

# Our Best Shot: Expanding Prevention Through Vaccination in Older Adults



## 1 Background

This paper reviews vaccination levels, trends, and targets, incidence rates, relevant health insurance coverage policies, and the cost effectiveness literature and other reports that have evaluated vaccine utilization in this population. We then identify factors that are shown to be related to vaccine utilization in a nationally representative survey of health status and behaviors that has been conducted since 2000. This analysis identifies obstacles that reduce the likelihood that older adults will use different vaccines and measures the extent to which financial, information, health barriers and demographic factors contribute to underutilization of vaccines. In Figure 1, the CDC's Advisory Committee for Immunization Practices (ACIP) recommends the influenza, pneumococcal, tetanus, and shingles vaccines for virtually all older adults and the Hepatitis B vaccine for certain subsets of the population. Figure 1 also indicates the coverage status of each relevant vaccine under the Medicare program.

Figure 1: ACIP vaccine recommendations and Medicare coverage

Vaccine	ACIP recommendation	Part B coverage	Part D coverage
Hepatitis B	All infants at birth and adults in certain risk groups <sup>13</sup>	(in certain risk groups <sup>14</sup> )	✓
Influenza	Annually for all people over the age of 6 months	✓	
Pneumococcal	Persons age 65 and over, immunocompromised adults aged 19-64, children in certain risk groups, and children younger than five	✓	
Tdap/Td (Tetanus) <sup>15</sup>	All children are vaccinated with DTap <sup>16</sup> (or DT, if contraindications are present). Adolescents receive a course of Td and Tdap. Adults receive a regular booster of Td or Tdap every ten years and/or after exposure	✓ (after exposure)	✓
Zoster (Shingles)	Once for adults over the age of 60		✓
Hepatitis A, Hib, Measles, Mumps, Rubella, polio, rotavirus, varicella	All children	N/A	N/A
HPV, Meningococcal disease	All adolescents	N/A	N/A
Japanese encephalitis, typhoid, yellow fever	Certain travelers	N/A	N/A
Rabies, Anthrax, Smallpox	Postexposure and laboratory workers	N/A	N/A

Source: Advisory Committee for Immunization Practices, "ACIP Vaccine Recommendations," <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>, accessed September 24, 2014.

## 2 Methods

The Integrated Health Interview Series (IHIS) data are comprised of a harmonized set of data and documentation based on material originally included in the public use files of the U.S. National Health Interview Survey (NHIS). Focusing on demand side considerations, the IHIS data allow us to evaluate the impact of the variables available in these data on vaccine utilization. The estimated regression coefficient on each factor included as an independent variable in the regression equation indicates the magnitude and significance of a particular factor on the vaccination rate, controlling for all other factors included in regression.

## 3 Results

- Mixed relationship between the financial factors and vaccination
- Health care coverage variables show greater consistency across vaccines, especially for respondents having a usual place for care
- Although there are limited variables on which to measure information factors, both variables are generally positively related to vaccination to a moderate or large extent
- Health status variables paint somewhat of a mixed picture
- Self-reported health status, in terms of limitations of mental activity limitations or being in fair or poor health has no consistent impact
- Demographic variables show mixed results with one surprising outcome: women are less likely to have received tetanus vaccine than are men, and more likely to have received the others

