The Burden of Vaccine-Preventable Diseases in Adults

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Among the many treatments for diseases, vaccines are the safest and most cost-effective form of preventive medicine in the United States. Despite a rise in vaccination rates among young adults between 1993 and 2013, a persistently low uptake of routinely recommended immunizations remains among adults 50 years or older. Except for modest increases in tetanus, diphtheria, and pertussis vaccination for adults 19 years or older and herpes zoster (shingles) vaccination among those 60 years or older, adult vaccination coverage did not improve from 2013 to 2014. The CDC reports that a low trend for influenza, human papilloma virus (HPV), pneumococcal, hepatitis B (for health care providers), and herpes zoster vaccinations continues to persist among adults. These poor vaccination rates could be attributed to gaps in insurance coverage, personal beliefs, and disparities in access to vaccines. As a result, the burden of vaccine-preventable diseases translates into significant social, public health, and economic costs within our society.

At present, 8 vaccines have age-only recommendations by the CDC to protect adults against 11 diseases (Table 1). An additional 5 vaccines can be used to protect adults with specific medical conditions or activities. The CDC delineates 5 age groups for adult vaccination: 19 to 21 years, 22 to 26 years, 27 to 59 years, 60 to 64 years, and ≥65 years. Also available from the CDC is an immunization table that lists medical conditions and activities that serve as indications or contraindications to adult vaccines. Because of more effective childhood immunization programs, diseases such as measles, rubella, diphtheria, tetanus, and pertussis are rare among adults 19 years or older. However, reports of limited adult cases of measles, mumps, or pertussis have emerged in recent years in areas of low vaccine uptake.
In 2015, there were 14.1 million cases of vaccine-preventable diseases attributable to unvaccinated adults. Of the total economic burden of approximately $9 billion due to direct costs and productivity losses from vaccine-preventable diseases, lack of vaccination was responsible for $7.1 billion. Table 2 displays the burden of some common vaccine-preventable diseases from 2012 to 2016. It is clear that case rates have declined more than 90% for all major diseases since their peak years. However, there have been some disturbing trends with measles and pertussis in children and mumps in college-aged adults.
MEASLES, MUMPS, AND RUBELLA
Measles and mumps are viral infections that are highly contagious via the respiratory route. Although the vaccine for both of these diseases is contained in the measles, mumps, and rubella (MMR) vaccine and childhood immunization rates are high, outbreaks continue. In the United States, measles cases start as imported disease, mostly from travelers to nations with low vaccination rates. Thus, it is essential that individuals in the United States who travel to other countries receive 2 doses of MMR before departing. Mumps has also experienced a resurgence in both travelers to Europe and college campuses in the United States. In many of these settings, 2-dose MMR vaccination is high, but even the small failure rate associated with the vaccine can allow outbreaks to occur.10

INFLUENZA
According to the CDC, fewer than 50% of adults chose to receive the flu vaccine in the 2015-2016 season. More effort is required to ensure that individuals who see their health care providers during the flu season receive the vaccination. In addition, health care providers are strongly advised to receive annual influenza vaccinations.11 Over several years, pharmacists have continued to lead other medical professions in getting their flu shot.12 If not vaccinated, they may serve as a source of influenza virus transmission to vulnerable patients.

HERPES ZOSTER
Herpes zoster has been increasing since 1992, and 1 out every 3 individuals in the United States will develop it during their lifetime. However, only 28% get vaccinated.13 Reasons for the low herpes zoster vaccination rates include in some cases the high cost of the vaccine, challenges to stocking the vaccine (requires freezer storage), billing issues, and out-of-pocket costs.4 Because a great proportion of all herpes zoster vaccine is distributed to pharmacies, and pharmacists in all 50 states can administer the vaccine, it is imperative that pharmacists take a proactive role in zoster vaccination.

OVERCOMING BARRIERS TO VACCINATION
For the unvaccinated adult group 65 years or older, the incidence of influenza and pneumococcal disease accounts for the greatest burden of disease,\textsuperscript{14,15} as both influenza and pneumococcal disease can result in hospitalization and death. However, unvaccinated individuals in younger age groups account for a higher percentage of cases of vaccine-preventable diseases: 85\% of adults aged 19 to 49 years, 81\% of adults aged 50 to 64 years, and 56\% of adults 65 years or older.\textsuperscript{8}

Patient barriers to vaccination include lack of awareness of the need for the vaccine, disbelief that receiving the vaccine will be helpful, low education level, busy schedules and competing demands, and lack of recommendations by a health care provider.\textsuperscript{16-19} The last barrier centers on provider issues: research shows that some physicians do not believe vaccines are effective; therefore, they do not recommend vaccination to their patients, do not stock the vaccines, and fail to act as proponents for adult vaccination.\textsuperscript{20-22}

Recently, the CDC and the National Vaccine Advisory Committee proposed 4 essential components for improving vaccination rates: (1) assess immunization status, (2) recommend (make strong recommendations for needed vaccines), (3) administer or refer (stock and administer needed vaccines or refer to a provider who can), and (4) document (using immunization information systems or immunization registries).\textsuperscript{23} Research has shown that individuals who are steadfast on refusing vaccination are still open to listening and even getting vaccinated when a health care provider makes a strong recommendation.\textsuperscript{24}

Now that pharmacists have expanded authority to vaccinate in every state, they need to become proactive vaccinators by identifying and making strong recommendations for all patients. Doing so will help reduce the burden of influenza, HPV, pneumococcal disease, herpes zoster, and other vaccine-preventable diseases.

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\textbf{References}


