participating hospitals, long-term-care facilities, and home health care agencies.\textsuperscript{12} Such programs are also encouraged by ASHP.\textsuperscript{14}

Standing-orders programs vary depending on institutional protocols and state regulations, but data have consistently shown them to be one of the most effective methods of increasing adult vaccination rates.\textsuperscript{12,15} In a study of six small community hospitals, the implementation of standing-orders programs resulted in an influenza vaccination rate of 40.3\% among patients, compared with rates of 17\% using physician reminders alone and 9.6\% using only educational programs.\textsuperscript{16} In another study of a hospital-based standing-orders program that included collaborative efforts by physicians, nursing staff, and pharmacists, annual pneumococcal vaccination rates increased dramatically, from a low of 15\% to an average of 69\%.\textsuperscript{17}

Although there are potential barriers to implementing a standing-orders program, including insufficient staff and a lack of resources or training, tools and resources are available to help overcome them. Sample materials, protocols, and guidelines for implementing these programs are available from the Society of Teachers of Family Medicine (www.immunizationed.org) and the Immunization Action Coalition (www.immunize.org/standingorders).

Even if pharmacists are not directly involved, standing-orders programs can significantly improve vaccination rates in inpatient and outpatient health care settings. Therefore, we believe that all health-system pharmacists should ensure that their institution has implemented a standing-orders program or a similar initiative for universal screening and vaccination of all eligible patients.

Through collaborative practice agreements, pharmacists also have the opportunity to pursue direct involvement in the process of screening, ordering, and administration of influenza and pneumococcal vaccines. One engaging case study of a decadelong program at Saint Luke’s Hospital in Kansas City, Missouri, was published in this journal in January 2010.\textsuperscript{18} In that program, pharmacists were charged with screening patients and ordering pneumococcal and influenza vaccines for eligible patients. As a result, the hospital achieved annual pneumococcal vaccination rates near 90\%.

In some states, health-system pharmacists can be licensed to administer vaccines. To gain that authority, pharmacists must be fully trained in the identification and counseling of patients who are at risk (or otherwise meet CDC criteria for vaccination), as well as vaccine administration, including dosing, monitoring to detect adverse events, and the reporting of adverse events.\textsuperscript{14,19}

Whether pharmacists are involved only in patient assessment, only in vaccination, or in both activities, immunization reports and assessments should always be shared with other clinicians, as appropriate, after a patient is vaccinated.

Collaborative practice agreements and the ability to administer vaccines can empower pharmacists with greater responsibility, but they are not the only path—or, in many cases, the most direct path—to accountability for patient outcomes. We should encourage and advocate for the implementation of standing-orders programs regardless of whether we have a direct role in the vaccination process.

**Other strategies to step up vaccination efforts.** Whether or not standing orders are in place, pharmacists should always take the opportunity to counsel patients and their families about the dangers of influenza and pneumococcal disease and the benefits and availability of vaccination. Many patients who are at high risk for those diseases and need vaccination are not screened or immunized during hospital visits.\textsuperscript{12,14,19} This is a significant missed opportunity.

We can further promote immunization by educating our colleagues in the workplace—pharmacists, technicians, and allied health care personnel—and advocating for mandatory vaccination of health care workers.\textsuperscript{14,19,20} By being vaccinated each year for influenza according to CDC recommendations, health care professionals can protect not only themselves but patients, families, and coworkers. In its 2010 position statement endorsing influenza vaccination policies targeting health care personnel, the Society for Healthcare Epidemiology of America cited two studies using acute care models in which 100\% of health care workers were vaccinated.\textsuperscript{21,23} The results...
showed a 43% reduction in the risk of influenza among hospitalized patients and a 60% risk reduction among nursing home patients.

As vaccine-compliant community members, health care workers also gain more credibility with the patients they are encouraging to follow suit. As of November 2010, midway through the 2010–11 flu season, only 55% of U.S. health care personnel had received influenza vaccination. ASHP provides tools and resources for health-system pharmacists who wish to lead efforts to improve seasonal influenza immunization rates among health care workers (www.youcanstoptheflu.com). For more information about adult immunization, including resources on standing orders, visit the National Foundation for Infectious Diseases (NFID) website (www.Adultvaccination.org) to access its Professional Practice Toolkit and other patient-education materials.

Pharmacists have a responsibility to help influence immunization practices that result in better care and better health for patients. Together, NFID, ASHP, and other stakeholders can encourage pharmacists to take action.

References
1. Centers for Disease Control and Prevention. Influenza and pneumococcal vaccination coverage among persons aged 65 years and persons aged 18–64 years with diabetes or asthma. www.cdc.gov/mmwr/preview/mmwrhtml/mm5343a2.htm (accessed 2011 Jan 12).