The Infection Control Department reviews microbiology reports daily as part of the critical care surveillance methods used to participate in the National Nosocomial Infections Study (NNIS). In June 2001, the infection control practitioners noted the presence of several unusual gram-negative rods from surgical specimens. While investigating the source of these organisms, *Staphylococcus aureus* was serendipitously identified on the inside lip of multiuse iodophor (Betadine; Purdue Pharma LP, Stamford, Conn) jugs.

*Agrobacterium radiobacter* was isolated from 4 surgical specimens (knee, subdural, synovial fluid, and chest wound). The first culture was taken June 5, another on June 19, and then 2 more on June 29. One lumbar specimen grew *Pseudomonas stutzeri* on June 18, and 1 knee specimen grew *Chryseobacterium indologenes* on June 27. These are aerobic gram-negative rods that are uncommon isolates in a clinical microbiology laboratory. In addition, the organisms only grew on the aerobic plate of the anaerobic setup and not on the original aerobic plates.

Since all specimens (ie, respiratory, urine, wounds) received in the Microbiology Laboratory are plated in the same hood and stored in the same incubator, these instruments did not appear to be related to the problem. There were no new technologists or students, and procedures for handling specimens were the same. In an effort to determine the source of these isolates, cultures were taken from following areas of the Microbiology Laboratory and then evaluated:

- Uninoculated chopped meat glucose (CMG) from current lot (Remel, Lenexa, Kan); CMG is a medium used to enhance anaerobic growth
- CMG with swab from BBL Port-A-Cul (Becton Dickinson, Sparks, Md); BBL Port-A-Cul is used to collect and transport specimens that may contain anaerobic, facultative, or aerobic organisms
- CMG with Port-A-Cul swab not placed in gel
- Tube from new shipment of CMG
- Hemostat container in hood where specimens are plated
- Alcohol container in hood where specimens are plated
- Bottom of 35-degree incubator
- Water pan from bottom of 35-degree incubator

*Sphingomonas paucimobilis* grew from the incubator water, whereas all other cultures were negative.

The infection control practitioner contacted the Port-A-Cul and CMG manufacturers. They had not received reports similar to ours from other clients.

The patients’ charts were reviewed for signs and symptoms of infection with use of the Centers for Disease Control and Prevention’s definitions of nosocomial infections. None of the patients was infected. In addition, there was nothing in the patients’ charts, such as occupation or travel, to indicate that they may be susceptible to colonization.
Microbiology procedures and surveillance culture results were reviewed, and a literature search was done.\textsuperscript{1-4} Although it appeared that the contamination did not originate in the operating room (OR) since different procedures, surgical teams, and rooms were involved, we went to the OR to review the procedure for specimen collection and Port-A-Cul inoculation. We discovered during conversation with the OR nurses that the iodophor (Betadine) used to scrub and prepare the patient’s skin in the OR was poured from gallon jugs and may have sat for days. To rule this out as a potential source, we cultured the iodophor (Betadine solution), iodophor scrub liquid (Betadine), and jug rims from 2 different ORs. These rooms were chosen since several of the patients involved had their procedure in these rooms. Much to our surprise, the results from the rim of 2 solution containers were positive for \textit{S} aureus. There have been reports of iodophors contaminated with gram-negative rods,\textsuperscript{5-8} but a literature search did not provide evidence of \textit{S} aureus contamination.

We do not believe that the iodophor (Betadine) was intrinsically contaminated, rather that it was a function of prolonged use. The gallon jugs were immediately replaced with single-use 4-ounce bottles. This demonstrates that large, multiuse containers have the potential to become contaminated, which, in turn, may pose a risk to the patient. Given the frequency of \textit{S} aureus as the etiologic agent of wound infections, we were concerned that iodophors may be a previously unrecognized reservoir of \textit{S} aureus contamination. We were not able to determine the origin of the gram-negative rods or make a conclusion as to why the surgical specimens grew these organisms, partly because there was only a 3-week period in which the organisms were isolated. To date, there have been no further surgical specimens that have grown these organisms.

References