

Public Health Views... and News

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*From the Desk of
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Community Health Agency**

Antibiotic therapy has been a double edged sword in the medical armamentarium. Since the first "wonder drugs" – sulfa and penicillin – were introduced in the 1940s, many previously dangerous bacterial infections have yielded to effective treatment. As in life, too much of a good thing can be a problem. Overuse of antibiotics has resulted in:

- Resistant "super bugs".
- Destruction of "normal flora" causing overgrowth of harmful organisms.
- Explosion of medical costs due to unnecessary prescriptions and high cost for new generation antibiotics.

Treatment of "colds" with antibiotics is a widespread example of misuse. Viral upper respiratory infections are to be expected several times per year especially in young children who are developing immunity to

them. Symptoms can include fever, coryza, sore throat, earache and cough. These viral infections do not require antibiotics and use of them may in fact cause harm. Diarrhea and yeast vaginal infections are common unwanted side effects. Otitis media, bronchitis and sinusitis are also frequently due to viruses and can be initially treated without antibiotics. If streptococcal tonsillitis is suspected in children a throat culture can confirm the diagnosis of signal the patient to fill an antibiotic prescription. A negative result could prompt withdrawal of the drug if started preemptively. The early use of antibiotics for respiratory infections may be indicated in special situations such as COPD. Shorter courses of an antibiotic for urinary infection, e.g. 3 days instead of 10, may be effective while being less prone to cause harmful side effects.

MRSA and VRSA are drug resistant staphylococcal organisms that have emerged as a result of antibiotic misuse. Staphylococcal bacteria have long ago developed resistance to penicillin. These two new strains have developed resistance to the

more potent drugs methicillin and vancomycin respectively. Staphylococcus aureus causes wound infections, sepsis, pneumonia, osteomyelitis and meningitis. MRSA outbreaks first occurred in hospital intensive care units, but now community acquired MRSA is commonplace. Michigan has the unenviable distinction of being the home of several rare isolates of VRSA – staphylococcal bacteria resistant to Vancomycin. Vancomycin has been a drug physicians counted on for MRSA treatment. Vancomycin resistant enterococcus (VRE) is another emerging pathogen. VRSA has occurred in patients with a history of prolonged antibiotic treatment for draining diabetic leg ulcers. Local cleansing of the skin lesions with debridement and draining can often be sufficient for MRSA, avoiding antibiotics unless signs of spreading infection are evident.

Clostridium difficile is yet another emerging pathogen due to antibiotic overuse. This bacterium can cause severe enterocolitis in patients previously treated with antibiotics. The clostridium multiplies in the gut when normal bacteria are killed by broad spectrum antibiotics. In many cases these antibiotics have not been indicated in the first place. Clostridium difficile has become endemic in some hospitals and recent strains have been difficult to eradicate. Infection control practices are needed. Novel treatments such as fecal transfer (orally or rectally) to restore normal bacteria have been effective in some patients when symptoms persist despite treatment with Flagyl or oral vancomycin. This mode of treatment is not too popular with patients for obvious reasons.

Worldwide, the problem of antibiotic misuse is causing great concern for public health officials. The regulation of pharmaceuticals in many countries is non-existent and individuals are able to purchase drugs over the counter without prescription. There is indiscriminate use of antibiotics in animal herds. Traces of drugs are showing up in drinking water. These combined factors have triggered the evolution of antibiotic resistant bacterial mutations in “third world” countries. The burden of resistant organisms in these areas adds to the disparity in health status already due to poverty. The rest of the world is endangered with the emergence of these “super bugs”, e.g. multi-drug resistant TB.

Proper diagnosis for tuberculosis and recommended drug combinations for this deadly disease are unavailable in many developing countries. Tuberculosis remains a leading cause of death worldwide. Ineffective (but cheap) monotherapy with INH has often been the only treatment offered. In Russia, public health facilities have been dismantled with the rush toward capitalism. Incarceration in that country can be equal to a death sentence due to TB prevalence in prisons. Multi-drug resistant TB is becoming common in Russia and elsewhere in the world due to improper initial therapy. Spread of resistant organisms is occurring because of insufficient public health infrastructure. The US and Western countries have managed to lower the prevalence of TB, but the specter of resurgent resistant TB “imported” from the third world is a distinct possibility.

