Cochlear implantation (CI) can be a life changing intervention in children with profound deafness. CI is a relatively low risk procedure but major complications can be life threatening and can result in device removal—an significant psychosocial and medical resource setback. Methicillin-Resistant Staphylococcus Aureus (MRSA) wound infection is felt to be a significant risk factor for such complications, but this has yet to be studied in the CI population. We systematically surveyed our CI patients over a 10 year period noting any complications and MRSA status. We note a strong correlation between wound infection resulting in device removal and MRSA infection. Our results suggest more research is needed in this area to reduce the risk of major infectious complications from MRSA in the CI population.

### ABSTRACT

Cochlear implantation (CI) has become the standard of care for children with severe to profound sensorineural hearing loss. Minor complications of CI include wound infection, disequilibrium, otitis media/mastoiditis. Major complications include temporary and permanent facial palsy, bacterial meningitis and device failure or extrusion. Nasal MRSA carriage is a risk factor for subsequent bacteremia and post-operative infection. Risk factors for MRSA colonization in CI candidates include multiple hospitalizations, NICU/PICU stays and invasive procedures.

With implanted devices such as pacemakers, orthopedic implants, and percutaneous gastrostomy tubes, positive nasal MRSA carriage increases the risk for subsequent MRSA wound and implant infection. The increasing prevalence of MRSA highlights the obvious risk of subsequent infectious complications in MRSA positive CI candidates. To date, no studies have looked specifically at MRSA related CI complications.

### RESULTS

70 patients for a total of 100 implanted ears were included. Seven patients (10%) were colonized with MRSA. Eight total implant related complications (11.4%; Figure 1) with five implant extrusions. Four patients with implant related complications were positive for MRSA, three of which had implant extrusions (Figure 2).

### DISCUSSION

- 11.4% of patients had a cochlear implant related complication
- 50% of complications were MRSA+
- The most common complication was a major wound infection resulting in subsequent device extrusion
- 60% of implant extrusions were MRSA+
- We report a 10% rate of MRSA colonization in our patient population
- Our population was not systematically screened for MRSA, likely resulting in a falsely low rate of MRSA colonization
- The retrospective nature of this study is a major limitation

### CONCLUSIONS

- The growing prevalence of MRSA is of major concern in a high-risk population such as cochlear implantees
- We report a high correlation between the major complication of cochlear implant extrusion and MRSA status area warrants further study.
- Screening for MRSA should be considered in CI candidates
- Larger and prospective studies are needed to further characterize the risk MRSA poses to CI candidates and implantees

### REFERENCES