Figure 1. Timeline of statistical process control (SPC) and traditional surveillance detection of 30 surgical site infection outbreaks that occurred from 2007-2015 in the Duke Infection Control Outreach Network.

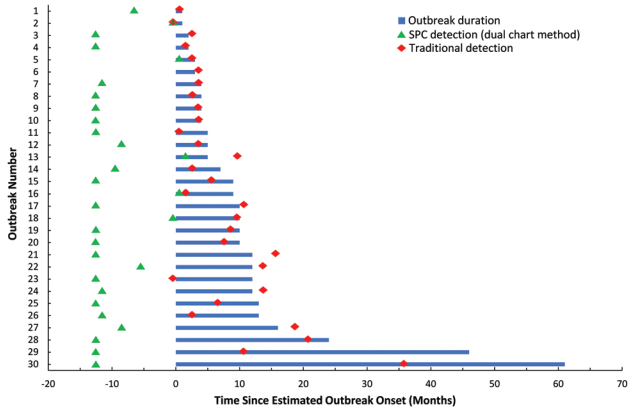
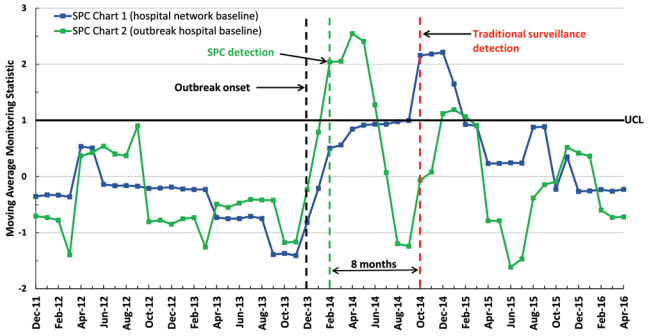


Figure 2. Use of dual statistical process control (SPC) charts for early detection of a surgical site infection outbreak (Outbreak #5) following total hip arthroplasty surgeries performed at a community hospital. UCL, upper control limit.



Disclosures. **All Authors:** No reported Disclosures.

86. Ventilator-Associated Pneumonia in Trauma Intensive Care Unit, a Dilemma in Quality Metrics

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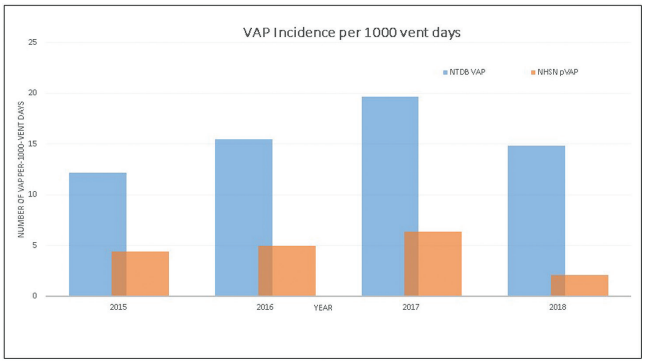
Session: 32. Surveillance in Healthcare-associated Infections
Thursday, October 3, 2019: 11:30 AM

Background. Ventilator-associated pneumonia (VAP) definition remains controversial. Ventilator-associated event (VAE) and probable/possible VAPs are reported to the National Healthcare Network (NHSN). In trauma patients, VAPs are also reported to the Trauma Quality Improvement Project (TQIP) utilizing the National Trauma Data Bank (NTDB)'s definition.

Methods. We reviewed all VAPs reported to NHSN and TQIP in trauma patients at the University of Nebraska Medical Center between January 1, 2015 and June 30, 2018. The primary objective was to determine the discordance rates between NHSN and NTDB definitions. VAPs identified by both NHSN+NTDB considered concordant; if identified by only one definition, considered discordant. Secondary objectives were mortality, intensive care unit (ICU) length of stay (LOS), and ventilator (vent) days. Fisher's exact test and the Kruskal–Wallis test were used where appropriate; $P < 0.05$ = statistical significance.

