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Laboratory Error, Irradiation Effectiveness Problem With Anthrax Sample Shipments

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Failure of an irradiation procedure to inactivate Bacillus anthracis spores performed led to shipment of viable spores to 70 labs in 20 U.S. sites and 5 foreign countries. The spores were prepared at the U.S. Army’s Life Sciences Testing Facility (LTSF), Dugway Proving Ground, Utah and shipped on April 29, 2015 by commercial courier as part of a Department of Defense (DoD) effort to develop new diagnostic tests to identify the agents of bioterrorism. All samples associated with the failed inactivation were recalled by DoD. After one of the commercial laboratories involved in the study grew small amounts of B. anthracis from one of the samples, the Centers for Disease Control and Prevention (CDC) confirmed that the irradiation process did not completely inactivate the spores and that low levels of viable organism were present in the samples. CDC reported that the risk to laboratory workers who handled these samples was low, but not zero. Workers that manipulated samples outside of appropriate containment equipment and utilized procedures that may have created an aerosol which could cause inhalation anthrax were offered prophylaxis. Thirty-one personnel including 8 U.S. citizens and 23 DoD employees received postexposure prophylaxis. No suspected or confirmed cases of anthrax have been reported in the potentially exposed lab workers. Facilities that received sample shipments were instructed to destroy the samples by autoclaving, transfer them to a select agent-registered laboratory for destruction or retain the samples if the facility is registered as a select agent laboratory for B. anthracis. The Federal Select Agent Program is working with affected sites and state and local authorities to account for all samples. Laboratories that received B. anthracis samples from LTSF after June 1, 2014 were instructed to clean and decontaminated their facility. Recommendations for decontamination varied based on the lot number of samples received. The Environmental Protection Agency (EPA) suggested use of products currently registered for use against B. anthracis , but several agents including ethylene oxide, paraformaldehyde, hydrogen peroxide, peracetic acid, and sodium hypochlorite are not registered for use against B. anthracis. Use of unregistered products for anthrax (continued on next page) ►

Director,
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Reminder

Michigan Department of Community Health and Michigan Department of Human Services are now joined as the Department of Health and Human Services “MDHHS”. Our old MDCH identity will be replaced on our request forms, documents, webpages, laboratory reports, etc. We appreciate your patience as we make this transition, which will likely take a few months to complete. We want to call your attention to these two important changes:

Our webpage shortcut will become <http://www.michigan.gov/mdhhslab>

Our public email box will become mdhhslab@michigan.gov





► (continued from previous page) decontamination requires a Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) crisis exemption. EPA staff will work with state and local authorities to develop and approve decontamination plans. Facilities receiving the samples were located in California, Utah, Texas, Tennessee, Virginia, Massachusetts, Wisconsin, Maryland, New Jersey, New York, Delaware, Washington, Illinois, Florida, Arizona, Ohio, North Carolina, Rhode Island, Pennsylvania, WashinMarty Boehme, Quality Assurance Manager
gton D.C., Japan, United Kingdom, Korea, Australia, and Canada.

50 Years of Newborn Screening in Michigan

Author: Harry Hawkins, Manager ,Newborn Screening Section



It's not just PKUs anymore and newborn screening is no longer just blood spot testing. The Newborn Screening Laboratory has been testing dried blood spots since 1965! The initial test for phenylketonuria (PKU) was an inexpensive bacterial inhibition assay developed by Dr. Robert Guthrie. In the past 50 years, the number of disorders screened on Michigan newborn blood spots

has increased to 53. Point of care testing has expanded the definition of newborn screening to include newborn hearing screening and critical congenital heart diseases. The Michigan Department of Health and Human Services Bureau of Laboratories and follow-up programs have worked closely with birthing hospitals, midwives, primary care providers and medical specialists to provide families the support needed to ensure a successful comprehensive newborn screening system. This 50 year achievement will be celebrated on September 16, 2015 from 8:00 am – 4:30 pm in Lansing. Laboratory tours will available by registration only in the morning (at 8:00 am or 9:00 am), special recognition of birthing hospitals that have exceeded expectations in regards to newborn screening responsibilities will be held at the Capitol at 10:00 am. Educational programs will be presented a few blocks away at the Lansing Center from 11:00 am – 4:30 pm. More details can be found at http://www.michigan.gov/mdch/0,4612,7-132-2942_4911_4916-308866--,00.html. Interested parties can register for the event at <https://>

