Racial disparities in invasive *Staphylococcus aureus* (ISA) disease in metropolitan Atlanta, a population-based assessment, 2016

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### Results

During 2016, 1,958 cases were identified (42% iMRSA and 58% iMSSA); crude incidence was 48.5/100,000. When compared to iMSSA, iMRSA incidence was consistently lower across all age groups (aRR: 0.7; 95% CI: 0.7-0.8) (Figure 1). Rates of invasive S. aureus were highest among those ≥ 65 years of age for both blacks and whites (Figure 2a). The overall incidence of iMSSA among black cases was double that among white cases (aRR: 2.0; CI: 1.7-2.3). This racial disparity was less pronounced in iMSSA. Among younger cases (<65 years old), iMSSA incidence among blacks was significantly higher than whites (aRR: 1.6; CI: 1.4-2.0); while rates were similar in older blacks and whites (≥65 years old) (aRR: 0.9; CI: 0.8-1.2) (Figure 2b). Bloodstream infections were the most common specimen source overall, regardless of S. aureus type; however, for iMSSA infections, joint/synovial specimen sources were significantly less common among black cases than white cases (RR: 0.3; CI: 0.1-0.7). In Fulton county, where epidemiological class was available for all invasive S. aureus cases, rates of HO- and HACO- iMSSA where significantly higher in blacks than whites (HO-iMSSA RR: 4.3; CI: 1.9-10.5; HACO-iMSSA RR: 3.0; CI: 2.1-4.5). While rates of CA-iMSSA were not significantly different between blacks and whites, the rate of CA-iMRSA in blacks was more than double that among whites (RR: 2.8; CI: 1.3-6.2) (Figure 4).

### Discussion

Summary

- Blacks were found to have higher incidence for all invasive *S. aureus*, when compared to whites.
- The racial disparity is more extreme between races for iMRSA. Among blacks, rates of disease were comparable between iMRSA and iMSSA, but among whites iMSSA disease rates were higher in all age groups when compared to iMRSA (Figure 2b).
- In the oldest age group (≥65 years), the racial disparity is not observed among iMSSA cases but persists among iMRSA cases.

Limitations include use of a single year of data, and a single relatively urban population center. Epi class data is only available for Fulton county cases, and may not be representative of the 8 counties of Atlanta. These findings as a whole also may not be generalizable to other populations.

Conclusions:

- Racial disparities among incidence of invasive *S. aureus* infections differ slightly between iMSSA and iMRSA, with less prominent differences by race among iMSSA cases, including no disparity at older ages.
- Drivers of racial disparity, suspected to be socioeconomic factors for iMSSA, may differ for iMRSA or may be of less importance compared to other associated factors influencing iMSSA disease incidence.

### References