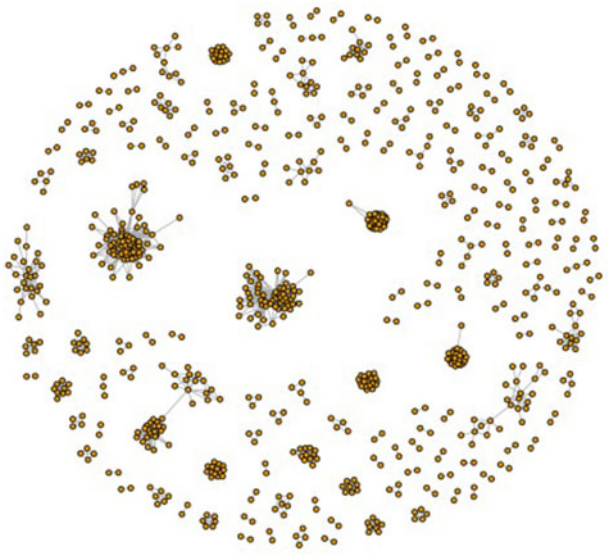

***ksim* clustering of >3000 *E. coli* clinical samples.**
Patient clusters based on isolate genomic clonality identified by *ksim*. Each yellow circle represents a patient, an edge between two circles denotes an *E. coli* clonal pair, non-clonal pairs not shown.

**Fig. 1.**

clinical HAI data sets demonstrated its sensitivity (99.4%) and specificity (90.8%) compared to an SNP-based pipeline. *ksim* efficiently analyzed >5,000 clinical samples from MGH and found previously unidentified transmission clusters. **Conclusions:** *ksim* shows promise for rapid clonality determination in HAI outbreaks and has the potential to scale to tens of thousands of samples. This method could enable infection control teams to use WGS for prospective outbreak detection via an automated computational pipeline without the need for specialized computational biology training.

**Funding:** Day Zero Diagnostics and the NIH provided **Funding:** for this study.

**Disclosures:** Mohamad Sater reports salary from Day Zero Diagnostics.

Doi:10.1017/ice.2020.1111

**Presentation Type:**
Poster Presentation

**Evaluation of Autoclaving CAT: A Infectious Substance Packaging during the Ebola Crisis in the United States**

Edward Krisiunas, WNWN International; Gina Vallone-Hood, Florida Department of Health; Alan Woodard, New York State Department of Environmental Conservation; Neil Norrell, United States Environmental Protection Agency

**Background:** During the 2014 US Ebola crisis, an unprecedented amount of biohazardous waste was generated during patient care; healthcare facilities were overwhelmed by large volumes of waste. Few facilities had on-site waste treatment; therefore, waste was packaged and sent off site for incineration and disposal in Port Arthur, Texas, at a significant cost. Shipping this waste off site required the use of the US Department of Transportation (USDOT) Hazardous Materials (HMR 49 CFR) category A triple packaging for infectious substances. The most common treatment method for biohazardous waste in the United States is via commercial autoclaves. Because Category A waste packaging had not been tested to ensure effective treatment, we conducted autoclave efficacy studies to evaluate the various types of Category A packaging containing surrogate Ebola waste. If successful, this would potentially provide additional treatment options in the United States. **Methods:** Testing was conducted at commercial locations in 3 states: New York, Pennsylvania, and Florida. Various types of Category A packaging were obtained (Fig. 1). Waste loads were comprised of Ebola patient treatment material and included personal protective equipment, sharps containers, suction canisters, drapes, and associated items. Configured packaging was placed into autoclave bins to be processed. Each package tested included a biological indicator, a class 5 integrator. Where possible, thermocouples were added to record the thermoprofile of the waste. Initially, a modified cycle was tested (a prevacuum cycle followed by exposure to steam at 138°C for 60 minutes) and a postvacuum cycle. Cycle times were adjusted based upon initial results. **Results:** The initial New York autoclave was tested from a cold start (no vessel preheating) resulting in a failure to obtain efficacy (Fig. 1). Successful results were no growth in recovered biological indicators, acceptable color change in integrators, and reaching and holding temperatures >121°C for 30 minutes. After making modifications to treatment cycles, which included preheating of vessels, multiple prevacuum steps and a hold time of 60 minutes, successful results were achieved in testing conducted at the treatment plants in Pennsylvania and Florida. **Conclusions:** Commercial autoclaves can be effective in treating Category A biohazardous waste. Each autoclave considered for treatment requires a validation process using the types of packaging containing the waste, biological indicators, integrators, and thermocouples to present a complete assessment of the treatment process.

**Funding:** Three companies provided support for this study: Approved Storage & Waste Hauling, Daniels International, and ProMed Solutions.