Results. In total, 998 patients had 5,624 days of vent support during the study period. One hundred and one patients were diagnosed with VAP. The median age was 43 years (range 2–92), median vent days were 14 days (range 3–128), and median ICU LOS was 16 days (range 6–47). Of the 101 patients, 28 (27%) met VAP definition by NHSN and 88 (87%) by NTDB. Of the 101 patients, 15 (15%) were concordant and 85 (85%) were discordant. Cumulative all-cause mortality was 23/101 (23%). Composite analysis showed mortality 5/15 (33%) in concordant group, 3/13 (23%) in NHSN group, and 15/73 (20%) in NTDB group ($P = 0.52$). Median vent days between concordant, NHSN, and NTDB groups were 14 days, 16 days, and 14 days, respectively ($P = 0.71$). Median ICU LOS was 17 days in concordant, 21 days in NHSN, and 14 days in NTDB group ($P = 0.094$). Similarly, comparison of NHSN VAE with NTDB VAP definition showed 67/101 (66%) were discordant. There was no statistically significant difference in mortality between concordant (NHSN VAE+NDTB VAP) 9/34 (26%), NHSN VAE 3/13 (23%), and NTDB VAP 11/54 (20%) ($P = 0.84$).

Conclusion. Our study showed very high discordant (85%) reporting of VAP to different agencies. No difference in mortality, ICU LOS, and vent days was noted. The high discordance of reported VAPs results in inconsistency in quality metrics and hinders initiatives to decrease VAPs depending on which definition is followed. Improved standardization is needed.



Disclosures. **All Authors:** No reported Disclosures.

87. Heart and Lung Transplants From HCV-Viremic Donors to Uninfected Patients: Longer-Term Follow-Up

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Session: 33. Transplant ID
Thursday, October 3, 2019: 10:30 AM

Background. The DONATE HCV Trial demonstrated that hearts and lungs can be safely transplanted from HCV-infected donors using a shortened, 4-week, pre-emptive course of direct-acting antivirals (DAA). The 6-month results from that study of 35 patients are encouraging, but longer-term data from a larger cohort are needed to better define the risk–benefit profile.

Methods. We conducted a single-center trial to transplant thoracic organs from HCV viremic donors, irrespective of HCV genotype, to HCV-uninfected adults. Sofosbuvir/velpatasvir, a pan-genotypic DAA, was pre-emptively administered for 4 weeks, beginning within hours of transplant. The primary outcome was a composite of HCV clearance and graft survival at 6 months post-transplant. Secondary outcomes included graft survival and mortality at 12 months and the occurrence of grade 3 or higher adverse events (AEs). This protocol is IRB approved and all participants provided written informed consent (NCT03086044).

Results. Between March 2017 and March 2019, 57 participants were enrolled: 46 received lung and 11 received heart transplants. The median donor HCV viral load (VL) was 889,817 IU/mL (IQR 212,062–4,641,078). Of the 57 recipients, 53 (93%) had detectable HCV VL immediately after transplant, with median VL of 1,460 IU/mL (IQR 463–6,618). HCV VL became negative by about 2 weeks and subsequently remained undetectable in all participants. Forty-nine of 49 (100%) and 34 of 35 (97%) participants were alive with excellent graft function and an undetectable HCV VL at 6 months and 1-year post-transplant, respectively. No treatment-related serious AEs were identified. Outcomes between transplant recipients from HCV donors vs. non-HCV donors were similar, including the occurrence of renal failure, respiratory failure, and non-HCV infections.

Conclusion. In patients who received thoracic organs from HCV viremic donors, a 4-week antiviral treatment course initiated within hours of transplant prevented the establishment of HCV infection. These data demonstrate that thoracic organs from HCV viremic donors can be transplanted safely with excellent graft and recipient survival at 12 months with a similar AE profile compared with transplant recipients who received thoracic organs from non-HCV donors. Two-year outcomes will be available in October 2019.

Disclosures. **All Authors:** No reported Disclosures.

