**Potential Impact of Vaccination of College-Age Adolescents Against N meningitidis Serogroup B: Results of a Transmission Dynamic Model**

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**BACKGROUND**

- Invasive meningococcal disease (IMD) is caused by Neisseria meningitidis.
- IMD is highly contagious, with rapid onset, severe long-term sequelae, and high mortality. It can occur within 24–48 hours after exposure, and is often fatal. IMD vaccines are available against groups A, C, and W135, but a vaccine against group B is in development.
- Despite existing IMD vaccines, preventing meningococcal disease remains an unmet need in the United States.

- The US Advisory Committee on Immunization Practices (ACIP) recommends meningococcal vaccination for college students living in residence halls, and travelers to Mediterranean countries and the Middle East.

- IMD is highly contagious and can spread rapidly, making it difficult to predict incidence.

**OBJECTIVE**

- To estimate the potential disease impact of routine MenB vaccination in students preparing for the first year of college under different incidence and uptake scenarios.

**METHODS**

**Model Data**

- Disease incidence assessed from hospital and US Active Bacterial Core surveillance data and recent vaccination
- Vaccine effectiveness from WHO and ACIP

**Model Outcomes**

- Number of IMD cases and associated deaths during each model year

**RESULTS**

- Model runs and deaths prevented under varied levels of MenB incidence scenario. Under high incidence assumptions, the expected vaccine uptake in this population could result in additional MenB cases averted.

**DISCUSSION**

This study assessed the potential disease impact of routine MenB vaccination in college students under different incidence and uptake scenarios. Despite existing IMD vaccines, preventing IMD remains an unmet need in the United States.

A number of uncertainties impact the ability to make accurate predictions of potential vaccine benefits.

- No public health platform or reference exists to quantify IMD incidence.
- Transmission dynamics of meningococcal carriage among college students are not well understood.

IMD incidence is unpredictable, even in the absence of vaccination.

- MenB cases averted in a closed cohort of college attendees are likely lower than in a more realistic age-based vaccination strategy.

The college age population is at higher risk of IMD and the implementation of routine meningococcal vaccination could prevent both sporadic and epidemic disease, suggesting that it is an important vaccine target population to consider.

A strategy of vaccinating first-year college attendees could prevent both sporadic and epidemic meningococcal disease in cases and estimates that occur on college campuses.

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**REFERENCES**

- Snedecor S, et al. Preventing invasive meningococcal disease in college students: a transmission dynamic model. Presented at IDWeek 2014; October 8–12, 2014; Philadelphia, PA. This poster was developed based on abstract number 46564. This study was sponsored by Pfizer Inc.