Chemical Threat Preparedness: Northern Exposure Full-Scale Exercise

Author: Teresa Miller, BS

The Michigan Department of Health and Human Services Bureau of Laboratories (MDHHS BOL) in partnership with Kent County Health Department, Region 6 Healthcare Coalition, and the Community Health Emergency Coordination Center participated in the National Guard Northern Exposure June 2015 Full Scale Exercise. ►

► (continued from previous page) This exercise was coordinated by the Michigan National Guard and included a health and medical response to a detonated Improvised Nuclear Device. The exercise was designed to test the ability of all participating agencies to share critical information, sustain operations, coordinate response actions to civilian casualties, and support community recovery. The Community Health Emergency Coordination Center (CHECC) was activated to provide essential information reports, guidance, and act as a resource to support the response to public health and medical agencies in conjunction with the State Emergency Operations Center (SEOC). Part of the exercise play included disruption of chemical processing at two partner companies triggering subsequent public chemical exposures.

MDHHS BOL would like to thank the 24 hospital/health departments that participated in the exercise. Participating laboratories received telephone calls from the CHECC asking for specific information found in their Chemical Threat Response Kits. The newly updated kits were provided to laboratories that received on-site training for “Laboratory Response and Hospital Preparedness in a Chemical Exposure Event.” Funding for training and kits is provided through the Public Health Emergency Preparedness Cooperative agreement. These funds are awarded to the Bureau of Laboratories for meeting all requirements as a level 1 laboratory in the Centers for Disease Control and Prevention (CDC) Laboratory Response Network-Chemical (LRN-C). Congratulations to the 20 laboratories scoring at least 80% or better in the exercise!

In addition, we would like to offer a special thank you to Spectrum Health of Grand Rapids who scored a 100% for their participation in this exercise. They performed a simulated specimen collection along with a full scale packaging and shipping exercise. Once the simulated specimens were received by the Bureau of Laboratories LRN-C level 1 laboratory, scientists were called to respond to the chemical exposure emergency for sample receipt, analysis, and submission of specimen result reports to Spectrum Health and the CHECC.

The Bureau of Laboratories appreciates our Michigan laboratory partners for their effort and response in public health threat exercises. If your laboratory has not been the recipient of a Chemical Threat Response kit and training since July 2014, please call Teresa Miller at (517) 241-0925 or email millert28@michigan.gov to arrange training for your facility.



► (Continued from previous page)



Figure 5. Image of *Wohlfahrtia* maggots from *hindawi.com*.

Ignatzschineria indica is an aerobic Gram- negative, non- spore-forming, non- motile, regular shaped Rod. Its cell wall contains the following fatty acids: C18:1, C16:0 and C14:0.6, the predominate respiratory Quinone is Q-8.

The G+C content of its DNA is 42 mol%. Biochemical reactions for *Ignatzschineria* are as follows: positive for Oxidase , Catalase and PDA and Negative for Motility, Nitrate, Urease, Simmons' Citrate, fermentation of Dextrose, oxidation of Dextrose, LDC, ODC, ADH, Indole, TSI was N/N-.