88. Public Health Service (PHS) Increased-Risk Factors in Organ Donors: A Review of the OPTN Ad hoc Disease Transmission Advisory Committee (DTAC)

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Session: 33. Transplant ID

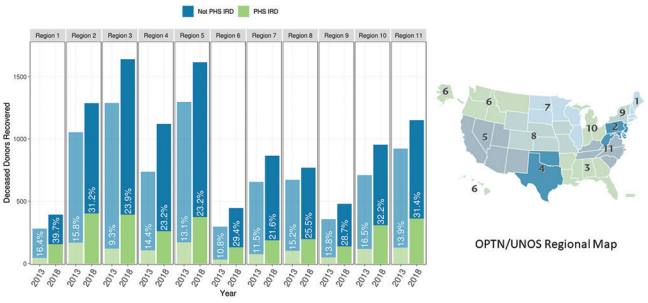
Thursday, October 3, 2019: 10:45 AM

Background. In the United States, all deceased donors (DD) are evaluated for behavioral risk factors for human immunodeficiency virus (HIV), hepatitis B (HBV), and hepatitis C (HCV) infection during the past 12 months. DD with behavioral risk factors or hemodilution are designated as PHS increased risk donors (IRD). Since 2013, the number of IRD has increased from 13.4% of DD to 27% in 2018. Despite a low residual risk of disease transmission after a negative nucleic acid test for HIV/HBV/HCV, the considerable underutilization of IRD has driven an interest in revising the PHS IRD 2013 guidelines. The objective of this study was to describe the epidemiology of IRD with the goal of guiding policy change and maximize organ use.

Methods. This is a retrospective cohort study of DD during 2018. Characteristics of IRD were compared with non-IRD. A random 10% sample of IRD was selected for manual review of text narratives and donor questionnaires submitted by organ procurement organizations to determine specific PHS IRD factors. Categorical variables were compared using the χ^2 test and continuous variables were compared using a 2-sample *t*-test for independent samples.

Results. Among 10,721 DD in 2018, 2,904 were designated IRD (27.1%) with regional variability noted (Figure). Compared with non-IRD, IRD were younger (median age 35 vs. 45 years, $P < 0.001$) and more often died from drug intoxication (33.2 vs. 5.6%, $P < 0.001$). Hemodilution was found in 6.8% of all IRD and was the only factor for IRD designation in 60% of pediatric donors <12 years old. The random sample of IRD ($N = 288$) was similar to IRD population for age, gender, ethnicity, cause of death, and region of recovery (table). Descriptive analysis of the random sample showed that intravenous drug use was the most common behavioral risk factor ($N = 124$, 43.1%), followed by incarceration ($N = 108$, 37.5%). Most DD met only 1 criterion ($N = 179$, 62%); 21% met 2 criteria; and 17% had >3 criteria.

Conclusion. This study represents the most detailed description of PHS IRD factors since the adoption of the new guidelines in 2013. Understanding the prevalence of factors that lead to IRD designation will help inform future policy development, optimize safe DD use, and increase the number of transplants.



Deceased Donors in the USA by PHS IRD Status : 2013 & 2018

Table: Deceased-Donor Demographics and PHS Risk Factors in 2018

Characteristic	All 2018 Deceased Donors	All 2018 IRD	Random Sample of 2018 IRD
Number of Donors (N)	10,721	2,904	290
Donor Age (Median, IQR)	41 (28—54)	35 (27—46)	36 (27 – 45)
Pediatric (<12 y.o.) Donors (N, %)	479 (4.5%)	47 (1.6%)	4 (1.4%)
Mechanism of Death: Drug Intoxication (N, %)	1401 (13.1%)	964 (33.2%)	92 (31.7%)
Female Donors (N, %)	4225 (39.4%)	944 (32.5%)	92 (31.7%)
Donor Ethnicity (N, %)			
White	7008 (65.4%)	1995 (68.7%)	211 (72.3%)
Black or African—American	1728 (16.1%)	458 (15.8%)	39 (13.4%)
Hispanic	1508 (14.1%)	350 (12.1%)	33 (11.4%)
Other/Multiracial	477 (4.4%)	101 (3.5%)	5 (1.7%)
PHS IRD Risk Factors (N, %)			
IVDA	---	---	124 (43.1%)
Incarceration	---	---	108 (37.5%)
Sex w/ Individual with IVDU	---	---	53 (18.4%)
Incomplete/Unclear History	---	---	37 (12.8%)
Hemodilution	197 (1.8%)	197 (6.8%)	30 (10.4%)
Hemodialysis	---	---	27 (9.4%)
Sex w/ Individual Who Had Sex for Money/Drugs	---	---	24 (8.3%)
Sex for Money/Drugs	---	---	19 (6.6%)
Dx/Rx for STI	---	---	19 (6.6%)
Sex w/ Individual Known/Susp. w/ HIV/HBV/HCV	---	---	18 (6.2%)
MSM	---	---	11 (3.8%)
Female Who had Sex with MSM	---	---	2 (0.7%)
Pediatric Donor: Born to MO w/ or Increased Risk for HIV/HBV/HCV	---	---	1 (0.3%)
Pediatric Donor: Breastfed by MO w/ or Increased Risk for HIV	---	---	0 (0%)

Disclosures. **All Authors:** No reported Disclosures.

