Cystic Fibrosis Research News

Title:
Daily variability of *Pseudomonas aeruginosa* density in cystic fibrosis sputum

Lay Title:
Daily changes in the amount of Pseudomonas in CF sputum

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What was your research question?
We wanted to know how much the amount of *Pseudomonas* found in sputum from a person with CF changed from one day to the next when they weren't receiving any antibiotic treatments.

Why is this important?
CF drug developers often look at how much the amount of *Pseudomonas* drops in people's sputum after treatment with a drug to see if the drug is making a difference.

What did you do?
We found out how much *Pseudomonas* was in each of 267 pairs of sputum samples collected on consecutive days from 13 people with CF who also had *Pseudomonas*. We calculated how much the amount of *Pseudomonas* changed from day to day for each pair, even without any treatments.

What did you find?

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The amount of *Pseudomonas* change from day to day varied a lot more than we had thought it would, with the amount of *Pseudomonas* in sputum pairs differing by a factor of 10 in one of every four pairs and differing by a factor of 100 in one of every 12 sputum pairs.

What does this mean and reasons for caution?

Our results mean that when drug developers are looking for drops in the amount of *Pseudomonas* in the sputum of treated patients, they need to study enough patients so that they aren't fooled by the amount of change that can happen in untreated patients.

What's next?

CF drug developers will be able to use our information to design treatment studies that include enough people with CF who produce sputum to be sure that when they see changes, they will know that they are caused by the drug being studied, and not by chance alone.

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