**Fig. 1**

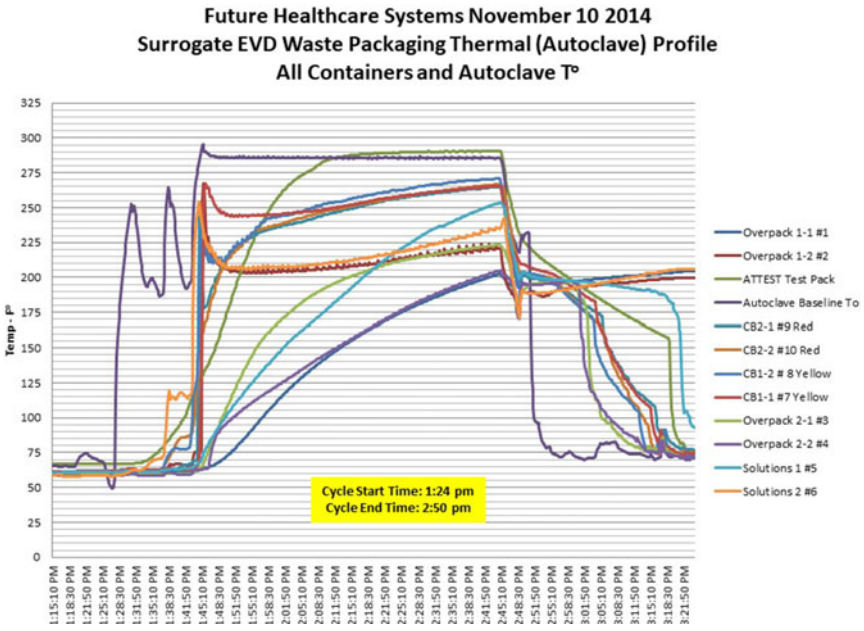


**Fig. 2**

**Disclosures:** Edward Krisiunas reports contracted research for Future Health Care Systems, Daniels Sharpsmart, and ProMed Solutions.
Doi:10.1017/ice.2020.1112

**Presentation Type:**
Poster Presentation

**Frequency of Testing for *Clostridioides difficile* in Adults Hospitalized with Diarrhea in Louisville, Kentucky**

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**Background:** Although *Clostridioides difficile* infections (CDIs) are associated with significant morbidity and mortality, CDI disease burden may be underestimated if a high proportion of inpatients with diarrhea do not have stool specimens collected for CDI diagnostic testing. The objective of this study was to define the frequency of stool specimen collection and testing for CDI in adult hospitalized patients with diarrhea. **Methods:** A cross-sectional study was conducted in all 9 adult hospitals (total, 3,532 beds) in Louisville (adult aged ≥18 years; population 599,276) to identify patients with diarrhea and to observe the frequency of stool specimen collection for CDI diagnosis. For 7 consecutive days in December 2018, each ward was visited to identify new onset diarrhea (≥3 loose stools in 24 hours) among Louisville adults: first via electronic medical record (EMR) review, then by nurse interviews, and finally by interviewing patients. For patients with diarrhea, research staff reviewed EMRs to determine whether a stool specimen was collected for CDI diagnosis, and they interviewed nurses about potential noninfectious causes of diarrhea. **Results:** Among 2,565 hospitalized adults (with 14,042 patient days), research staff identified 167 patients (47% men; median age, 64 years) with new onset diarrhea, 1.2 diarrhea cases per 100 patient days. Patients with diarrhea were initially ascertained by EMR review (50%), nurse interviews (42%) or patient interviews (8%); all cases identified by patient interviews were identified by nurses the following day (but many cases identified by nurses were never identified by EMR review). Nurses indicated that 67 cases had a potential noninfectious cause of diarrhea (eg, laxatives, feeding tube, colostomy, liquid diet, etc). Stool specimens were collected by hospital staff for CDI testing from 53 of 167 patients (32%) with diarrhea; 10 of 67 patients (15%) with diarrhea for whom nurses reported potential noninfectious causes of diarrhea (laxative use, enteric feeding, or gastric survey) in the past 24 hours; and 43 of 100 patients (43%) with diarrhea with no reported potential noninfectious causes of diarrhea. Stool collection frequency was similar on weekdays and weekends. **Conclusions:** The low frequency of CDI diagnostic testing of hospitalized patients with diarrhea indicates that CDI may be underdiagnosed in these hospitals and suggests, given that only 32% of patients with diarrhea had a stool specimen collected, that the CDI disease burden may be 3 times larger than currently appreciated. New-onset diarrhea occurred in >1% of patients each day; the most effective method for identifying patients with diarrhea was via nurse interviews.

**Funding:** Pfizer Vaccines supported this study.

**Disclosures:** Frederick Angulo, Kimbal D. Ford, Joann Zamparo, Elisa Gonzalez, Sharon Gray, David Swerdlow, and Catia Ferreira all report salary from Pfizer.
Doi:10.1017/ice.2020.1113