Are Future Health Care Workers Protected Against Hepatitis B Virus Infection? Hepatitis B Vaccination Coverage and Seroprotection Among Healthcare Students at an Academic Institution in the United States, 2000 – 2010

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Conclusions
- The study for the first time assessed hepatitis B vaccination coverage and seroprotection among US healthcare students since the expansion of vaccination recommendations.
- 4% of health care students – 40.2% lacked complete documentation of vaccination.
- These numbers have significant implications as health care students are at risk for exposure to hepatitis B virus during their training and later during their career.
- Vaccination and documentation of anti-HBs concentration upon matriculation helps decrease risk of infection and guide the need for post-exposure prophylaxis in case of exposure.
- Only a small proportion of health care students were vaccinated according to ACIP recommendations in effect during their childhood and adolescence.
- 4.3% of students aged 11-12 years between 1995 and 1997, were vaccinated during that time period.
- 11-18 years of age between 1999 and 2001 were vaccinated according to the 1999 ACIP recommendations.
- High rate of booster to booster doses consistent with literature.

Recommendations
- The ease of accessibility to health care students at the beginning of their studies, before their exposure to bloodborne pathogens, provides an opportunity for educational institutions to protect the future health care workforce and patients.
- For health care student vaccination databases, collection of serologic data to exclude the possibility of previously-acquired hepatitis B infection among non-responders in future studies.
- The study provides an important resource for health care institutions to use as a resource to enrich our understanding of long-term protection provided by hepatitis B vaccine in future studies.

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Introduction
- Healthy People 2010 goal of achieving 90% hepatitis B vaccination coverage among health care workers set as a benchmark for the elimination of occupationally acquired hepatitis B infection in the United States.
- 8% of needle stick injuries among medical students involve a known hepatitis B carrier.
- Little or no information is available regarding hepatitis B vaccination coverage among health care students in the United States.

Objectives
- Estimate coverage and documentation of hepatitis B vaccination
- Assess documentation of anti-HBs concentration
- Estimate seroprotection rate (anti-HBs concentration ≥ 10 mIU/mL) and determine factors associated with seroprotection
- Evaluate implementation of the 1995 and 1999 ACIP recommendations

Methods
- Target Population
  - Matriculating health care students between January 2000 and January 2010 at a university in the southeastern United States
- Data Source
  - Hepatitis Immunization electronic records
- Statistical Analysis
  - Continuous data were reported as median along with the range.
  - Categorical data were reported as percentages.
  - Fisher’s exact test was performed to determine factors associated with anti-HBs concentration ≥ 10 mIU/mL.
  - A p-value ≤ 0.05 was considered statistically significant.

Results

Table 1. Age at vaccination and seroprotection characteristics of health care students, by number of recorded lifetime doses of hepatitis B vaccine received

Table 2. Immune status of students after hepatitis B vaccination series by duration between vaccination and anti-HBs concentration and age at vaccination

Table 3. Response to booster dose(s) among students with anti-HBs < 10 mIU/mL, after completion of the primary vaccine series

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