



Burkholderia cenocepacia bacteremia attributed to sterile gel in ultrasound guided central line insertions

Outbreak of health care-associated *Burkholderia cenocepacia* bacteremia and infection attributed to contaminated sterile gel used for central line insertion under ultrasound guidance and other procedures

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Summary and Methods

The authors describe an outbreak of *Burkholderia cenocepacia* bacteremia in 4 hospitals across Australia between the dates of March 2017 and May 2017. Eleven patients were infected, predominately in intensive care units. A collaborative outbreak response team was formed to investigate sources of the contamination. Intravenous fluids were cultured and testing of multiple potential sources were performed. The source of the infection was traced back to contaminated sterile ultrasound gel sachets within kits used in central line insertion and sterile procedures.

Discussion and Results

Four hospitals across Australia were involved in an effort to find the source of a *Burkholderia cenocepacia* bacteremia outbreak in the spring of 2017. Through aseptic microbiological testing, the point source was isolated and proven to be gel sachets from sterile ultrasound probe cover kits, manufactured from a company in China. All patients with bacteremia identified had central line placements using ultrasound guidance. These sterile gel sachets yielded heavy contamination with *B. cenocepacia*. Genomic sequencing analysis was performed and demonstrated that the isolates from patients linked to the use of the ultrasound gel and the isolate grown from the gel were highly genetically related to each other and demonstrated far more genetic distance from other isolates taken from patients that were referenced. The gel sachets were a component of sterile probe cover kits which included an expiration date, however the gel packets themselves did not pose an expiration date. Another observation noted was that the gel packets were not consistent and varied in packaging. All gel was enclosed in foil packing. It is likely that the gel was contaminated while being packed and that the ethylene oxide used during the sterilization process could not penetrate the foil enclosure. All gel kits were removed from the associated hospitals and the distributor was contacted and ordered a recall which was classified as a life-threatening event. From isolation of the source to the recall, the time span was 36 hours. All patients recovered from the apparent infections.

Conclusions

"This recent outbreak of health care-associated infection, in particular bacteremia due to *B. cenocepacia* contamination of ultrasound gel, highlights again the important role that medical equipment and its cleanliness plays in the delivery of quality health care." In a well-orchestrated effort to isolate the contaminant, the source was proven, and a recall was issued within 36 hours. All patients recovered from the infection caused by central line placement procedures using contaminated ultrasound gel.

Author Commentary

"The recA sequences and MLST typing demonstrated that the isolates from patients linked to the use of the ultrasound gel and the isolate grown from the gel were highly genetically related to each other and demonstrated far more genetic distance from other isolates taken from Queensland patients included for reference"