Cystic Fibrosis Research News

Title:
Predicting Risk-Adjusted Incidence Rates of Methicillin-Resistant *Staphylococcus aureus* and *Pseudomonas aeruginosa* in the Cystic Fibrosis Programs in the United States

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What was your research question?
Can we develop a tool to monitor infection rates of the bacteria Methicillin-Resistant *Staphylococcus aureus* (MRSA) and *Pseudomonas aeruginosa* (*Pseudomonas)* at Cystic Fibrosis (CF) Programs (i.e., services) in order to know when infection rates are higher than expected?

Why is this important?
Lung infections caused by MRSA and *Pseudomonas* are common in people with CF. These bacteria can be spread between people with CF, and infection control practices are aimed to reduce such spread within healthcare centers. However, there is currently no way to track infection rates at CF programs, and therefore no way to know when a center may have higher than expected infection rates. Higher than expected infection rates could represent a possible problem with infection control practices.

What did you do?
We developed a statistical tool using information (patient and CF program characteristics) from the CF Foundation Patient Registry to predict infection rates of MRSA and *Pseudomonas* based on the characteristics of individual CF programs. We then compared the actual rates of MRSA and *Pseudomonas* infections reported to their predicted rates of infection at CF programs to see how well the tool worked.

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What did you find?

We found that our statistical tool was able to accurately predict infection rates of MRSA and *Pseudomonas* based on a CF program's characteristics compared to actual infection rates reported in the past. We also found that a small number of CF programs had infection rates that were much higher than expected, representing 'Alarm values' that may indicate a problem with infection control practices at those programs.

What does this mean and reasons for caution?

This statistical tool could be used by CF programs to help monitor infection rates of MRSA and *Pseudomonas.* This may enable these CF Programs to identify when there may be a problem with their infection control practices and then appropriate action can be taken for improvement. However, further work is required before this tool could be used by CF programs, and to confirm whether it could help to reduce infections rates.

What's next?

We hope to continue efforts to enable use of our statistical tool at individual
CF programs, and to study its impact on infection rates.

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