determine the burden of multi-drug-resistant *A. baumannii* infections in ICU of Mubarak hospital, Kuwait over 3 years period.

Methods. *A. baumannii* infections/colonization of ICU patients attended by infection prevention (IP) team at our hospital over a period of 3 years, January 2014 to December 2016, were included in the study. Outbreak size, mortality, source and outbreak control measures were carefully recorded. The isolates were identified and tested for their susceptibilities by semi-automated VITEK-2 system. The clonality of the isolates was determined by molecular typing methods using RE--PCR DiversiLab or pulsed-field gel electrophoresis.

Results. A total of 164 episodes of infections/colonization was encountered. Of these, 84 (51.2%) were proven cases of sepsis. In 2014, 2015 and 2016, 26/13, 37/32 and 21/35 episodes of infection/colonization, respectively were recorded. During this period, 2 outbreaks each involving 9 and 13 patients in 2014, 3 outbreaks involving 11, 15 and 20 patients in 2015, and 15, and 2 outbreaks of 15 and 9 patients in 2016 were encountered. The main sources of infections/colonization were respiratory (58.5%), BS (23.8%), urinary tract (7.9%), surgical site (6.1%), CSF (1.8%), and intra-abdominal (1.8%). The associated mortality rates were 23.1, 41.6, and 11.3%, respectively. Over 84% of the isolates were multidrug-resistant organisms. Analysis of molecular typing demonstrated clonality only among 5 isolates in 2014, 9 in 2015, and 8 in 2016, with no carry-over of related strains from year to year; the rest were heterogeneous. Despite implementation of stringent infection control measures, such as screening of patients, contact precautions and cohort isolation, enhanced environmental cleaning, limiting of patient transfers, and staff/patient education with emphasis on hand hygiene, *A. baumannii* persisted in the unit.

Conclusion. Our study demonstrates a high burden of *A. baumannii* in our ICU throughout the 3 years and with outbreaks in between. Programs to improve IP practice and address antibiotic resistance in the ICU are urgently required.

Disclosures. **All authors:** No reported disclosures.

461. *In Vitro* Susceptibility Profiles of *Klebsiella* spp. Isolated from ICU and non-ICU Wards in North and Latin America (TEST Program 2012–2016)

Daryl Hoban, PhD[1]; Martha Renteria, MD[2]; Dan Sahm, PhD[2] and Heidi Leister-Tebbe, BSN[3]; [1]IHMA, Inc., Schaumburg, Illinois, [2]International Health Management Associates, Inc., Schaumburg, Illinois, [3]Pfizer, Inc., Collegeville, Pennsylvania

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Background. *Klebsiella* spp. are one of the most frequently isolated Gram-negative pathogens infecting seriously ill patients in intensive care units. Increasing resistance mechanisms associated with this species group has led to the inclusion of *K. pneumoniae* as a member of the ESKAPE pathogens as determined by the Infectious Disease Society of America (IDSA). Regional variations of susceptibility to several classes of antimicrobial agents can provide guidance when selecting appropriate antimicrobial therapy. Data from Tigecycline Evaluation Surveillance Trial (TEST) program 2012-2016 were used to determine antimicrobial susceptibility patterns in *Klebsiella* spp.in patients in ICUs and non-ICUs in both Latin America (LA) and North America (NA).

Methods. *Klebsiella* spp. isolates were identified locally and antimicrobial susceptibility testing was done using broth microdilution according to CLSI guidelines at each participating institution in NA and LA. CLSI or FDA (tigecycline) breakpoint criteria were applied to define susceptibility status.

Results. Susceptibility by region and patient location are shown in the following table.

