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PHYSICIAN NEWSLETTER

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INDEX

VANCOMYCIN-RESISTANT *STAPHYLOCOCCUS AUREUS* (VRSA)

The Michigan Department of Community Health (MDCH) has confirmed its second case of vancomycin-resistant *Staphylococcus aureus* (VRSA). This represents the fourth US case of VRSA confirmed by the Centers for Disease Control and Prevention (CDC). The new VRSA case occurred in a 78 year old male with a history of coronary artery disease, non-insulin-dependent diabetes mellitus, peripheral vascular disease, neuropathy, chronic renal insufficiency and obstructive uropathy. From October through December 2004, the patient spent four weeks in a hospital and five weeks in a nursing home following surgery for an aortic valve replacement. The patient received vancomycin for most of the nine weeks spent in recovery and rehabilitation. He was discharged home in early December 2004.

Following discharge, a small toe wound developed on the patient's foot, progressed, and became infected. The patient was sent to a hospital emergency room in early February 2005 for wound evaluation. The toe was found to be gangrenous at this time and arrangements were made for toe amputation. Cultures taken prior to surgery grew *Morganella morganii, Enterococcus faecalis,* and VRSA (MIC=256 μg/mL). Post-operative wound cultures continue to grow out VRSA. The patient is currently on linezolid, to which this organism is susceptible.

In the laboratory, the VRSA isolate grew on vancomycin screening agar and was reported as vancomycin resistant (MIC >32 μg/mL) using MicroScan panels. Additional testing showed MICs of >256 μg/mL using E-test and 256 μg/mL by broth microdilution. Vitek2 failed to detect resistance with a reported MIC of ≤ 1 μg/mL.

The Antimicrobial Resistance Epidemiologist at MDCH worked closely with the hospital, under consultation with epidemiologists from the CDC, to conduct the contact investigation for this VRSA case. Cultures were taken from the anterior nares and any sores or wounds from family members, physicians, nurses, patients, and lab technicians who had the most extensive interaction with the patient and organism since the beginning of February. The MDCH Laboratory processed all cultures and found no VRSA in addition to the toe wound of the case patient. While the initial cultures of the toe wound grew *E. faecalis*, that isolate was vancomycin-susceptible. However, a surveillance rectal culture collected from the patient grew a vancomycin-resistant *E. faecalis* (VRE). These isolates were forwarded to the CDC for further analysis.

The patient and his dedicated health care providers will be followed throughout treatment until the wound cultures no longer show growth of VRSA, to ensure no colonization or transmission of this VRSA organism. Physicians and laboratories should immediately notify their local health department and MDCH of any suspect cases of vancomycin-intermediate or vancomycin-resistant *Staphylococcus aureus* (VISA/VRSA).

CHANGE COMING FOR VARICELLA (CHICKENPOX) REPORTING IN MICHIGAN

MDCH will be recommending a change in reporting procedure for varicella cases (also known as chickenpox) with the start of the 2005-06 school year. Currently, surveillance for varicella involves aggregate case-count reporting. Physicians, schools, and child day care centers report simple case counts of the numbers of cases for certain age groups to local health departments (LHDs) on a weekly basis. These counts are tallied for each age group and in turn sent from the LHDs to MDCH weekly.

The new change will require varicella cases to be reported on an individual, named-case basis, similar to the way other notifiable diseases are reported. This change, which is being implemented nationwide, was initially a recommendation of the Council

of State and Territorial Epidemiologists (CSTE) and subsequently endorsed by the Centers for Disease Control and Prevention (CDC).

Varicella vaccination has been a part of the routine childhood immunization schedule for nearly ten years. Since then, varicella immunization coverage rates have increased impressively and chickenpox levels have declined substantially (in Michigan, the annual incidence of varicella has dropped over 80% compared to ten years ago). A national varicella surveillance system has become feasible.

As has occurred with other vaccine-preventable diseases, such as measles and rubella, the success of the varicella vaccination program may be changing the epidemiology of the disease in other ways. Modifying varicella surveillance to a case-based reporting approach will allow improved monitoring of varicella epidemiology with respect to such variables as time, place, and age, among others. Ultimately it will yield a better understanding of the impact of immunization on the disease, and may provide data for further policy development guiding varicella vaccine use and practice, for example whether a second dose is needed for optimal protection.

Despite the tremendous drop in chickenpox disease levels, CDC acknowledges that levels may still be too high for in-depth case investigation and extensive data collection. Therefore, case reporting and data collection likely will focus initially on just three variables (in addition to basic case demographic information): age, varicella vaccination history, and a simple index of the case's severity of illness. In time, as incidence declines further, additional information will be required. Again, this change is not scheduled to begin until the start of the 2005-06 school year. At this time MDCH is encouraging local health departments and their disease-reporting partners (physicians, schools, day care centers) to begin thinking about and planning for this modification of chickenpox reporting. Additional information and guidance will be made available in coming months.