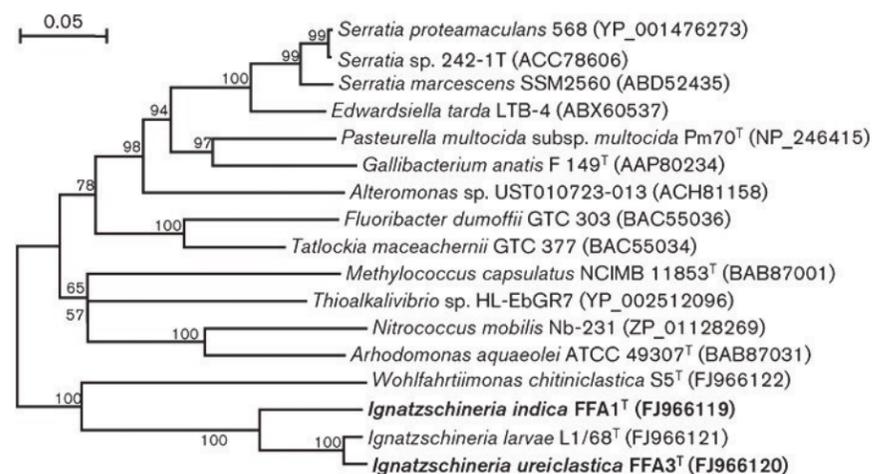


Figure 6. Phylogenetic tree among members of the class *Gammaproteobacteria*.

References:

Maurin, M., et al. 2007. "Human Infection with Schineria larvae". *Emergent Infectious Disease Journal*. 13(4): 671-673.

Toth, E. M., Borsodi, A.K., Euzebly, J.P., Tindal, B. J. and Marialigeti, K. 2007. "Proposal to replace the illegitimate name Schineria Toth et al. 2001 with the genus name Ignatzschineria gen. Nov. and to replace the illegitimate combination Schineria larvae Toth et al. 2001 with Ignatzschineria larvae comb. Nov." *International Journal of Systematic and Evolutionary Microbiology*. 57: 179-180.

Gupta A.K., Dharme M.S., Rangrez A.Y., Verma P., Ghate H.V., Rohde M., Patole M.S., Shouche Y.S. 2011. "Ignatzschineria indica sp. Nov. and Ignatzschineria ureiclastica sp. Nov. isolated from adult flesh flies (Diptera: Sarcophagidae)". *International Journal of Systematic and Evolutionary Microbiology*. 61 (Pt6):1360-9.

Quality Assurance and Specimen Shipping Changes

Author: Marty Boehme, Manager, Quality Assurance Section

We would like to remind our partners of these important changes we are making to improve specimen quality:

Closing Pre-paid US Mail Account

We continue to receive specimens shipped through the mail on our MDHHS account. This account is being **CLOSED**, and clients who continue to use the printed Express Mail labels risk having these packages returned to them. Please discard all existing Express mail labels (these still read "MDCH") with the account number printed on them, and share this information with other areas in your laboratory or facility that may send specimens to the MDHHS laboratory in Lansing. We are using United Parcel Service (UPS) return service for those specimens shipped on our account, which will allow us to better track specimens during transit.

UPS return service slips can be ordered through the Bureau of Laboratories (BOL) warehouse by calling 517-335-9037. Contact Matthew Bashore at BashoreM@michigan.gov for more details.

New Serum Tubes Prevent Leaking

Clients who order specimen shipping materials from MDHHS are getting a new style tube for shipping serum and CSF specimens to our laboratory. The new 5-mL tube is a screw-top, with a gasket in the cap. Please be sure to tighten these screw caps firmly to prevent leakage during shipping.



Phasing Out the Dual-Tube Canisters

Say good-bye to the nesting metal tube /cardboard cylinder shipping canisters and CT/GC Styrofoam™* boxes (pictured). These do not meet current shipping regulation requirements, and are not compatible with modern U.S. Postal Service sorting equipment. We are in the final phase of selecting a replacement shipper, and expect to begin filling orders with a new design by October 1. The BOL expects to move forward with new shippers for some of our other kits at a later date.

*Styrofoam is a registered trademark of the Dow Chemical Company.



The Survey Says...

Thank you to all our partners who have taken the time to fill out the recent survey on specimen shipping kits and instructions. Your responses are very helpful to us as we seek to improve service at the BOL. If you have not yet taken our survey, there is still time. Please go to <http://mdhhs.kits.questionpro.com> and tell us what you think.

LabLink is published quarterly by the Michigan Department of Health and Human Services Bureau of Laboratories, to provide laboratory information to Michigan health professionals and public health community.

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