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Director, Bureau of Laboratories
Sandip Shah, PhD, HCLD(ABB)

LabLink

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Bureau Vision

The Bureau of Laboratories is a stronger, more diverse team within an integrated public health system. We utilize advanced technology and innovative leadership to provide comprehensive public health services in our dynamic global community.

Bureau Mission

We are dedicated to continuing leadership in providing quality laboratory science for healthier people and communities through partnerships, communication and technical innovation.



Cluster of Non-Travel Associated *Burkholderia pseudomallei* Cases Linked to Contaminated Room Spray

Author: Kimberly McCullor, PhD., Microbiology Section Manager

Burkholderia pseudomallei, a tier one select agent and the causative agent of melioidosis (also known as Whitmore's Disease), is known as the "great mimicker". Clinical presentation is often misdiagnosed as tuberculosis or pneumonia due to wide ranging symptoms. Cases within the United States are rare and typically associated with travel to endemic areas of the world (southeast Asia, northern Australia, Indian subcontinent, southern China, Hong Kong, and Taiwan).¹ Non-travel associated cases, such as the recent cluster of four cases, are extremely rare. The cluster of cases spanned March to July of 2021 and included four states: Texas, Georgia, Kansas, and Minnesota.

Transmission mainly occurs through direct contact with contaminated soil and water through cuts or abrasions, inhalation of contaminated soil dust, or ingestion of contaminated water. Human to human and animal to human transmission is extremely rare. Incubation can range from 1-21 days with only 5% of cases being activated after latent infection. Activations can happen many years after initial infection with one case of reactivation occurring 62 years after the initial exposure.²

To investigate the recent four state cluster, whole genome sequencing was performed. Genetic analysis indicated that all 4 cases were related and the cluster was eventually linked to Better Homes & Gardens Aromatherapy Room Spray, Lavender & Chamomile scent with gemstones. The product was manufactured in India and sold



[Contaminated Aromatherapy Room Spray](#)

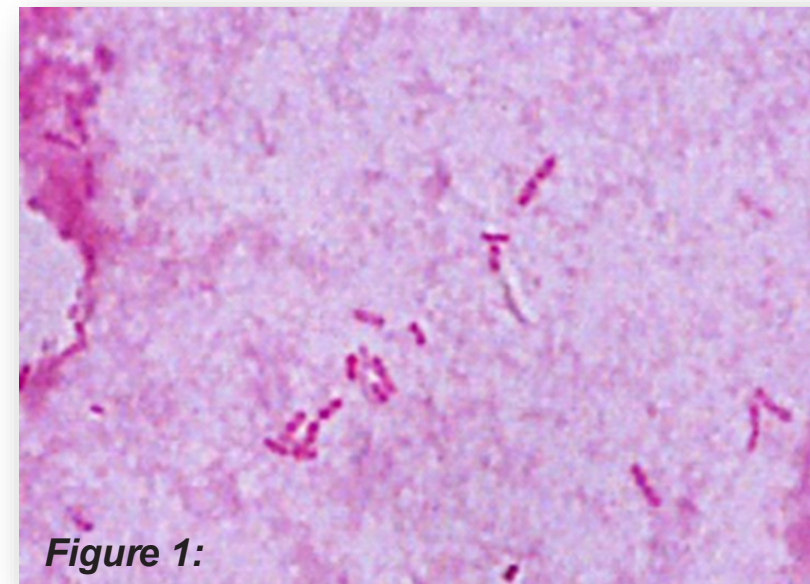


Figure 1:

Figure 1:

B. pseudomallei, Gram Stain, direct patient sample

Photo courtesy of MDHHS BOL

through Walmart from February to October 21, 2021, when the recall took effect. An additional five scents were also removed as a precautionary measure. *B. pseudomallei*, isolated from the contaminated room spray, was found to match the isolates from all four cases.³ To date, no additional cases have been identified.

While rare, this incident emphasizes the global nature of both travel and product importation and importance of being vigilant for select agents. Sentinel Laboratories play a crucial role to recognize, rule-out, or refer utilizing the Sentinel Laboratory Procedures.⁴ It is important to rule-out select agents prior to loading onto commercial identification systems to prevent potential laboratory exposures. Automated systems may fail to correctly identify *B. pseudomallei* and may mis-identify as *B. thailandensis*, *B. cepacia*, and other members of the *Burkholderia* genera, *Chromobacterium violaceum*, *Ochrobactrum anthropic*, and possibly *Pseudomonas* spp., *Acinetobacter* spp., and *Aeromonas* spp.. *B. cepacia* can closely mimic *B. pseudomallei*. The ASM sentinel guidelines recommend confirming identification of *B. cepacia*, particularly if recovered from blood or tissue from a non-cystic fibrosis patient. The most notable characteristic to assess is amoxicillin clavulanate resistance. *B. cepacia* will be resistant while

