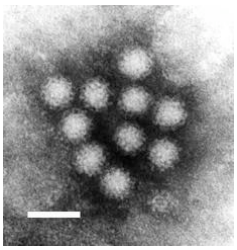
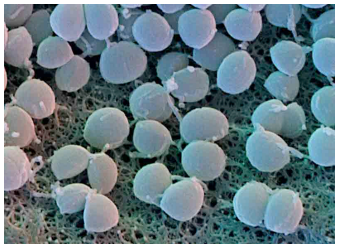
July 11, 2009

Outbreaks and Getting Back Online

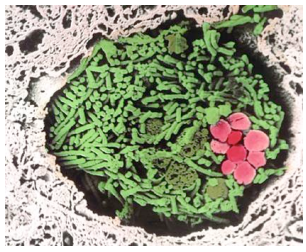
It seems the news these days often carries stories about viral, bacterial and related disease outbreaks. We all hear and worry about the "usual suspects" such as Norwalk Virus on cruise ships ("cruise ship virus") or whether we can catch TB, flu or other diseases on an airplane (yes). Even hospitals are not safe from these threats. Johns Hopkins Hospital had a Norwalk outbreak in 2004, described as "one of at least 24" in Maryland in just the first half of that year. That incident lasted three months, sent 13 employees to the emergency room or the hospital, and cost JHH over $650,000. Across the country hospitalized patients are contracting clostridium difficile (c. diff), with up to 438 patients dying every day.



Though "swine" and "bird" flu have so far turned out to be of much less concern than originally feared, others are on the upswing. Methicillin-Resistant Staphylococcus Aureus, more commonly referred to as "MRSA" (pronounced "mersa"), is one good example. This bacterial infection was originally identified in hospital environments and is credited with over 60% of hospital staph cases. It is becoming more common in the open community and, unlike most staph infections that are usually easily treated, has become increasingly antibiotic resistant, and can lead rapidly to aggressive infection, a type of pneumonia and death. Two other very worrisome, though less headline-grabbing, threats are Multidrug-Resistant and Extensively Drug-Resistant Tuberculosis (MDR-TB and XDR-TB). The World Health Organization reports these are at an all-time high. Both are extremely contagious and life threatening, and the XDR variant now found in at least 45 countries is virtually untreatable.



These so-called "super bugs" are easily transmitted, most commonly through direct contact with infected persons (sneezing, coughing, handshaking), contaminated objects (doorknobs, phones, PC and ATM keys) and all of the other usual ways in which we spread and catch "germs." Once established in a local environment such as a hospital, school, public transportation system or other population center, it is a difficult cycle to break. Some of the more common examples of interventions are school and office building closings, wearing surgical masks, increased hand washing and the use of personal disinfectants. In the case of the 2001 anthrax attacks, entire buildings had to be closed and aggressively sampled, decontaminated and resampled by the U.S. EPA. The final cost to taxpayers for EPA action was over $27 million verses an initial $5 million estimate, and does not include the loss of building contents, most of which could not be salvaged.



The government bore the cost of the anthrax response since the affected buildings, except for one, were government offices. The exception was the American Media, Inc. building in Boca Raton, FL. Federal Superfund laws did not allow expenditure of public funds for remediation of this private building, and private contractors finally completed the project in 2007. Insurers are getting involved, with one offering "Outbreak Coverage" for businesses incurring losses from covered disease agents and events. Whether they will cover the costs of decontamination, or for how much, remains debated.

So how do we return a building to service following a bio-contamination event? The short answer is to determine the nature and extent of the agent, and find the most cost-effective way to "kill" it with minimal impact on the operation. Sampling, application and destruction confirmation require careful examination of many factors. The planning phase may require the input of structural engineers, HVAC experts, decon specialists, industrial hygienists or others to assure a successful operation. An excellent resource is the EPA National Decontamination Team (NDT). Their official role is to provide support to Federal On-Scene Coordinators (FOSCs) regarding the decontamination of buildings or other structures in the event of an incident involving releases of radiological, biological, or chemical contaminants, though they are available to other parties for technical consultation.

Some infection control projects can be completed without service interruption. For example, a school and their fleet of buses might be treated for MRSA or flu overnight or during the weekend. The large, complex buildings hit by anthrax in 2001 effectively were sealed for months, gutted and fumigated with substances toxic to the organism. In some situations the best approach might be "dry steam," spraying with bleach solution, UV exposure, "cold fogging" with anti-microbials etc. Some treatments leave a residual to keep killing organisms. Others may require optimal temperature or humidity during application, or capture and treatment of exhausted air. Each method has pros and cons, and no one approach works best in all environments or against all infectious agents. These are all custom jobs requiring a great deal of planning and operational awareness.

Dr. Scott Harris is the Senior Risk Manager for IESO, LLC. His experience covers over 27 years of Environmental, Health and Safety Management in Federal and State government, consulting, general industry and University instruction. He received his Ph.D. in Environmental Science, with a specialization in Disaster and Emergency Management, from Oklahoma State University, and holds degrees in Geology (B.S.) and Public Health (MPH) from Western Kentucky University. Before joining IESO Scott was a Federal On-Scene Coordinator for EPA Region 6 and a member of their Emergency Readiness Team. He held DOD "Top Secret" and DOE "Q" security clearances, and directed multi-agency emergency response, planning and recovery activities for chemical, biological and radiological releases and exercises within the five-state region. Scott was the Region 6 EPA lead for BioWatch, a national sentry program for early detection of biological WMD events. He served on national workgroups and developed BMPs and Agency capabilities for surveillance, first response, hotzone sampling and decontamination procedures, and authored response and decontamination plans for numerous major cities and international airports.