Monitoring of best practices for antibiotic use should be instituted by hospital infection control. Education regarding antibiotic misuse and monitoring of the prescribing habits of physicians is needed as well. Ideally a collaboration of local public health with the medical community should occur, with education of providers being the first priority. Detailing by pharmaceutical representatives should be limited and physicians alerted to avoid over-prescribing the newest antibiotics. Public education needs to occur as well so that the expectation to receive antibiotics for URIs can be combated.

Proper funding for public health should become a worldwide priority. Attention to providing universal access to public health services along with the required professional and administrative manpower can decrease preventable deaths from infection. Regulation of antibiotic use both locally and regionally, controls of pharmaceutical dispensing, and the full cooperation of professional medical groups can eliminate much of the current antibiotic misuse.

James Phillips, MD, MPH

Locals attend FEMA Training



Local Emergency Responders from the Community Health Center of Branch County as well as the Branch-Hillsdale-St. Joseph Community Health

Agency recently completed Homeland Security training at the Center for Domestic Preparedness (CDP) in Anniston, Alabama. The CDP is operated by the US Department of Homeland Security's Federal Emergency Management Agency and is the only Weapons of Mass Destruction (WMD) training facility in the nation.

Two Emergency Preparedness staff from the Community Health Agency and two from the Community Health Center of Branch County attended this 3 day training targeting preparation for a pandemic influenza outbreak, and working toward a collaborative community response to reduce illness and death associated with this type of international outbreak. Two days of intensive classroom training were followed by a day-long tabletop exercise that walked participants through an actual scenario and included real-world injects to test the groups knowledge and reactions to problems and distractions that would most certainly occur during a world-wide outbreak.



The training and the tabletop exercise are intended to train a handful of the nations' 11 million first responders in planning and preparing to react to a nationwide emergency such as the pandemic flu outbreak of 1918 that killed 675,000 Americans and 40 to 60 million persons world-wide. These types of trainings ensure that first responders gain the critical skills and confidence necessary to effectively respond to local or national incidents.

Thirty nine first responders from southwest Michigan attended this training including State, regional and local first responders and

planners. Hospital personnel, county emergency management, law enforcement, Health Department staff and many other first responders in Branch County have been working collaboratively on response plans for several years to prepare to meet the challenge of responding to a variety of disasters, including pandemic flu, and this national training provided another tool in preparing for a response to an emergency situation.

Change Batteries and Check Appliances

Daylight Saving Time ends at 2:00 a.m. on the first



Sunday in November. When you set your clock back one hour, remember to check or change the batteries in your battery-operated carbon monoxide (CO) detector and check your fuel-burning appliances. Each year unintentional CO poisoning kills about 500 Americans and poisons at least 15,000.

You can protect your family and prevent CO poisoning by taking just a few simple steps:

- Have your heating system, water heater, and any other gas, oil, or coal burning appliances serviced by a qualified technician every year.
- Install a battery-operated CO detector in your home and check or replace the battery when you change the time on your clocks each spring and fall. If the detector sounds, leave your home immediately and call 911.

- Don't burn anything in a stove or fireplace that isn't vented.
- Don't run a car or truck inside a garage attached to your house, even if you leave the door open.
- Don't heat your house with a gas oven.
- Never use a generator, charcoal grill, camp stove, or other gasoline or charcoal-burning device inside your home, basement, or garage or near a window.

Seek prompt medical attention if you suspect CO poisoning and are feeling dizzy, light-headed, or nauseated

Diabetes/Alzheimer Link?

Diabetes increases your risk of Alzheimer's. Diabetes and Alzheimer's disease are connected, in ways that still aren't completely understood. Diabetes has been implicated as a risk factor for eventually developing Alzheimer's disease. And some diabetes drugs appear to slow the cognitive decline associated with Alzheimer's disease.