TASK FORCE RECOMMENDS SCREENING OF SENIOR MALE SMOKERS FOR ABDOMINAL AORTIC ANEURYSM

The U.S. Preventive Services Task Force has recommended that men between the ages of 65 and 75 who are or have been smokers should have a one-time ultrasound to screen for abdominal aortic aneurysm. The task force noted that nearly 70 percent of men in this age group have smoked and are at the highest risk for abdominal aortic aneurysm. The few published studies that have been conducted in women indicate that women are at low risk for aneurysms. Each year, such aneurysms cause approximately 9,000 deaths in the United States. This number may be an underestimate since the majority of people with ruptured aneurysms die before reaching a hospital, and their deaths may be attributed to other causes.

The recommendation is published in the February 1 issue of the Annals of Internal Medicine. The recommendations and materials for clinicians are available on the AHRQ Web site at http://www.ahrq.gov/clinic/uspstf/uspsaneu.htm.

PANDEMIC INFLUENZA

An influenza pandemic occurs when a new influenza virus appears against which the human population has no immunity, resulting in several simultaneous epidemics worldwide with enormous numbers of deaths and illness. With the increase in global transport and communications, as well as urbanization and overcrowded conditions, epidemics due to a new influenza virus are likely to quickly take hold around the world.

Annual outbreaks of influenza are due to minor changes in the surface proteins of the viruses that enable the viruses to evade the immunity humans have developed after previous infections with the viruses or in response to vaccinations. When a major change in either one or both of their surface proteins occurs spontaneously, no one will have partial or full immunity against infection because it is a completely new virus. If this new virus also has the capacity to spread from person-to-person, then a pandemic will occur.

Outbreaks of influenza in animals, especially when happening simultaneously with annual outbreaks in humans, increase the chances of a pandemic, through the merging of animal and human influenza viruses. During the last few years, the world has faced several threats with pandemic potential, making the occurrence of the next pandemic just a matter of time.

In the past, new strains have generated pandemics causing high death rates and great social disruption. In the 20th century, the greatest influenza pandemic occurred in 1918 -1919 and caused an estimated 40–50 million deaths world wide. Although health care has improved in the last decades, epidemiological models from the CDC project that today a pandemic is likely to result in 2 to 7.4 million deaths globally. In high income countries alone, accounting for 15% of the world's population, models project a demand for 134–233 million outpatient visits and 1.5–5.2 million hospital admissions. However, the impact of the next pandemic is likely to be the greatest in low income countries because of different population characteristics and the already strained health care resources.

If an influenza pandemic appears, we could expect the following:

- Given the high level of global traffic, the pandemic virus may spread rapidly, leaving little or no time to prepare.
- Vaccines, antiviral agents and antibiotics to treat secondary infections will be in short supply and will be unequally distributed. It will take several months before any vaccine becomes available.
- Medical facilities will be overwhelmed.
- Widespread illness may result in sudden and potentially significant shortages of personnel to provide essential community services.
- The effect of influenza on individual communities will be relatively prolonged when compared to other natural disasters, as it is expected that outbreaks will reoccur.

Continuous global surveillance of influenza is key to detecting a new pandemic virus. WHO has a network of 112 National Influenza Centers that monitors influenza activity and isolates influenza viruses in all continents. Rapid detection of unusual influenza outbreaks, isolation of possible pandemic viruses and immediate alert to the WHO system by national authorities is needed to mount a timely and efficient response to pandemics.

Contingency planning for an event sometime in the future is often difficult to justify, particularly in the face of limited resources and more urgent problems and priorities. However, there are two main reasons to invest in pandemic preparedness:

1. Preparation will mitigate the direct medical and economic effects of a pandemic, by ensuring that adequate measures will be taken and implemented before the pandemic occurs.

2. Preparing for the next influenza pandemic will provide benefits now, as improvements in infrastructure can have immediate and lasting benefits, and can also mitigate the effect of other epidemics or infectious disease threats.

The U.S. Department of Health and Human Services (DHHS) has developed a draft **Pandemic Influenza Response and Preparedness Plan** to describe the role and responsibility of federal and state authorities in case of an influenza pandemic. This plan is being updated to incorporate new scientific data and experience obtained during recent outbreaks that had pandemic potential. Further information on DHSS/CDC activities on influenza pandemic preparedness and reducing morbidity and mortality from annual influenza epidemics can be obtained at http://www.dhhs.gov/nvpo/pandemics/index.html

NOTICE TO TRAVELERS ABOUT AVIAN INFLUENZA A (H5N1)

According to the World Health Organization (WHO), since the beginning of March 2005, an additional 10 cases of human infection with avian influenza A (H5N1) virus have been confirmed by the Ministry of Health in Vietnam; 3 of the cases were fatal. The official notification to WHO of these recent cases, some of which date back to late January, is based on new reporting procedures established by the Vietnamese Ministry of Health in collaboration with WHO staff. CDC is in communication with WHO and continues to closely monitor the H5N1 situation in Asia. CDC has not recommended that the general public avoid travel to any of the countries affected by H5N1. http://www.cdc.gov/travel/other/avian_flu_ah5n1_031605.htm