Journal of Cystic Fibrosis
The Official Journal of the European Cystic Fibrosis Society

CYSTIC FIBROSIS FOUNDATION
ADDING TOMORROWS

Cystic Fibrosis Research News

Citation:

Zhao J, Murray S, Lipuma JJ. Modeling the impact of antibiotic exposure on human microbiota. Sci Rep. 2014 Mar 11;4:4345. doi: 10.1038/srep04345.

What was your research question? (50 words maximum)

How can scientists study the impact of antibiotic use in people with cystic fibrosis (CF) to understand the relationship between bacterial infections and disease treatment and progression? We also wanted to know how this affects the community of microbes that lives inside everyone.

Why is this important? (100 words maximum)

CF is a condition characterized by persistent bacterial infection of the airways. People with CF often take antibiotics regularly in order to maintain their health, as well as during periods of infection. Understanding the relationship between these infections and their treatment will help scientists understand what helps people recover when they are ill.

What did you do? (100 words maximum)

We used antibiotic therapy for chronic lung infection in people with cystic fibrosis as a model. We assessed how key features of therapy influence measures of microbial community disturbance. We looked at dosing duration, timing of receiving antibiotics compared to when microbiology samples were taken, the type of antibiotic, and how it was given.

What did you find? (100 words maximum)

Antibiotic therapy is an independent predictor of decreased airway microbacterial diversity in CF.

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

We developed an antibiotic score that can be included in studies exploring the relationship between bacterial communities and human disease progression. This is particularly applicable in diseases associated with repeated antibiotic therapy. The way this is applied to other diseases will need to be adjusted for each condition.

What's next? (50 words maximum)

The approach we described will have broad applicability to studies of other disease conditions.