5.6% of the US population 13 years of age and older. Infectious endocarditis (IE) and prevention, University of Rochester Medical Center, Rochester, New York, MD, FSHEA

Conclusion. The increasing incidence of invasive MRSA/ MSSA among PWID, frequently accompanied by concurrent chronic liver disease, polysubstance use, and need for extended hospital stays, poses an increasing challenge to the public health and clinical communities. This highlights the critical need to prevent worsening of the epidemic of injection drug use and provide comprehensive treatment for individuals engaging in highest risk drug-related behaviors.

Table 1. Incidence (per 100,000 County Residents) of PWID-Associated iSA by Age Group

| Year | 18–49 | 50–64 | 65–84 | Total |
|------|-------|-------|-------|-------|
| 1 (September 1, 2014–August 31, 2015) | 7.1 | 5.4 | 1.2 | 4.2 |
| 2 (September 1, 2015–August 1, 2016) | 13.9 | 5.4 | 1.2 | 7.3 |
| 3 (September 1, 2016–August 31, 2017) | 16.4 | 5.4 | 3.5 | 6.6 |

Disclosures. All authors: No reported disclosures.

1212. Whole Genome Sequencing for High-Resolution Methicillin-Resistant Staphylococcus aureus Outbreaks Tracing in Neonatal Intensive Care Units and In silico Resistance and Virulence Markers Detection
Geraldine Durand, PharmD. PhD1; Fabien Javerliat, PhD,2; Michele Bé, PhD,2; François Laurent, PharmD, Professor2; Vanessa Vandenesch, MD, Professor1 and Anne Tristan, PharmD. PhD.2; R’D BioMicrobiology, bioMérieux, La Balme Les Grottes, France, 3Hospices Civils De Lyon, French National Reference Center for Staphylococci, Lyon, France

Session: 137. Healthcare Epidemiology: MSSA, MRSA and Other Gram Positive Infections
Friday, October 5, 2018: 12:30 PM

Background. The French National Reference Center for Staphylococci used whole genome sequencing (WGS) to investigate outbreaks due to a virulent MRSA clone containing the toxic shock syndrome toxin-1 (TSST-1+), sequence type 5, Geraldine clone) increasingly reported in neonatal intensive care units (ICUs).

Methods. We analyzed 48 isolates previously characterized by spa typing; 31 isolates from outbreak 2 (infected or colonized patients, healthcare workers carriage and environment), 12 isolates from four distinct outbreaks (2, 3, 4, and 5) that occurred in geographically independent neonatal ICUs, and five sporadic strains. We performed WGS using a de novo assembly approach to perform comparisons between isolates (Spa and virulence factors). A phylogenetic analysis was constructed by comparing single nucleotide variations (SNVs) in 2020 core-genes using a cutoff of 40 SNVs for defining isolates belonging to the same transmission cluster. We detected in silico resistance and virulence markers using the same bioinformatic pipeline.

Results. For outbreak 2, 18 isolates were from two distinct but related spa types t002 and t11 respectively differed by less than 22 SNVs from the main cluster of the 25 isolates of outbreak 1. This suggested origin from the same transmission cluster. The other three outbreaks showing respectively a spa t002 for outbreak 3 and outbreak 4 and a spa t045 for outbreak 5 were not affiliated to the main cluster of outbreak 1. The isolates carry numerous virulence factors including (TSST-1+) and resistance markers conferring a peculiar antibiotic resistance profile to the Geraldine clone.

Conclusion. WGS provides the resolution power to reveal unsuspected transmission events not indicated by conventional methods (different spa type). Based on its high resolution WGS is an all-in-one tool for epidemiology, virulence and resistance assessment. It really transforms outbreak management and is a central practice for an early response and should replace conventional methods for detection of MRSA transmission.

Disclosures. G. Durand, bioMérieux: Employee, Salary. F. Javerliat, bioMérieux: Employee, Salary.

1213. Evaluation of an Alcohol-Based Antiseptic for Nasal Decontamination of Methicillin-Resistant Staphylococcus aureus (MRSA)
Anubhav Kanwar, MD1, Jennifer L. Cadnum, BS2, Thriven Sankar Chittoor Mana, MS, Scott Gestrich, MD1, Annette Jenson, BS, MT, CLC1 and Curtis J. Donkey, MD1, Infectious Diseases, Louis Stokes Cleveland VA Medical Center, Cleveland, Ohio, 2Geriatric Research Education and Clinical Center, Louis Stokes Cleveland VA

In 2011, persons who inject drugs (PWID) were estimated to be 2.6% of the US population; 3 years of age or older. Methicillin-resistant S. aureus (MRSA) and methicillin-sensitive S. aureus (MSSA) has been conducted in Monroe County, NY (2010 Census population: 744,344) as part of the CDC’s Emerging Infections Program since September 2014. Cases are county residents with an iSA infection; iSA incidence was calculated as cases/100,000 census population.

Results. During September 2014–August 2017, 1,460 iSA cases were identified; 150 (10%) in PWID. The incidence of PWID-associated iSA doubled among 18–49 year olds during years 1–3 (Table 1). The proportion of cases occurring in PWID increased among both MRSA (7% to 20%) and MSSA (6% to 11%). PWID were significantly younger (P < 0.0001) than noninjection drug users, and more often White (P = 0.004) and non-Hispanic (P = 0.001). Almost all PWID with iSA used other illicit drugs (n = 112, 91% of 123 unique cases); 89% (110) were smokers, and 46% (56) had chronic liver disease. PWID with iSA had a longer mean length of stay (26 days [SD 22] vs. 21 [37], P = 0.01); PWID with MRSA were more likely to have septic shock (22% vs. 8%, P = 0.03) and pneumonia (9% vs. 1%, P = 0.04) when compared with PWID with MSSA. Among iSA, a history of recurrent skin abscess/biol (24% vs. 8%, P = 0.02) was more common in PWID with MRSA; fewer PWID with MRSA were obese (2% vs. 15%, P = 0.02).

Conclusion. The increasing incidence of invasive MSSA/MRSA among PWID, frequently accompanied by concurrent chronic liver disease, polysubstance use, and need for extended hospital stays, poses an increasing challenge to the public health and clinical communities. This highlights the critical need to prevent worsening of the epidemic of injection drug use and provide comprehensive treatment for individuals engaging in highest risk drug-related behaviors.

Table 1. Incidence (per 100,000 County Residents) of PWID-Associated iSA by Age Group

| Year | 18–49 | 50–64 | 65–84 | Total |
|------|-------|-------|-------|-------|
| 1 (September 1, 2014–August 31, 2015) | 7.1 | 5.4 | 1.2 | 4.2 |
| 2 (September 1, 2015–August 1, 2016) | 13.9 | 5.4 | 1.2 | 7.3 |
| 3 (September 1, 2016–August 31, 2017) | 16.4 | 5.4 | 3.5 | 6.6 |

Disclosures. All authors: No reported disclosures.