

TRANSMISSIBLE *PSEUDOMONAS* & INFECTION CONTROL IN CYSTIC FIBROSIS

BACKGROUNDER

Harmful bacteria can be passed between persons with cystic fibrosis by touch, coughing or sneezing and some individuals with CF can experience a serious decline in health if they become infected. Proper infection control precautions can reduce the risk of acquiring potentially harmful bacteria

A recent article entitled, “Infection with transmissible strains of *Pseudomonas aeruginosa* and clinical outcomes in adults with cystic fibrosis”, reported that between 2005-2008, approximately 25% of adults with CF in Ontario carried a transmissible (also known as “clonal” or “epidemic”) strain of *Pseudomonas*. This study required genetic fingerprinting (genotyping) of *Pseudomonas aeruginosa*. However, currently in Canada, microbiology labs associated with the CF clinics are not able to identify transmissible strains of *P. aeruginosa* as a routine test. Transmissible strains of *Pseudomonas aeruginosa* are genetically identical strains of bacteria that infect unrelated patients with CF (i.e. strains that are transmitted between persons with CF).

One of the transmissible strains identified in CF adults in Ontario was the Liverpool strain, previously found in the UK. This strain has been associated with poorer outcomes in cystic fibrosis patients including a greater risk of death or requiring a lung transplant.

Based on this new evidence, your Medical/Scientific Advisory Committee is revising Cystic Fibrosis Canada’s infection control policy and practices related to attendance at its meetings and events, and further emphasizing a message of concern regarding the presence and potential transmission of harmful bacteria among individuals with cystic fibrosis.

In the interim, since it is primarily the person-to-person meetings of individuals with CF which pose the highest risk of cross-infection, the meetings of the Adult CF Committee and the Annual Day for Adults, which traditionally occur at Cystic Fibrosis Canada’s Annual Meeting and Conference, will not be held in-person this year. As a further interim measure, the Executive Committee is recommending that delegates with CF do not attend the 2011 AGM.

An Infection Control Task Force comprised of, Medical/Scientific Advisory Committee members, international infectious disease experts and CF community stakeholders, will work expeditiously to determine what, if any, changes are required to our current infection control policy. Revised policy and guidelines are expected to be finalized by the end of April.

We are also exploring several possible solutions/technologies to ensure that persons with cystic fibrosis can continue to exercise leadership, interact, and remain closely connected within the Canadian CF community.

Our priority continues to be the health and safety of our community and we are committed to keeping you informed of our progress.

QUESTIONS & ANSWERS

What is transmissible *Pseudomonas*?

Pseudomonas aeruginosa (*P. aeruginosa*) is a bacterium that causes chronic lung infections in 60% to 70% of adults with cystic fibrosis. It is commonly found in soil, water, vegetation, on our skin, and in most man-made environments. Transmissible (also known as epidemic or clonal) *Pseudomonas* means that the identified strain is genetically identical in two or more persons who are unrelated and don't live in the same household, and therefore likely to have been transmitted from person to person.

How will my health be affected if I have transmissible *Pseudomonas*?

A three-year study on adults with CF in Ontario has shown that persons with CF infected with certain strains of transmissible *Pseudomonas* have twice the risk of dying or requiring a lung transplant over the three-year study period. If you are infected with a transmissible strain of *P. aeruginosa*, your clinic staff might choose to follow you more closely. The infection control policy at your clinic will reduce the risk of acquiring this bacterium.

How can I find out if I have transmissible *Pseudomonas*?

Currently, in Canada, microbiology laboratories associated with the CF clinics can test for bacteria such as *Pseudomonas*, MRSA and *B. cepacia*. Further genetic testing is required to identify transmissible strains of *P. aeruginosa* and this test is not available as a routine test. If you are an adult with cystic fibrosis living in Ontario, and you participated in the previously described study, then contact your CF clinic to determine your status.

What activities increase my risk of cross-infection?