	Region/Location (n)/MIC_{90}/%S			
	North America		Latin America	
Drug	ICU (833)	Non-ICU (2255)	ICU (251)	Non-ICU (533)
Tigecycline	1/95.9	1/95.7	2/94.8	2/95.9
Amikacin	4/98.4	4/98.9	16/93.6	8/94.6
Cefepime	2/90.5	2/90.0	>32/52.2	>32/51.2
Ceftazidime	16/88.6	16/88.1	>16/56.2	>16/55.9
Levofloxacin	1/91.4	4/88.6	>8/74.1	>8/67.7
Meropenem	0.12/96.4	0.12/96.3	16/83.7	8/85.3
Pip-Tazo	128/88.5	16/90.7	>128/69.3	>128/70.4

Conclusion. *Klebsiella* spp. infections are becoming a treatment challenge due to several resistance mechanisms, particularly β-lactamases. Decreased activities among all agents were observed among *Klebsiella* spp. isolates collected in LA compared with NA. Isolates of *Klebsiella* spp. collected from patients in ICU wards demonstrated comparable susceptibility to those from non-ICU wards in both North America and Latin America. Because resistance patterns can vary with patient locations continued monitoring of antimicrobial trends based on location parameters is warranted.

Disclosures. **M. Renteria**, IHMA, Inc.: Employee, Salary. **H. Leister-Tebbe**, Pfizer: Employee, Salary

462. An Increase in Invasive Infections due to *Corynebacterium striatum* at an Academic Medical Center

Becky Smith, MD[1,2]; Kirk Huslage, RN, BSN, MS[2,3]; Barbara D. Alexander, MD, MHS, FIDSA[1]; Julia Messina, MD[1]; Daniel Sexton, MD[1,2] and Sarah S. Lewis, MD MPH[1,2]: [1]Division of Infectious Diseases, Duke University Medical Center, Durham, North Carolina, [2]Duke Center for Antimicrobial Stewardship and Infection Prevention, Durham, North Carolina, [3]Infection Prevention and Hospital Epidemiology, Duke University Medical Center, Durham, North Carolina

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Background. After identifying an increase in invasive infections due to *Corynebacterium striatum* (CS) in 2016, we evaluated the epidemiology of *C. striatum* (CS) infections in our system.

Methods. We reviewed microbiology records to determine the number of patients with cultures growing CS from 1/1/14 to 12/31/16. Prior to 11/2015, diphtheroids identified from sterile body sites were sent to a reference lab for identification (ID); beginning in 11/2015, MALDI-TOF was used by the microbiology lab for CS ID. Two infectious diseases physicians reviewed charts of all 2016 cases using a standardized data collection tool and determined whether patients had infection vs. colonization.

Results. We identified 3,6, and 50 patients with cultures growing CS in 2014, 2015, and 2016, respectively. Thirty-six (72%) of the patients in 2016 were felt to have true infection. Skin and soft-tissue infections and osteomyelitis were the most common sites (Figure). The majority of infected patients were immunocompetent, had community-acquired (CA) infections, received antibiotics in the prior 60 days, and required prolonged courses of antimicrobial treatment (Table). No epidemiologic link was identified for nosocomial or CA infections.

Conclusion. The notable increase in clinically significant CS infections at our institution warrants further investigation. Whole genome sequencing may offer insight into whether a specific clone is responsible for more invasive disease.

