



Cystic Fibrosis Research News

Citation: Muhlebach MS, Heltshe SL, Popowitch EB, Miller MB, Thompson V, Kloster M, Ferkol T, Hoover WC, Schechter MS, Saiman L; STAR-CF Study Team. Multicenter Observational Study on Factors and Outcomes Associated with Various Methicillin-Resistant *Staphylococcus aureus* Types in Children with Cystic Fibrosis. Ann Am Thorac Soc. 2015 Jun;12(6):864-71.

What was your research question? (50 words maximum)

Are there different risk factors for patients who acquire community-associated methicillin-resistant *Staphylococcus aureus* (MRSA) versus healthcare-associated MRSA?

Why is this important? (100 words maximum)

Methicillin-resistant *Staphylococcus aureus* (MRSA) is one of the most frequent bacteria infecting the lungs of children and adults with cystic fibrosis (CF) and is associated with a more rapid decline in lung function and increased mortality. In recent years, drug resistant strains have increased globally and also in patients with CF. The community-acquired strains of MRSA (CA-MRSA) are susceptible to a wider selection of antibiotics but have caused fatal pneumonia in previously healthy children. Another strain, which has been known for many years, is hospital-acquired (HA-MRSA).

What did you do? (100 words maximum)

In this study, we used data from the CF Foundation Patient Registry (CFFPR) to evaluate whether certain factors predispose patients to acquiring either HA-MRSA or CA-MRSA. These factors included patient characteristics (lung function, other bacteria, age, weight and CF genotype) at the time the first MRSA was found and



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treatment-related factors (medications, number of clinic visits, and number of hospitalizations).

What did you find? (100 words maximum)

Patients who acquired MRSA after 2000 were more likely to have HA-MRSA. Most were around seven years old at time of first MRSA acquisition. There were no differences in weight, height, lung function, genotype, or chronic medications in patients with CA-MRSA versus HA-MRSA. Patients with HA-MRSA had more clinic visits in the six months leading to initial MRSA diagnosis and were more likely to have positive *Pseudomonas aeruginosa* cultures in the year leading up to first diagnosis with MRSA. All patients with MRSA had increased antibiotic use. Lung function did not change in the six months after initial diagnosis of MRSA.

What does this mean and reasons for caution? (100 words maximum)

We could not conclusively tell whether higher number of clinic visits was a risk factor for patients who acquired HA-MRSA or if patients who were seen more often in clinic to treat *Pseudomonas aeruginosa* were at greater risk for exposure to HA-MRSA.

What's next? (50 words maximum)

No future studies are planned.