after use and removal of the sheath, and post reprocessing. Cultures were performed using previously published semi-quantitative sampling technique and incubated on Sheep Blood Agar for 72 hours at 37°C. Immediately post-scope use, the barrier sheath was removed and leak testing preformed, utilizing sheath manufacturer's in-process commercial testing equipment.

RESULTS: 75 nasendoscopes were assessed (pre-, post-use and post reprocessing, 6 samples/scope) for bacterial contamination. Table 1 shows the microbial load on the patient-ready nasendoscope both before use in the patient procedure and post-use removal of the barrier sheath showed little to no microbial growth normal skin associated bacteria. Two of the 75 HC were culture positive for a similar bacillus spp. pre- and post-use. After through cleaning with an enzymatic detergent, wiping with 70% ethanol and allowing to air dry, all nasendoscope cultures were negative for any bacterial growth. Additionally, post-use leak testing results showed no barrier sheath failures.

Table 1. Nasendoscope microbial culture results

Pre Patient Use (n = 75)	Post Use w/Sheath	Post Cleaning/70% Ethanol
15 HC/6 IT cfu/ml 60 HC/69 IT – Negative	13 HC/1 IT – cfu/ml 62 HC/74 – Negative	75 HC/75 IT – Negative

CONCLUSIONS: Our study addresses the questions, one does the barrier sheath maintain its integrity and two, is high-level disinfection still required if the nasendoscope is used with a sterile barrier sheath. The study showed no post-use loss of sheath integrity and that there is little to no bacterial growth on the scope HC and/or the IT post-patient procedure employing the sterile barrier sheath. Moreover, our study demonstrated post-barrier sheath use reprocessing including cleaning with an enzymatic detergent, a 70% ethanol wipe followed by air drying, provided bacterial culture negative patient-ready instruments. These findings may eliminate the need for nasendoscope high-level disinfection when a scope sterile barrier sheath is used.

CJ Alvarado, PhD, Medtronic, Scientist, Unrestricted donation to UW Foundation.

3:15-3:30 PM
Publication Number 237

Management of an Outbreak Due to *Salmonella tennesse* in a NICU: The Importance of Adherence to Infection Prevention Practices

ME Fornof, BSN, CIC
L Walker, BSN
Infection Prevention/Quality Department, Sky Ridge Medical Center, Lone Tree, CO, USA

ISSUE: In December 2006, an outbreak of *Salmonella tennesse* was identified in two NICU babies. On the day of the second report, 3 additional babies developed bloody diarrhea.

PROJECT: On 12/06, a baby in the neonatal intensive care unit (NICU) developed a sudden onset of bloody diarrhea. Parents who were later identified as the likely source were ill and had not reported this to NICU staff. Two days later a second infant developed similar symptoms. The NICU was closed to new admissions, stool cultures were sent on all infants. Cohorting with universal contact precautions began. An epidemiological investigation was started by the Infection Prevention Coordinator. State and local health departments were notified to assist with environmental cultures and recommendations. The Center for Disease Control (CDC) was also consulted. A review of the literature found no reports of similar *Salmonella* outbreaks in a NICU. Observation in the unit showed lack of adherence to standard infection prevention practices including hand hygiene and environmental cleaning. A high census made access to two of the three sinks in the unit difficult. The third sink was not functioning properly. Hand sanitizers were available throughout the unit.

RESULTS: At the time of the outbreak the NICU census was 13-average census is 7. Of the 13 infants, 9 were culture positive and 4 of them were symptomatic. A fifth baby was symptomatic but never culture positive despite repeated cultures. The other 3 babies were culture negative. Staff were also cultured with 2 of them positive. Infants were cohorted into infected/colonized and uninfected groups. The health department allowed the culture positive staff to be assigned to the infected/colonized group as long as they remained asymptomatic. All staff and visitors were monitored for signs and symptoms of illness. Uncolonized infants were moved to a room outside of the NICU to provide further segregation. Education on hand hygiene, standard and contact precautions, and environmental cleaning were provided to staff and parents. Visitation was restricted to parents only during the outbreak. Weekly cultures of the uninfected infants identified no further transmission. The first set of environmental cultures showed 8 positive sites. Enhanced cleaning procedures were put into place with environmental service & NICU staffs educated. Cultures done 10 after the change in procedure were all negative. The NICU reopened in 1/07.

LESSONS LEARNED: *Salmonella* demonstrates prolonged transmission capablity on environmental surfaces. Strict adherence to basic infection control practices including hand hygiene, standard precautions, and appropriate cleaning were key to stopping the outbreak. Education included both staff and visitors. A formal competency has been developed for staff. Additionally, an educational program on key infection prevention measures has been developed for the parents of future NICU admissions.

3:30-3:45 PM
Publication Number 238

Pseudo-Outbreak with Serratia Marcescens Contamination in Albuterol Sulfate/Ipratropium Bromide for Inhalation Therapy

J Lamphron, RN, BSN, CIC[1]
A Assimacopoulos, MD, FIDSA[1]
L Reurink, RN, BC, CPC[1]
[1]*Infection Control, Avera McKennan Hospital & University Health Center, Sioux Falls, SD, USA*

ISSUE: In recent years *Serratia marcescens* has become an important cause of severe healthcare-associated infection. This organism can easily be disseminated throughout patient care areas via unwashed healthcare worker hands, contaminated patient equipment, work surfaces, and any item coming into contact or mixed with tap water. Infection Control monitors all microbiology cultures performed in our laboratory. During this monitoring process, an increase in Serratia marcescens cultured from respiratory secretions was identified in May 2002. Identified were eleven hospitalized patients and one outpatient. To determine if a true outbreak was in progress, a case definition was defined and chart review was conducted for all patients culturing Serratia marcescens from April 1st through June 30th 2002.

PROJECT: The following procedures were reviewed: bronchoscopy, ventilator usage, tube feedings, and nebulized inhalation medications. Of major interest were nebulized inhalation medications. Individual inhalation medications are purchased sterile. However, there are times where a combined solution of these medications are requested. Albuterol and Ipratropium bromide (IPRA) are supplied as an un-sterile powder. They are mixed with sterile normal saline under a hood in our Home Infusion Pharmacy. These medications were mixed for outpatient and inpatient use. This mixed solution was placed into a jug with a long, plastic tube attached to a pipette (manifold) with 15 individual spigot ports. Small, sterile, single dose plastic containers were attached to each spigot port, filled, and then heat-sealed. Batches were made weekly, stock rotated, and labeled to expire in 3 months. A new sterile jug and tubing were used when new meds were mixed, but the pipette was continually soaked in a ''critical cleaning liquid detergent''. After a period of time, the outer ports on the pipette would develop mineral deposits, clogging the filling process. To remove build-up, the pipette was soaked in a plastic bucket containing a de-mineralizing solution.

RESULTS: Cultures were obtained from the soaking solutions (critical cleaning liquid detergent and the de-mineralizing solution) and the pipette. All were positive for Serratia marcescens. Cultures were performed on three batches: one new batch, one batch one week old, and one batch 2 weeks old. All were positive. It was determined