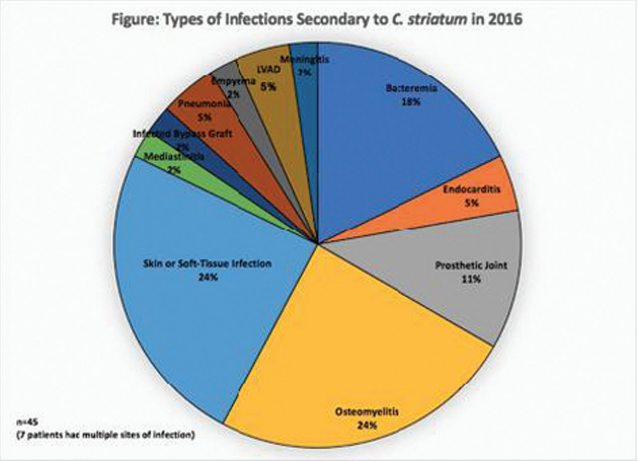

Table: Case characteristics of patients with *C. striatum* infections in 2016

Characteristic	*n* = 36
Age, years (mean, std dev)	59 + 18.1
Sex (% Female)	16 (44%)
Immunocompromised status	9 (25%)
Transplant recipient	5 (14%)
Medication	3 (8%)
Cancer	1 (3%)
Vascular device present	5 (14%)
Central venous catheter	2 (6%)
Left ventricular assist device	3 (8%)
Classification of infection	
Hospital-acquired	7 (19%)
Healthcare-associated	10 (28%)
Community-acquired	19 (53%)
Antimicrobial exposure in the last 60 days	30 (83%)
Pure growth of *Corynebacterium striatum* in culture	23 (64%)
Gram-positive rods present on Gram stain	14 (39%)
Blood culture (*n* = 8)	8 (100%)
Non-blood culture (*n* = 28)	6 (21%)
Duration of antimicrobial treatment, days (mean, std dev)	28 ± 16.9
Mortality related to infection	3 (8.3%)

Disclosures. **D. Sexton**, Centers for Disease Control and Prevention: Grant Investigator, Grant recipient. Centers for Disease Control and Prevention Foundation: Grant Investigator, Grant recipient. UpToDate: Collaborator, Royalty Recipient

463. Control of Cat Flea Infestation in Neonatal and Pediatric Intensive Care Units

Thana Khawcharoenporn, MD, MSc[1]; Kanokporn Thongphubeth, RN[2]; Sunee Auimsirinukul, RN[2]; Prasert Saichua, PhD[3] and Pornumpa Bunjoungmanee, MD[3]; [1]Department of Medicine, Faculty of Medicine, Thammasat University, Pathumthani, Thailand, [2]Thammasat University Hospital, Pathumthani, Thailand, [3]Thammasat University, Pathumthani, Thailand

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Background. In November 2015, our Infection Control Department was notified of flea infestation in neonatal and pediatric intensive care units (N&PICU) and flea bites among the units' healthcare workers (HCWs).

Methods. We conducted an investigation in N&PICU. All sites, equipment, furniture, and unit and personal belongings were thoroughly inspected for fleas. The caught fleas were sent to the Division of Parasitology for further identification. Sources of flea transmission including host animals were searched for. The flea-bitten HCWs were examined for skin lesions and followed-up for development of systemic illnesses, such as severe allergic reactions and typhus.

Results. The flea infestation was found in multiple sites of N&PICU including surfaces of unit belongings, non-medical equipment and walls. We found a couple kittens lying in the space for ventilator and air-conditioner pipes above the ceilings of N&PICU. Given the construction to build a new hospital building near N&PICU, parts of the pipe space were opened up and connected to the outside. This was most-likely the way the cats could get into the area and transmit the fleas. The caught fleas were identified under microscopic examination as *Ctenocephalides felis* (cat flea) (Figure 1). There were 4 patients and 41 HCWs bitten by the fleas. Single or multiple monomorphic erythematous papules sized 0.5–0.8 cm were found mainly over ankles, lower legs, forearms, neck, and upper back. The interventions to control the fleas included removal of the cats from the area, management of stray cats, closing the opening parts of the pipe space above the unit ceilings, mechanical removal of fleas, washing bedding, blankets and linens in hot water, and 2-hour steam fumigation throughout the units by portable machines (Figure 2) every 8 hours for 4 weeks. The attack rates were 44%, 3% and 0% before and after the first and second week of the interventions, respectively ($P < 0.001$). During 1-year follow-up, there had been no reports of additional flea infestation or any flea-related systemic illnesses among the bitten patients and HCWs.

Conclusion. Source control and intensive eradication of adult fleas and their eggs by steam fumigation were effective in control of cat flea infestation in the hospital units.

Figure 1

Microscopic examination revealed a reddish brown wingless insect with multiple large spines on the head (genal comb) and spines on the thorax (pronotal comb) with anteriorly pointing elcngated frons, consistent with *Ctenocephalides felis* (cat flea).

Steam fumigation machine used for eradication of adult fleas and their eggs

Disclosures. **All authors:** No reported disclosures.

