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**Session:** 98. To Decolonize or Not to Decolonize: Do We Still Need to Ask the Question

**Thursday, October 3, 2019: 3:45 PM**

**Background.** Higher CHG skin levels may be needed to adequately control infection and transmission of pathogens in the ICU. We assessed whether measurement and feedback of patient CHG skin concentrations could improve CHG bathing quality and identified factors associated with higher CHG skin concentrations.

**Methods.** We conducted 6 one-day surveys from January 2018 to February 2019 in 7 academic hospital MICUs with established daily CHG bathing. Adults admitted >1 day were assessed for CHG skin levels with a semi-quantitative colorimetric assay using swabbed 25 cm² areas of anterior neck, axilla, and inguinal skin. Prior to survey 4, results from the first 3 surveys (baseline) were reported to ICU leadership and front-line staff to retrain and reeducate on bathing technique. Feedback of results from prior surveys also occurred before survey 5 and 6. For statistical analysis, mixed-effects models accounted for clustering of CHG measurements within patients and ICUs. We categorized CHG product type as “cloth” for no-rinse 2% CHG-impregnated cloth and “liquid” for 4% CHG liquid or foam.

**Results.** In total, 681 of 704 (97%) patients were enrolled. Three ICUs used CHG cloth, 3 ICUs used CHG liquid, and 1 ICU switched from liquid to cloth after the second survey. Median CHG skin concentrations were higher in both the baseline and feedback period for institutions using CHG cloth, as compared with liquid (Table). Across all time points, axillary and inguinal regions had higher skin CHG concentrations than the neck (median 39.1, 78.1, 19.5 µg/mL, respectively, P < 0.001). After controlling for age, mechanical ventilation, presence of a central venous catheter, body site, and hours since last CHG bath, institutions that used CHG cloth had a 3-fold increase in adjusted CHG skin concentrations in the feedback period compared with the baseline period (P = 0.001, Figure). There was no significant change in CHG skin concentrations from baseline to feedback period for institutions that used liquid CHG.

**Conclusion.** CHG skin concentrations for ICU patients receiving daily CHG bathing varied by body site and CHG product type. The use of CHG cloth was associated with higher CHG skin levels, compared with CHG liquid. For ICUs using CHG cloth, feedback of CHG skin concentration results to ICU staff improved CHG bathing quality.

| Table: Unadjusted Median Chlorhexidine Glucanate (CHG) Skin Concentration Measurements on Medical Intensive Care Patients during Baseline and Feedback Period |
| CHG Bathing Method | Median CHG Skin Concentration, µg/mL (IQR) | P-value |
|---------------------|-------------------------------------------|---------|
| 2% CHG cloth        | 78 (59.31.25) | 31.25 (25.91.25) | 0.001 |
| 4% CHG liquid/foam  | 29.31.25 | 78.1251 | 0.8 |

Note: Total skin samples obtained 2,011 cloths: 1,314 liquid/foam; 687. Table P-values represents differences in CHG skin concentrations between baseline and feedback period by CHG bathing method, as determined using mixed-effects models. Median skin concentrations for 2% CHG cloth were higher than 4% CHG liquid/foam during both baseline and feedback periods (P<0.01).

Figure: Modeled Chlorhexidine Glucanate (CHG) Skin Concentration Measurements on Medical Intensive Care (MICU) Patients during Baseline and Feedback Period

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

897. Prevalence of Candida auris at Body Sites, Characterization of Skin Microbiota, and Relation of Chlorhexidine Glucanate (CHG) Skin Concentration to C. auris Detection Among Patients at a High-Prevalence Ventilator-Capable Skilled Nursing Facility (vSNF) with Established CHG Bathing

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**Session:** 98. To Decolonize or Not to Decolonize: Do We Still Need to Ask the Question

**Thursday, October 3, 2019: 4:15 PM**

**Background.** vSNF patients are at high risk of colonization and infection with C. auris. CHG bathing has been used as an intervention to reduce nosocomial transmission of multi-drug-resistant organisms, but its effect on C. auris is unclear.

**Methods.** We studied a 70-bed ventilator ward in a 300-bed vSNF in Chicago, IL with a high prevalence of C. auris and established CHG bathing. Swab samples were collected from patients for culture, microbiome analysis, and CHG skin concentration (Table 1).