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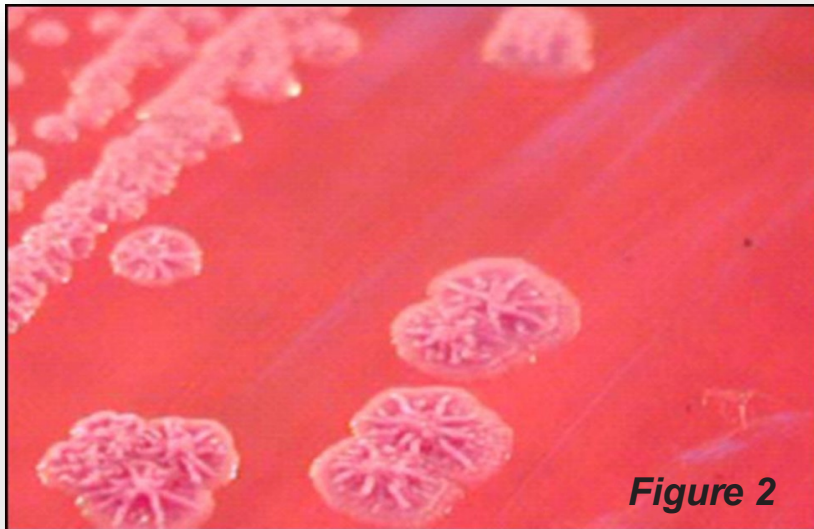


Figure 2:

B. pseudomallei, grown on blood agar after 72 hour incubation

Photo courtesy of MDHHS BOL

99% of *B. pseudomallei* isolates are susceptible. For more information on select agents, or to schedule Biothreat Agent training, contact the Bioterrorism Training Coordinator, Jason Wholehan wholehanj@michigan.gov

Resources:

1. Currie, B. J., Dance, D. A., & Cheng, A. C. (2008). *The global distribution of Burkholderia pseudomallei and melioidosis: an update*. Transactions of the Royal Society of Tropical Medicine and Hygiene, 102 Suppl 1, S1–S4. [https://doi.org/10.1016/S0035-9203\(08\)70002-6](https://doi.org/10.1016/S0035-9203(08)70002-6)
2. Benoit, T. J., Blaney, D. D., Gee, J. E., Elrod, M. G., Hoffmaster, A. R., Doker, T. J., Bower, W. A., Walke, H. T., & Centers for Disease Control and Prevention (CDC) (2015). *Melioidosis Cases and Selected Reports of Occupational Exposures to Burkholderia pseudomallei--United States, 2008-2013*. Morbidity and mortality weekly report. Surveillance summaries (Washington, D.C.: 2002), 64 (5), 1–9.
3. Centers for Disease Control and Prevention (2021, November 4). *2021 Multistate outbreak of melioidosis*. <https://www.cdc.gov/melioidosis/outbreak/2021/index.html>
4. American Society for Microbiology (2018, March 1). *Sentinel Level Clinical Laboratory Guidelines for Suspected Agents of Bioterrorism and Emerging Infectious Diseases Glanders: Burkholderia mallei and Melioidosis: Burkholderia pseudomallei*. <http://asm.org/ASM/media/Policy-and-Advocacy/LRN/Sentinel%20Files/Burkholderia-Marc2016.pdf>

BOL Offers Recognize, Rule-out, Refer: Bacterial Biothreat Agents

Author: Jason Wholehan, MLS(ASCP)^{CM}, Bioterrorism Training Coordinator

Sentinel microbiology laboratories are on the frontline of encountering and identifying the agents of bioterrorism. These organisms pose a significant risk to microbiology staff as they are associated with aerosolization and laboratory acquired infections. Additionally, they are not commonly included in identification libraries and therefore must be sent to a Laboratory Response Network (LRN) Reference Laboratory such as MDHHS BOL.



This intermediate level course will provide a comprehensive overview of the role of Sentinel Laboratories within the LRN. The course will provide an overview of biosafety while handling possible agents of bioterrorism and cover the American Society for Microbiology (ASM) Sentinel Level Guidelines for each bacterial agent. The class format will be a 1.5-hour interactive lecture. Time will be available for questions and answers.

As always, this course is offered free of charge to any Sentinel microbiology laboratory throughout the State of Michigan. If you are interested in scheduling a session, please email Jason Wholehan at wholehanj@michigan.gov.



BOL Expands for the Future

The MDHHS Bureau of Laboratories is undergoing an expansion of the laboratory facilities which will include remolding and upgrading several clinical testing areas.

With an eye to the future, meeting the ever-growing demand for laboratory professionals and the changing workforce, the project will include new flexible laboratory training space. This space is specifically designed to assist in training laboratorians, from across the state, in didactic and hands-on laboratory practices and will also include a mock BSL-3 environment. While the entire space has training and partnerships with the many clinical lab partners of Michigan in mind, there is also the flexibility to quickly switch the set up to accommodate a rapid response surge testing area for future outbreak response efforts.



Future Projections of BOL



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Editor: Teresa Miller