464. A Cluster of Fluconazole-Resistant *Malassezia pachydermatis* in a Neonatal Intensive Care Unit — California, 2015–2016

Raymond Chinn, MD, FIDSA, FSHEA[1]; Alice Pong, MD[2]; Kerry Schultz, BS, RN, CIC[3]; Janice Kim, MD, MPH[4]; David Kaegi, MD[5]; Maynard Rasmussen, MD[6]; Cathy Woerle, BS[7]; Gabriela Malagon-Maldonado, PhD[8]; Charlyne Neder, LVN, CIC[9]; Karlyn Beer, PhD[10]; Nancy Chow, PhD[10]; Janet Glowicz, MPH, MSN, RN, CIC[11]; Shawn Lockhart, PhD[10]; Brandon Jackson, MD, MPH[10] and Ana Litvintseva, PhD[10]; [1]Sharp Memorial Hospital, San Diego, California, [2]Pediatric Infectious Diseases, Rady Children's Hospital San Diego, University of California San Diego, San Diego, California, [3]Infection Prevention, Sharp Mary Birch Hospital for Women and Newborns, San Diego, California, [4]Healthcare-Associated Infections Program, Center for Healthcare Quality, California Department of Public Health, Richmond, California, [5]Neonatology, Sharp Mary Birch Hospital for Women and Newborn, San Diego, California, [6]Neonatology, Sharp Mary Birch Hospital for Women and Newborns, San Diego, California, [7]Microbiology, Sharp Memorial Hospital, San Diego, California, [8]Nursing Administration, Sharp Mary Birch Hospital for Women and Newborns, San Diego, California, [9]Rady Children Hospital San Diego, San Diego, California, [10]CDC, Atlanta, Georgia, [11]Northrop Grumman, Atlanta, Georgia

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Background. *Malassezia pachydermatis*, a common veterinary yeast, rarely causes outbreaks in neonatal intensive care units (NICUs). One outbreak was associated with healthcare worker (HCW) colonization with strains shared by pet dogs. Prevention relies on good hand hygiene, but data HCW pet ownership and interaction are lacking. We report a cluster of 5 cases of *M. pachydermatis* infection or colonization during December 2015–September 2016 in a Level 3, 84-bed NICU and results of a HCW survey on hand and pet-related hygiene.

Methods. A case was defined as a culture yielding *M. pachydermatis* from sterile sites or skin of a NICU patient. We used whole-genome sequencing (WGS) to examine genetic relatedness among the 5 *M. pachydermatis* isolates compared with 9 isolates in CDC's historical collection. As part of a series of NICU hand hygiene improvement campaigns, we administered a web-based survey of hand hygiene practice, pet ownership, and pet health to 290 NICU HCWs employed while case-patients were admitted.

Results. We identified 5 cases (3 fungemias, 1 infected urinoma, 1 colonization) during the 9-month period (Figure 1), and a hospital lookback revealed no *M. pachydermatis* infections before the first case. All patients had low birth weight, central venous or peripheral arterial catheters, prior broad-spectrum antibiotics, and antifungal prophylaxis. All isolates were resistant to fluconazole and were highly related by WGS (<14 single-nucleotide polymorphisms [SNPs]) but unrelated to historical isolates (>40,000 SNPs). Survey respondents ($N = 151$[52%]; Figure 2) reported perceived peer HCW hand hygiene lower than their own, and 69% reported daily contact with dogs or cats. Survey results did not differ among staff who did ($n = 15$) and did not ($n = 136$) care for all case patients. No cases were reported in the 7 months following the fifth case.

Conclusion. We report a NICU cluster of fluconazole-resistant *M. pachydermatis* cases nearly identical by WGS, suggesting a common source of infection, possibly related to HCW carriage following contact with household pets. A hygiene improvement campaign may have mitigated further transmission. *M. pachydermatis* is a potential cause of fungemia among neonates on fluconazole prophylaxis.

Figure 1

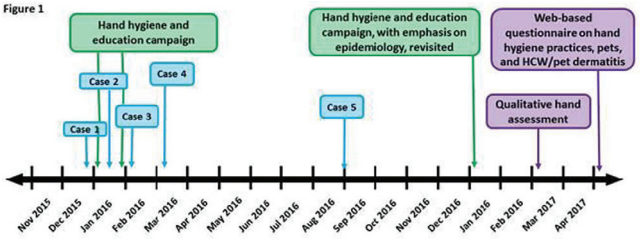

Figure 2