**Results.** We collected 2,467 samples (950 culture, 950 microbiome). 567 (CHG) from 57 patients during 2 surveys conducted January–March 2019. Forty-six (81%) patients had C. auris cultured from ≥1 body site. Mean (±SD) age was 59 (±14) years, 40% were women, 70% were African American, mean (±SD) Charlson score was 3 (±2). Patients colonized with C. auris were more likely to be mechanically ventilated (50% vs. 0%, P < 0.001), have a gastrostomy tube (78% vs. 27%, P < 0.001) or have a urinary catheter (72% vs. 23%, P = 0.01) than noncolonized patients. Frequency of C. auris isolation varied among 10 body sites tested (P < 0.001); colonization of anterior nares (41%) and hands (40%) was detected most often (Figure 1). By ITS1 analysis, all isolates were members of the C. auris South American clade. Skin microbiome sequencing confirmed culture Results. While Malassezia is the dominant genera observed in healthy volunteers and patients in this vSNF, C. auris was observed in proportion to South American clade. In the current study, but at lower relative abundance. CHG was detected on skin in 52 (91%) patients (median CHG concentration 19.5 µg/mL; IQR 4.9–78.1 µg/mL). In a mixed-effects model controlling for body site and multiple measurements per patient, odds of C. auris detection by culture were less at CHG concentrations ≥262.5 µg/mL than at lower concentrations (Figure 3; OR 0.25, 95% CI 0.10–0.66; P = 0.005).

**Conclusion.** Frequent C. auris colonization of vSNF patients' anterior nares and skin colonization suggests that nasal and hand hygiene and potential options to reduce C. auris transmission. High concentrations of CHG bathing may be needed to suppress C. auris on skin.
898. Influenza Vaccination Reduces Risk of Severe Outcomes among Adults Hospitalized with Influenza A(H1N1)pdm09, FluSurv-NET, 2013–2018
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Session: 99. Vaccines I - Influenza and RSV
Thursday, October 3, 2019: 3:15 PM

Background. Influenza vaccination may reduce illness severity among those with influenza; however, data are limited. We determined whether outcomes were less severe among vaccinated compared with unvaccinated adults hospitalized with influenza over 5 seasons.

Methods. We included adults (≥18 years) hospitalized with laboratory-confirmed influenza during seasons 2013–2014 through 2017–2018 and identified through the US Influenza Hospitalization Surveillance Network (FluSurv-NET). Vaccination status was ascertained from medical records, vaccine registries, and interviews. We excluded patients who were institutionalized, did not receive antivirals, or had unknown vaccine status or vaccine receipt <14 days before positive influenza test. We used inverse probability score weighting to balance differences between vaccinated and unvaccinated groups and multivariable logistic and competing risk regression to evaluate the association between vaccination and outcomes including pneumonia, intensive care unit (ICU) admission, mechanical ventilation (MV), death, and ICU and hospital length of stay (LOS) in days. Models were adjusted for season and admission timing in relation to timing of antiviral treatment, symptom onset and season peak.

Results. Among 67,452 adults hospitalized with influenza, 43,608 were included; 47% were 18–64 years (38% vaccinated) and 53% were ≥65 years (65% vaccinated). Among patients with influenza A(H1N1)pdm09, vaccination was associated with decreased odds of ICU admission (odds ratio (OR) 0.81; OR 0.72) and MV (OR 0.66; OR 0.54) in adults 18–64 and ≥65 years, respectively; decreased odds of pneumonia (OR 0.83), death (OR 0.64) and shortened ICU LOS (relative hazard (RH) 0.82) in adults 18–64 years; and shortened hospital LOS (RH 0.91) in adults 265 years (figure). Vaccination was not associated with attenuation of severe outcomes in patients with influenza A(H3N2) and B.

Conclusion. Vaccination was associated with reduced odds of severe outcomes, including death, by up to 36% in adults hospitalized with influenza A(H1N1)pdm09. All adults without contraindications should receive annual influenza vaccination as there is evidence that it can improve outcomes among those who develop influenza despite vaccination.

Figure 3. Relation between CHG concentration and odds of recovery of C. auris by culture

Disclosures. All Authors: No reported Disclosures.