

Controlling a community outbreak of invasive group A *Streptococcus* disease using a single dose of azithromycin – Alaska, 2017

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Background

In July 2016, invasive infections caused by a rare subtype of group A *Streptococcus* (iGAS), subtype *emm26.3*, were detected among the estimated 700-1000 homeless persons in Anchorage, Alaska. An increase in case numbers of *emm26.3* iGAS was detected in October, 2016, including one death. By August 2017, 49 cases and 3 deaths had occurred.

We implemented and evaluated 2 mass antibiotic interventions at homeless service facilities in Anchorage to prevent further cases of *emm26.3* iGAS.

Methods

- Cases were identified and *emm*-typed through Alaska's laboratory-based surveillance system

Case Definition: The isolation of *emm26.3* GAS from a normally sterile body site, or nonsterile sites in the case of necrotizing fasciitis or toxic shock syndrome in Anchorage

Antibiotic intervention 1:

From February 13–18, offered a single dose of 1g of azithromycin at 6 homeless service facilities

Antibiotic intervention 2:

From July 17–21, repeated administration at 3 homeless service facilities.

Why 1g of azithromycin?

The choice of antibiotic entailed consideration of adherence, safety, effectiveness, cost, and route of delivery. We determined that a directly observed, single oral dose of azithromycin would be the most suitable for this community-based intervention.

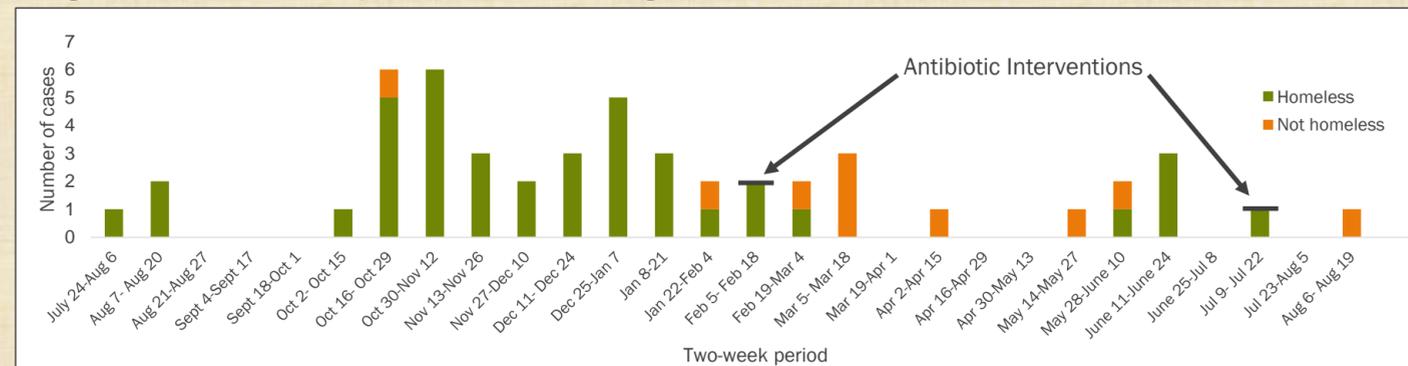
- We requested oropharyngeal (OP) and non-intact skin swabs from intervention participants before and 4 weeks after the first intervention.
- Invasive and colonization isolates underwent whole genome sequencing.

Key Messages

- Outbreaks of invasive group A strep can occur among persons experiencing homelessness
- Guidance currently does not exist for controlling outbreaks in these groups
- Mass administration of azithromycin was associated with a decline in cases

Results

Figure 1: *emm26.3* GAS epidemic curve, Anchorage, AK, 2016-2017



- 40/49 cases in Anchorage were among people experiencing homelessness
- 391 persons received a dose of antibiotics in the first round (~40% of target population)
- After the first round of antibiotics, incidence decreased by 70% among homeless ($p=0.01$)
- 293 persons received a dose in the second round. No further cases have been identified in the homeless population.

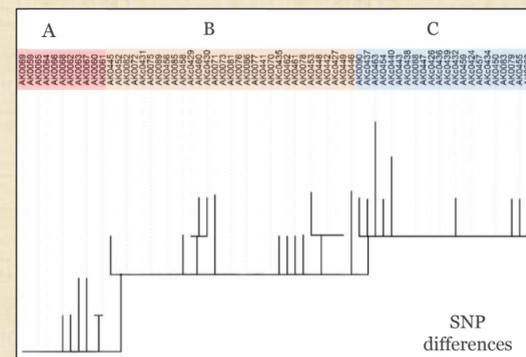
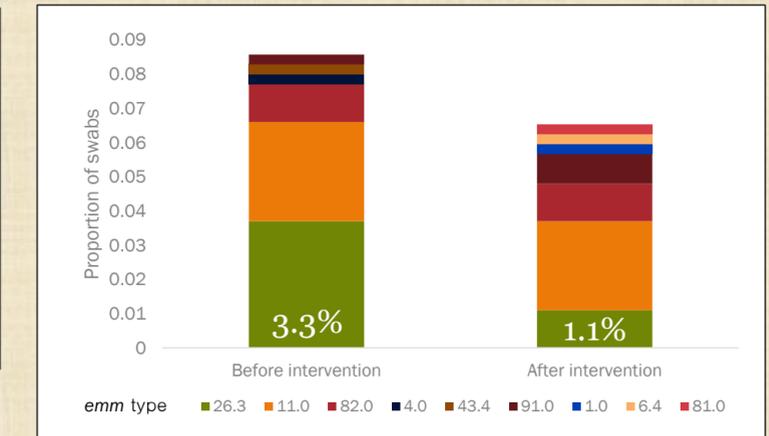


Figure 2: Genetic clusters of GAS isolates based on whole genome sequencing

- The GAS isolates in AK were clonally related
- 3 genetic clusters based on single nucleotide polymorphisms
- Cluster A was comprised of cases in Fairbanks, Alaska
- Clusters B and C overlapped in the homeless population in Anchorage.

Figure 3: Proportion of *emm* types among positive swabs, before and after first intervention



- We tested 360 swabs at baseline and 361 swabs at follow-up, 4 weeks after the intervention
- At follow-up, participants had lower colonization with the outbreak strain, *emm26.3* ($p=0.05$)
- No changes in antimicrobial resistance identified

Acknowledgments

We would like to thank the Municipality of Anchorage, volunteers from local hospitals, homeless service providers in Anchorage, the Alaska Section of Epidemiology, and the staff at the Arctic Investigations Program who provided a united front to address this outbreak.

See Poster 1907 for information about the clinical characteristics of this strain!