



Cystic Fibrosis Research News

Citation:

Salsgiver EL, Fink AK, Knapp EA, LiPuma JJ, Olivier KN, Marshall BC, Saiman L. Changing Epidemiology of the Respiratory Bacteriology of Patients with Cystic Fibrosis. *Chest*. 2016 Feb;149(2):390-400. PMID: 26203598.

What was your research question? (50 words maximum)

We wanted to build off a previous study which evaluated the trends of cystic fibrosis (CF) pathogens using data reported to the Cystic Fibrosis Foundation Patient Registry (CFFPR) from 1995 to 2005. We wanted to determine if the trends of CF pathogens continued to change from the previous analysis.

Why is this important? (100 words maximum)

Advances in clinical care and disease-specific treatments have increased the expected lifespan and quality of life among people with CF. Advanced lung disease is associated with repeated lung infections and inflammation and is the most common cause of illness and death in CF. Monitoring changes in the progression of CF pathogens is important for optimizing CF lung disease treatment and care.

What did you do? (100 words maximum)

We looked back at data in the CFFPR from 2006 to 2012. We used this data to determine the annual percent changes in new occurrences and total occurrences of select CF pathogens. Examples of some of the pathogens analyzed are *Pseudomonas aeruginosa* and methicillin-resistant *Staphylococcus aureus* (MRSA). Changes in the new cases of nontuberculous mycobacterium (NTM) were assessed from 2010 to 2012, because the CFFPR did not begin collecting data on NTM species until 2010.

What did you find? (100 words maximum)

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In 2012, the pathogens with the highest number of new and total cases were methicillin-susceptible *Staphylococcus aureus* (MSSA) and *Pseudomonas aeruginosa*, followed by MRSA. The total number of cases of *Achromobacter xylosoxidans* and *Burkholderia cepacia* complex was relatively low. From 2006 to 2012, the annual percent change in overall new cases and total cases significantly decreased for *Pseudomonas aeruginosa* and *Burkholderia cepacia* complex and significantly increased for MRSA. From 2010 to 2012, the annual percent change in total cases of NTM and *Mycobacterium avium* complex increased.

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

The study showed that the disease trends of CF pathogens in the United States have continued to change in recent years. As with all studies, there are some reasons for caution with these findings. Since this study was observational, we cannot determine cause of the changes we see. The data could be subject to reporting bias, laboratory error, and data entry error. Additionally, the frequency of testing for bacteria and mycobacteria increased throughout the study period, which we would expect to increase the observed rate of new and total cases of pathogens.

What's next? (50 words maximum)

The trends of CF pathogens continue to change. The reasons for observed changes are complex and include many different factors. These factors include improved clinical care and infection prevention and control. Data from this study will be useful to continue assessing the impact of new treatments on CF microbiology.