European Cystic Fibrosis Society

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

Cystic Fibrosis Research News

Title:

Antimicrobial Susceptibility Testing in Cystic Fibrosis: A Delphi approach to defining best practices

Authors:

Edith Zemanick[1], Pierre–Régis Burgel[2,12], Giovanni Taccetti[3], Alison Holmes[4], Felix Ratjen[5], Catherine A Byrnes[6], Valerie J. Waters[7], Scott C. Bell[8], Donald R. VanDevanter[9], J. Stuart Elborn[10], Patrick A. Flume[11] on behalf of the Antimicrobial Resistance International Working Group in Cystic Fibrosis

Affiliations:

[1] Department of Pediatrics, University of Colorado, Anschutz Medical Campus, Aurora, CO. Edith.Zemanick@childrenscolorado.org

[2] Division of Respiratory Medicine and Adult Cystic Fibrosis Center, Assistance Publique Hôpitaux de Paris and University Paris Descartes, Paris, France. pierre-regis.burgel@aphp.fr

[3] Cystic Fibrosis Center, Department of Pediatrics, University of Florence, Italy.giovanni.taccetti@meyer.it

[4] National Institute for Health Research Health Protection Research Unit in Healthcare Associated Infections and Antimicrobial Resistance, Imperial College London. United Kingdom. Alison.holmes@imperial.ac.uk

[5] Division of Respiratory Medicine, Department of Pediatrics, Translational Medicine,Research Institute, The Hospital for Sick Children, University of Toronto, Toronto, Canada. Felix.ratjen@sickkids.ca

[6] Department of Paediatrics, University of Auckland & Respiratory Department, Starship Children's Health, Auckland, New Zealand. c.byrnes@auckland.ac.nz

[7] Division of Infectious Diseases, Department of Pediatrics, The Hospital for Sick Children, University of Toronto, Toronto, Canada. Valerie.Waters@sickkids.ca

[8]Department of Thoracic Medicine, The Prince Charles Hospital and QIMR Berghofer Medical Research Institute, Brisbane, Australia. scott.bell@health.qld.gov.au

[9]Department of Pediatrics, Case Western Reserve University School of Medicine, Cleveland, OH, USA. drv15@case.edu

[10]Imperial College and Royal Brompton Hospital, London and Queen's University Belfast, United Kingdom. s.elborn@qub.ac.uk

[11] Departments of Medicine and Pediatrics, Medical University of South Carolina, Charleston, SC, USA. flumepa@musc.edu

[12] ERN-Lung cystic fibrosis network

Cystic Fibrosis Research News

What was your research question?

We wanted to develop of a set of recommendations on the use of respiratory culture results as guidance for the use of antibiotics, using a systematic approach to defining consensus.

Why is this important?

Bacterial resistance to antibiotics is an important issue in CF as it is a common finding. It is usual practice for clinics to perform susceptibility testing on bacteria with the hope it could guide antibiotic therapy. However, the evidence that such testing predicts the clinical outcome of CF antibiotic treatment is poor. Given the discordance between laboratory and clinical response, clinicians struggle with the relevance of antibiotic resistance in people with CF and there is limited guidance on how it should influence antibiotic choices.

What did you do?

We engaged international experts in pulmonary (adult and pediatric) and infectious diseases, microbiology, and pharmacy to offer consensus recommendations to key questions facing CF clinicians regarding respiratory culture results including what tests to order, when to obtain them, and how to act upon the results of the testing. The experts completed surveys anonymously, and these were repeated until consensus was defined.

What did you find?

Consensus was reached for many questions but there was not universal agreement to the questions that were addressed, which may define key areas for research. Areas of general consensus include when and how respiratory cultures should be performed (such as for surveillance and for acute increase in symptoms), what information should be reported, and when susceptibility testing should be performed. A key observation was that clinicians rely more on the patient's clinical response to treatment rather than what was learned from susceptibility testing.

What does this mean and reasons for caution?

These recommendations could lead clinicians to reduce unnecessary testing while maintaining confidence in their patient infection results. These results are based on the responses of a small working group and may not be consistent with the opinion of the broader community. Also, where we lack sufficient evidence upon which to define best practices, there is risk that consensus recommendations will merely confirm current practices, which does not mean they are indeed best. However, when there is great variation in practice

patterns, there is value to establishing standards of practice upon which an evidence base can be built.

What's next?

We have also offered recommendations for priority research questions, such as: which culture data should be used to guide treatment of a pulmonary exacerbation, and what is the optimal timing and use of antimicrobial susceptibility testing?

Original manuscript citation in PubMed

https://www.ncbi.nlm.nih.gov/pubmed/?term=Antimicrobial+Susceptibility+Testing+in+Cystic+Fibrosis%3A++A+Delphi+approach+to+defining+best+practices