Figure 11 Summary of regression results

Variable	VariableType	Share of Respondents	Shingles (2009 to 2013)	Tetanus (2009 to 2013)	Influenza (2000 to 2013)	Pneumococcal (2000 to 2013)
ACA preventive care coverage implemented (after 2011)	Affordability	25%	N/A	N/A	Not signif.	Not signif.
Needed but couldn't afford medical care, past 12 months	Affordability	3%	Moderate	Not signif.	Moderate	Moderate
Needed but couldn't afford Rx, past 12 months	Affordability	4%	Not signif.	Not signif.	Not signif.	Small (Not sig. before 2009)
Delayed care because lacked transportation	Affordability	3%	Not signif.	Large	Not signif.	Not signif.
Ratio of family income to poverty level (0 -1)	Affordability	10%	Large	Moderate	Large (Moderate before 2009)	Moderate
Ratio of family income to poverty level (1 -2)	Affordability	25%	Large	Moderate	Moderate (not sig. after 2009)	Not signif.
Ratio of family income to poverty level (2 -3)	Affordability	21%	Moderate	Not signif.	Not signif.	Not signif.
Has usual place for medical care	Coverage	97%	Large	Large	Large	Large
Medicare Part D (relative to Medicare only - 2009 to 2013)	Coverage	40%	Moderate	Not signif.	Moderate	Small (Moderate before 2009)
Medicare with Medicaid (relative to Medicare only)	Coverage	6%	Not signif.	Not signif.	Not signif.	Moderate (Small before 2009)
Medicare with military coverage (relative to Medicare only)	Coverage	5%	Moderate	Large	Large	Large
Medicare with private coverage (relative to Medicare only)	Coverage	50%	Small	Small	Moderate (Large before 2009)	Moderate (Large before 2009)
Not on Medicare	Coverage	7%	Not signif.	Moderate	Not signif.	Moderate (Small before 2009)
Some college or more	Information	45%	Moderate	Large	Small (not sig. after 2009)	Moderate (not sig. after 2009)
Looked up health information on internet (2009 to 2013)	Information	32%	Large	Large	Moderate	Moderate
Activities limited by difficulty remembering	Health status	7%	Not signif.	Not signif.	Not signif.	Small (not sig. after 2009)
Ever had hepatitis	Health status	4%	Not signif.	Moderate	Not signif.	Moderate (not sig. after 2009)
Ever received hepatitis B vaccine	Health status	11%	Moderate	Large	Moderate	Moderate (Large before 2009)
Fair or poor health	Health status	23%	Small	Not signif.	Small (Moderate before 2009)	Moderate
Tetanus shot in last 10 years (2009 to 2013)	Health status	55%	Large	N/A	Large	Large
Has any activity limitation	Health status	34%	Small	Small	Moderate	Large
African American	Demographics	8%	Large	Large	Large	Large
Female	Demographics	50%	Moderate	Large	Moderate (not sig. bef. 2009)	Moderate
Hispanic ethnicity	Demographics	7%	Large	Small	Moderate (Large before 2009)	Large
U.S. citizenship	Demographics	98%	Moderate	Moderate	Large (not sig. after 2009)	Large
Region (Northeast relative to Midwest)	Demographics	19%	Not signif.	Large	Moderate (not sig. bef. 2009)	Not signif.
Region (South relative to Midwest)	Demographics	37%	Not signif.	Moderate	Not signif.	Not signif.
Region (West relative to Midwest)	Demographics	21%	Moderate	Not signif.	Not signif.	Small (not sig. before 2009)

Source: Bates White analysis of IHIS survey data.

## 4 Recommendations

### Information strategies

- Expand efforts to provide specific education to adult patients about adult vaccines: Make vaccination counseling an integral part of the Medicare Wellness Visit, potentially providing supplemental reimbursement to physicians for so doing. Education could also include sending pamphlets to beneficiaries when Medicare ID cards are mailed.
- Create more general awareness of the importance of adult vaccination: In addition to Vaccine Awareness Month, it may be worth targeting educational opportunities like Medicare Open Enrollment, National Family Caregiver Month, and Grandparents Day.
- Encourage retail pharmacy clinics to administer and promote the shingles vaccine: Educating patients about pharmacy provision and encouraging pharmacies to promote vaccines when patients seek other medical treatment could increase vaccination rates.
- Evaluate the potential benefit of recommending that seniors with multiple chronic conditions vaccinate with their medical homes, as opposed to in pharmacy settings.

### Health care and administrative strategies

- Encourage states that do not allow pharmacists to administer tetanus vaccines to do so.
- Encourage physicians to participate in TransactRx: This would allow physicians to bill Part D plans directly so that beneficiaries do not have to pay full vaccine costs up front.
- Encourage the use of electronic medical records and systems that incorporate adult vaccines into clinical workflow models: The use of electronic medical records and ACOs could potentially facilitate and incentivize systematic alerts that vaccines are due so that physicians do not have to keep track of eligibility, contraindications, and vaccine history. Increased provider participation in the CDC's Immunization Information System (IIS) would also improve the flow of information about utilization history and potentially increase appropriate vaccine utilization in this population.
- Evaluate the potential gains from the government sponsoring CDC vaccine distribution and tracking program similar to the Vaccines for Children (VFC) program.
- Require providers to ascertain beneficiaries' vaccination history and discuss recommended vaccines during the "Welcome to Medicare Preventive Visit." Additionally, as part of Medication Therapy Management (MTM), a requirement of an immunization status assessment be undertaken as part of the Comprehensive Medication Review (CMR) would increase the available information for both patients and providers and likely result in more appropriate utilization of vaccines.
- Advance the incorporation of vaccine utilization into quality measures into Medicare Star Rating programs and in private quality metrics such as HEDIS.

### Financial strategies

- Evaluate the impact of a government-sponsored vaccine buy-back program. This could also decrease waste if vaccine stock could be re-directed to providers with excess demand.
- Evaluate the potential for CMS to "pre-pay" providers for vaccines: Consider a proposal that CMS consistently communicate to Part D plans the option of including a \$0-vaccine only tier in benefit design: This both increases the information availability about such options to plans and patients, but also operates to reduce real and perceived financial barriers.

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