The link between diabetes and Alzheimer's disease may provide new targets for future Alzheimer's treatments. But it may also mean an escalation in the number of people dealing with dementia, as the incidence rate of diabetes keeps increasing. Type 2 diabetes is by far the most common variety of diabetes, usually occurring in people who weigh too much and exercise too little. Skyrocketing obesity rates have helped double the number of Americans with diabetes in the past 15 years. Officials with the Centers for Disease Control and

Prevention expect that number to double again by 2050.

Losing weight and exercising can help prevent type 2 diabetes. If you already have diabetes, controlling your blood sugar with diet and medication, if needed, may help break the link between diabetes and the development of Alzheimer's.

Because diabetes damages blood vessels, it has long been connected with vascular dementia — a type of dementia caused by damaged blood vessels in the brain. Many people have vascular dementia and Alzheimer's disease at the same time.

While not all studies confirm the connection, many researchers



have shown that people who have diabetes are at higher risk of eventually developing

Alzheimer's — independent of their risk of vascular dementia. Diabetes also increases the risk of developing mild cognitive impairment, a transition stage between the cognitive changes of normal aging and the more serious problems caused by Alzheimer's disease.

People who keep their diabetes under tighter control tend to have better mental function. Many people who have Alzheimer's disease also have a condition called prediabetes, in which their bodies have become resistant to insulin, a hormone necessary for cells to absorb glucose.

Small studies involving inhaled insulin have shown improvements in memory and attention spans in people who have Alzheimer's disease.

Cervical cancer vaccine: Who needs it, how it works

(Excerpted from the Mayo Clinic)

The cervical cancer vaccine, Gardasil, is the first vaccine ever designed to prevent a cancer. In the United States where cervical cancer strikes about 10,000 women a year and causes up to 4,000 deaths, the tragedy of cervical cancer is that it often strikes when a woman is still young. Cervical cancer treatment may make future fertility impossible. And even with treatment, cervical cancer is a leading cause of cancer death in women.

Various strains of the human papillomavirus (HPV), which spreads through sexual contact, are responsible for most cases of cervical cancer. The cervical cancer vaccine specifically blocks two cancer-causing types of HPV — types 16 and 18 — to get at the root cause of the cancer. In essence, the cervical cancer vaccine stops cervical cancer before even the first step can begin. The cervical cancer vaccine also blocks HPV types 6 and 11, which are not associated with cervical cancer but are associated with genital warts and mild Pap test abnormalities.

The cervical cancer vaccine is recommended for girl's ages 11 to 12, although it may be used in girls as young as age 9. This allows a girl's immune system to be activated before she's likely to encounter HPV. Vaccinating at this age also allows for the highest antibody levels. The vaccine is given as a series of three injections over a six-month period. The second dose is given two months after the first dose, followed four months later by the third dose. Experts at the Centers for Disease Control and

Prevention (CDC) recommend a catch-up immunization for girls and women ages 13 to 26 who haven't been vaccinated or who haven't completed the full vaccine series.

In clinical trials, the vaccine was effective in a group of sexually active women age 26 or younger, some of whom had already been



infected with one or more types of HPV. There's a caveat, however. The cervical cancer vaccine blocks HPV types 6, 11, 16 and 18, but only if you haven't been exposed to those particular types of HPV. The more sexual partners you've had, the greater your chance of having been exposed to multiple types of HPV — including HPV types 6, 11, 16 and 18.

Some experts encourage women ages 18 to 26 to review their sexual history with their doctors to determine if there's a reasonable chance of benefiting from the vaccine. Others support the CDC's recommendation of universal vaccination for women ages 18 to 26.

Is it safe? The answer seems to be yes. The cervical cancer vaccine has proved to be remarkably safe. The most common complaint is soreness at the injection site, the upper arm. Low-grade fever or flu-like symptoms also are common. But the effects are usually mild. No one in the clinical trials discontinued the vaccination series because of side effects.

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