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*The Illinois prevention program, led by the Department of Public Health and the Iowa Foundation for Medical Care—Illinois (a health-care quality improvement organization headquartered in West Des Moines, Iowa), included 11 hospitals with complete data from the beginning of March 2010 through October 2011. The Massachusetts program, led by the Massachusetts Coalition for the Prevention of Medical Errors and the Massachusetts Department of Public Health, included 27 hospitals with complete data from January 2010 through September 2011. The New York program, led by the Greater New York Hospital Association and the United Hospital Fund in collaboration with the New York State Department of Health, included 33 hospitals with complete data from March 2008 through December 2009.

†Additional information available at http://www.cdc.gov/getsmart/healthcare/improve-efforts/clinicians.html.

‡Additional information available at http://www.cdc.gov/hai/toolkits/evaluating-environmental-cleaning.html.

§Additional information available at http://www.epa.gov/oppad001/cdif-guidance.html.

%Additional information available at http://www.cdc.gov/nhsn/psc_ma.html.

¶ Additional information available at http://www.cdc.gov/nhsn/cda_esurveillance.html.

#Additional information available at http://www.cdc.gov/hai/stateplans/haistateplans-map.html.

Notes From the Field: Use of Tetanus, Diphtheria, and Pertussis Vaccine (Tdap) in an Emergency Department—Arizona, 2009-2010

MMWR. 2012;61:55-56

BECAUSE OF AN INCREASING INCIDENCE of reported pertussis cases attributed to waning immunity among adults and adolescents, the Advisory Committee on Immunization Practices (ACIP) in 2005 recommended administration of a new, combined tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine (Tdap) for adolescents and adults aged 11-64 years.[1] ACIP recommended that they receive a single dose of Tdap to replace tetanus and diphtheria toxoid vaccine (Td) for booster immunization against tetanus and diphtheria if they had not previously received Tdap. Adults aged ≥65 years were to receive Td according to ACIP recommendations.[1] To learn whether these age-specific recommendations were being followed in an emergency department (ED), the charts of a sample of patients receiving tetanus vaccines at a large ED were reviewed.

The ED is part of an urban, academic center and has an annual volume of approximately 70,000 patient visits. Patients who received a tetanus booster during September 1, 2009–August 31, 2010, were identified through an inpatient pharmacy database. Orders placed through the computerized physician order entry system were used to determine which form of tetanus vaccine the physician ordered. Nursing documentation was reviewed to determine what vaccine was actually administered because, during the study period, the automated medication dispensary allowed access to both vaccine types when "tetanus" was entered. Records were stratified by month, assigned a random

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number, randomized by sorting, and then sampled proportional to monthly totals. The proportion of patients receiving the correct vaccine according to ACIP recommendations (Tdap for those aged <65 years and Td for those aged ≥65 years) was calculated.

Of 2,085 tetanus vaccinations administered during the study period, 231 were sampled for study to detect a compliance of 95% (±5%). Of 231 charts reviewed, 19 were excluded because of various deficiencies (mainly missing data). The remaining 212 patients had a median age of 38 years (interquartile range: 24-54 years). Of those 212 patients, 184 (86.8%) were aged <65 years, 145 (68.4%) were male, 75 (35.4%) were trauma patients, and 151 (71.2%) were discharged home from the ED, whereas the remaining 61 (28.8%) were admitted. An emergency physician ordered 185 (87.3%) of the boosters, 170 (80.2%) were given for laceration or abrasion, 22 (10.4%) for a skin infection, and 20 (9.4%) for another indication.

Overall, 75.0% (95% confidence interval [CI] = 69.1%-80.8%) of the patients were managed in accordance with ACIP recommendations (Tdap for patients aged <65 years and Td for patients aged ≥65 years). Among patients aged <65 years, adherence to the ACIP recommendation was 76.1% (CI = 69.9%-82.3%), whereas for those aged ≥65 years, adherence was 67.9% (CI = 49.4%-86.3%). For the 181 patients with both physician orders and nursing documentation, adherence to ACIP guidelines based on nursing documentation was 86.7% (CI = 81.8%-91.7%). For 30 (16.6%) patients, the physician order differed from the vaccine dispensed. Of these, 25 (83.3%) were changed by nursing staff such that the appropriate vaccine (Tdap for those aged <65 years and Td for those aged ≥65 years) was dispensed despite an inappropriate vaccine being ordered. Based on nursing documentation alone, adherence to ACIP guidelines differed significantly by age. Those aged <65 years were appropriately vaccinated with Tdap 89.9% (CI = 85.1%-94.6%) of the time compared with those aged ≥65 years, who were appropriately vaccinated with Td 65.2% (CI = 44.2%-86.3%) of the time.

Overall adherence to ACIP guidelines for proper Tdap and Td administration was 75%. In this study, only patients who received tetanus boosters were studied; thus, data on the number of patients that failed to receive either Tdap or Td when it was indicated for wound management are not available. For patients aged 11-64 years, 76.1% received the ACIP-recommended Tdap vaccine. For adults aged ≥65 years, no licensed Tdap vaccine was available in the United States before 2010. Thus, all patients aged ≥65 years who were given a tetanus booster during the study period should have received Td; however, 32.1% received Tdap in place of the recommended Td. ACIP changed its recommendations in 2010 to recommend that adults aged ≥65 years receive Tdap in place of Td if they are health-care professionals or have close contact with an infant.[2] The new guidelines also removed the recommended 2-year interval between tetanus vaccinations; no interval is now required between Td and Tdap vaccination. This study is of a single institution and might not be representative of all EDs. An electronic medical record reminder system for health-care providers might increase adherence to the ACIP guidelines.

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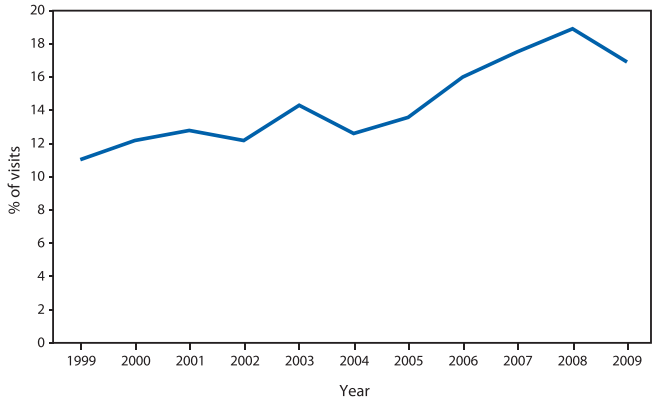
QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage of Hospital Outpatient Department Visits in Which a Physician Assistant or Advance Practice Nurse* Was Seen — National Hospital Ambulatory Medical Care Survey, United States, 1999–2009



* Includes visits to a physician assistant or advance practice nurse (e.g., nurse practitioner, nurse midwife, or other advance practice nurse), with or without a physician present. Estimates are based on sampled visits to hospital outpatient departments.

The percent of hospital outpatient department visits in which a patient saw a physician assistant or advance practice nurse increased from 11% in 1999 to 17% in 2009.

Sources: Hing E, Uddin S. Physician assistant and advance practice nurse care in hospital outpatient departments. NCHS Data Brief no. 77. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics; 2011. Available at http://www.cdc.gov/nchs/data/databriefs/db77.htm.

National Hospital Ambulatory Medical Care Survey public use data file. Available at http://www.cdc.gov/nchs/ahcd.htm.

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