

MENINGOCOCCAL VACCINE AND COLLEGE STUDENTS

THE ADVISORY COMMITTEE ON Immunization Practices (ACIP) recently issued a statement addressing concerns about meningococcal disease (MD) in college students.¹ This article reviews that statement along with recent Oregon data regarding MD in college students.

WHAT IS THE RISK?

Invasive meningococcal infection afflicts about 1 out of every 100,000 persons per year in the U.S. Rates are highest in infants — about 20/100,000/year.² Investigators in the United Kingdom found that overall rates of MD during 1994-1997 were higher in university students compared with non-students of similar age: 13.2 versus 5.5 per 100,000 per year, and that dormitory residence was the main risk factor.³ However, this has not been seen in the U.S. Among persons 18-23 years of age in the U.S. who do not attend college, the risk of MD is about 1.5/100,000/year; among undergraduate college students, on the other hand, the risk has been only 0.7/100,000/year.⁴ Several recent studies suggest, however, that among college students, freshmen and those living in dormitories may be at modestly increased risk relative to their non-freshman, non-dormitory-residing classmates. A survey sent to 1,900 universities and returned by 722 (38%) found a risk of 1.6/100,000/year in dormitory residents, but only 0.13/100,000/year in non-dormitory residents.⁵ CDC-sponsored surveillance during the 1998-1999 school year found an incidence of 4.6/100,000/year among freshmen who lived in dormitories.⁴ A study in Maryland undergraduates during 1992-1997 found a rate of 3.24/100,000/year in on-campus residents, versus only 0.96/100,000/year in off-campus residents.⁶

COST-EFFECTIVENESS

What would it cost to reduce this increased risk for freshmen, or more specifically, for freshmen who live in dormitories? Vaccinating the 300,000-500,000 U.S. college freshman dormitory residents with quadrivalent (A, C, Y, and W-135) meningococcal vaccine at \$54-\$88/dose would prevent 15-30 cases of MD and 1-3 deaths per year. After adjusting for costs saved in medical treatment and in lifetime productivity, the cost per case prevented would be \$600,000-\$1.8 million, and the cost per death prevented would be \$7-20 million. Vaccinating *all* freshmen would mean administering 1.4-2.3 million doses of vaccine annually, would prevent 37-69 cases and 2-4 deaths from MD annually, and would cost \$1.4-2.9 million per case and \$22-48 million per death prevented.¹ These figures are well above what is usually considered appropriate for disease prevention.

RECOMMENDATIONS

- Providers of medical care to incoming and current college freshmen, particularly those who plan to or already live in dormitories and residence halls, should, during routine medical care, inform these students and their parents about MD and the benefits of vaccination. ACIP does **not** recommend that the level of increased risk among freshmen warrants any specific changes in living situations.

- College freshmen who want to reduce their risk for MD should either be administered vaccine (by a doctor's office or student health service) or directed to a site where vaccine is available.

- The risk for MD among non-freshmen college students is similar to that for the general population. However, the vaccine is safe and efficacious and therefore can be provided to non-freshmen undergraduates who want to reduce their risk for MD.

- Colleges should inform incoming and/or current freshmen, particularly those who plan to live or already live in dormitories or residence halls, about MD and the availability of a safe and effective vaccine.

- Public health agencies should provide colleges and health-care providers with information about MD and the vaccine as well as information regarding how to obtain vaccine.

Note that ACIP is **not** recommending vaccination of all college freshmen, of all college students living in dormitories, or even of all college freshmen living in dormitories

OREGON DATA

Recent data regarding MD disease in Oregon suggest that vaccine is less likely to be effective here. First of all, since 1995, only 28% of MD were of serogroups covered by the quadrivalent vaccine. (Serogroup B accounted for 71%). Second, since 1993, only 6 cases of MD have been reported in students at 4-year colleges in Oregon (an incidence of 1.1/100,000/year), and of these, 3 were in serogroups that might have been prevented by vaccination.

REFERENCES

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DELAYED SUPPLY OF INFLUENZA VACCINE AND ADJUNCT RECOMMENDATIONS

ANNUAL VACCINATION is the primary means for minimizing morbidity and mortality from influenza, which causes approximately 20,000 deaths and 110,000 hospitalizations per year in the United States.¹ For the 2000-01 influenza season, lower-than-anticipated production yields for this year's influenza A(H3N2) vaccine component and other manufacturing problems are expected to lead to a substantial delay in the distribution, and even shortages, of influenza vaccine. Because now is the time to plan fall vaccination activities, CDC and ACIP have issued adjunct influenza vaccination recommendations.¹ The following is a summary of these adjunct recommendations, which are specific to the 2000-01 influenza season.

- Mass influenza vaccination campaigns should be delayed. Health-care providers, health organizations, commercial companies, and other organizations planning influenza vaccination campaigns for the 2000-01 influenza season should delay them until early to mid-November. The purpose of this recommendation is to minimize cancellations of vaccine campaigns and wastage of vaccine doses resulting from delays in vaccine delivery.

- Influenza vaccination of persons at high risk for complications from influenza and their close contacts should proceed routinely during regular health-care visits. Routine influenza vaccination in clinics, offices, hospitals, nursing

homes, and other health-care settings (especially vaccination of persons at high risk for complications from influenza, health-care staff, and other persons in close contact with persons at high risk for complications from influenza) should proceed as normal with available vaccine.

- Provider-specific contingency plans for an influenza vaccine shortage should be developed. Each influenza vaccine provider, including health-care systems and organizers of vaccination campaigns, should develop a contingency plan to maximize vaccination of high-risk persons and their health-care workers in the event of a vaccine shortage.

There are no new recommendations for the use of influenza antiviral drugs. These drugs are not a substitute for influenza vaccine. Even if an influenza vaccine shortage develops, CDC and ACIP do not support their routine and widespread use as chemoprophylaxis against influenza, because this is an untested and expensive strategy that could result in large numbers of persons experiencing adverse effects.

There are additional important points worth emphasizing in addition to these main recommendations:

- Continue to vaccinate after mid-November; it can still provide substantial protective benefits.

- Once vaccine is available, provide vaccine to persons at high risk for complications from influenza as is normally done. This is particularly important for young children at high risk who are

receiving influenza vaccination for the first time and who require two doses of vaccine.

- Minimizing wastage of influenza vaccine is important. **Don't place duplicate orders for vaccine with multiple companies.**

- In 2000, ACIP broadened its influenza vaccine recommendations to include all persons aged 50-64 years. This recommendation was based, in part, on an effort to increase vaccination coverage of persons in this age group with high-risk conditions. If vaccine is in short supply, focus primarily on vaccinating persons with high-risk conditions, rather than this entire age group.

- Continue to vaccinate persons in close contact with persons at high risk for complications from influenza, because they are in a position to transmit influenza to such persons. Vaccinate health-care workers in particular, because they have frequent and close contact with many different high-risk persons.

A more precise estimate of the vaccine supply will be available as production progresses during the summer. In the meantime, work to maximize protection of persons most likely to develop serious and life-threatening complications from influenza. And watch this space for more information.

REFERENCE

1. CDC. Delayed supply of influenza vaccine and adjunct ACIP influenza vaccine recommendations for the 2000-01 influenza season. *MMWR* 2000; 49:619-22.