89. Efficacy and Tolerability of Voriconazole (VOR) vs. Isavuconazole (ISA) Prophylaxis (px) in Preventing Invasive Fungal Infections (IFI) in Lung Transplant Recipients (LTR)

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Session: 33. Transplant ID

Thursday, October 3, 2019: 11:00 AM

Background. IFI is a significant complication following lung transplant (LT). VOR was universal antifungal px in our LT program from 2004 to October 2015, at which time px was changed to ISA. We compared the efficacy and tolerability of VOR vs. ISA px in LTR.

Methods. We reviewed all LTR from September 2013 to February 2018 who received VOR or ISA Px. The standard duration of px was 3 or 4 months following basiliximab and alemtuzumab induction, respectively. All patients were followed for ≥1 years post-Tx. IFI was defined by revised EORTC/MSG criteria.

Results. In total, 310 LTR were included, 149 and 161 of whom received ISA and VOR px, respectively. There was no difference in demographics, underlying diseases, single vs. double LT, or induction therapy (alemtuzumab vs. basiliximab) between the 2 groups. At 1-year after LT, 9% (14) and 8% (13) of patients in ISA and VOR groups developed IFI, respectively ($P = 0.5$). 5% (7) and 3% (5) of patients developed breakthrough (BT) IFI during ISA and VOR px, respectively ($P = 0.6$; Figure 1, $P = 0.4$, Kaplan-–Meier). ISA BT included pneumonia (PNA, 2), endobronchial IFI (2), mediastinitis (1), chest wall IFI (1), and candidemia (1). ISA BT patients were infected with *Aspergillus fumigatus* (3; 2 with ISA MIC = 0.5 µg/mL, 1 MIC = 1 µg/mL), black mould (1), and yeasts (3; 2 *C. glabrata*, 1 *C. albicans*). VOR BT IFI included PNA (2), endobronchial IFI (1), empyema (1), and chest wall IFI (1). VOR BT IFIs were due to *A. ustus*, *A. niger*, *A. lentulus*, black mould, and *Rhizopus* spp (1 each). All *Aspergillus* VOR BT isolates exhibited VOR MIC ≥2 µg/mL. Patients with IFI were more likely to have positive pre-LT respiratory fungal culture ($P = 0.01$) and grade ≥3 ischemic reperfusion injury (IRI) post-LT ($P = 0.01$). VOR and ISA were prematurely discontinued in 53% (85) and 14% (21) of patients due to adverse events, respectively ($P < 0.0001$). Hepatotoxicity was more common with VOR (22%, 35) than ISA (5%, 7) ($P < 0.0001$). IFI was an independent risk factor for death at 1 year (Figure 2, $P < 0.0001$, Kaplan–Meier).

Conclusion. ISA was as effective as VOR in preventing IFI in LTR, and significantly better tolerated. Pre-LT fungal culture positivity and grade ≥3 IRI post-LT were risk factors for the development of IFI. IFI within 1-year post-LT had a significant impact on mortality

Fig 1 - Breakthrough IFI during antifungal prophylaxis

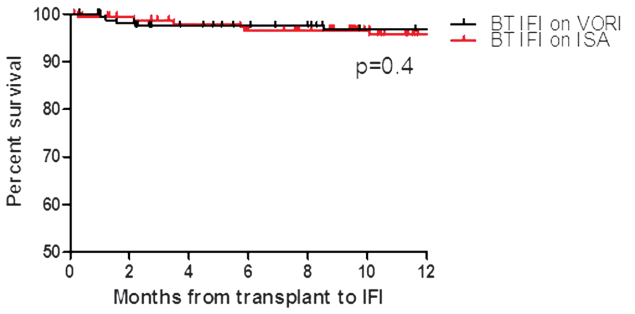

Fig 2 - Mortality of lung transplant patients