Activities involving prolonged or close contact with other people with CF or infected materials, including:

- Kissing or other sexual contact
- Sharing medical equipment or exercise facilities
- Sharing living space
- Riding in a car
- Face-to-face meetings where the majority of participants are individuals with cystic fibrosis
- Riding in an elevator
- Clinic waiting rooms
- Eating from a buffet

In general, the risk appears to be proportional to the extent and nature of exposure to other cystic fibrosis patients who are colonized with harmful bacteria. Studies have shown that prolonged close contact (such as used to occur in CF summer camps) increases the likelihood that microorganisms will be spread from one person to another. Any activity which increases the chance of prolonged contact with infected materials (such as sputum, saliva, etc.) also increases the risk that you will become infected. Bacteria can be transmitted by coughing, so being in close contact with another CF patient who is coughing is likely a risk factor for becoming infected with bacteria from that person.

The most prudent approach to protecting yourself is to follow proper hygienic practices and avoid close and prolonged contact with other individuals with cystic fibrosis.

How can I minimize my risk?

There is nothing you can do to make the risk zero. However, the best measures for preventing the spread of these bacteria are to practice good personal hygiene and follow the infection control measures listed below:

- Wash your hands frequently, particularly after touching infected materials, such as sputum or saliva and before eating.
- Avoid close and prolonged contact with other individuals with CF

- Keep a distance of at least three feet apart from other individuals with CF.
- Cover your mouth when you cough.
- Throw away tissues immediately after use.
- Do not share physiotherapy or respiratory equipment, such as nebulizers, aerochambers, PEP masks, etc.
- Follow the appropriate cleaning instructions for aerosol equipment and nebulizers and PEP masks to minimize contamination.
- Do not share eating utensils, cans, cups or bottles.
- Cover skin scrapes or cuts with a clean, dry bandage until healed.
- In the case of *B. cepacia*, avoid rotting onion.
- Maintain your general overall health, and follow your prescribed therapy, physiotherapy and nutrition regimens.

Are CF patients infected with these bacteria at risk of spreading these bacteria to other people who don't have CF?

No. CF patients can spread bacterial lung infections to other patients with CF, however, these infections do not generally spread from CF patients to people who don't have CF. Therefore, your friends, colleagues, and family members are not at risk, and your bacteria are not 'contagious' except to other people who also have CF.

What is the risk to CF patients that have received lung transplants?

CF patients that have received lung transplants could be infected by transmissible *Pseudomonas* in their upper respiratory tract and therefore may also spread the bacteria to other individuals with CF.

Are there treatments for transmissible bacteria?

Antibiotics are used to fight infection-causing bacteria and may be given as an inhaled, oral or IV medication. The type of antibiotic (or combination of antibiotics), the dosage, and the length of time the drug is taken all vary for each individual and depend on the severity of the infection.

The microbiology labs associated with the Canadian CF clinics provide the testing needed to determine the best antibiotics to treat infections with all bacteria seen in people with CF. It is not necessary to have the results of genetic testing of the strain of *Pseudomonas* to determine which antibiotic therapy to use. Transmissible strains of *Pseudomonas* are also relatively resistant to antibiotics but there are a few antibiotics (and combinations of antibiotics) that can successfully treat these infections.

What is being done to find new ways of treating infections?

Cystic Fibrosis Canada supports research looking at novel ways to prevent or eliminate lung infections, including alternatives to antibiotics. Funds also support studies investigating the characteristics of different bacteria in the human body to learn how to tailor treatments specific for an individual's "bacterial profile".

How can people with cystic fibrosis stay connected?

From Facebook and email, to texting and video chatting, technology and social media provide many options to connect with individuals worldwide.

What is Cystic Fibrosis Canada doing to help keep the CF community connected?

Cystic Fibrosis Canada continues to identify ways all people with cystic fibrosis can participate, interact, and exercise leadership. In response to the current review of Cystic Fibrosis Canada's Infection Control Policy, several possible solutions/technologies are being explored to ensure persons with cystic fibrosis remain closely connected with the organization and within the Canadian CF community.

How are the new policy and guidelines being developed?

Your Board is striking an Infection Control Task Force comprised of M/SAC members, international infectious disease experts, and CF community stakeholders. The Task Force will work expeditiously to determine what, if any, changes are required to our current infection control policy and guidelines. We consider this work a priority and will be supporting the execution of this investigation.

What are the timelines?

Throughout the months March and April the Task Force will be reviewing the current policy and guidelines. At the end of March, the new draft policy will be reviewed and approved by the M/SAC Clinic Subcommittee and approval from the Executive Committee will take place early in April. The new policy will be distributed May 3rd, 2011. We are committed keeping you informed of our progress.

How will this impact Cystic Fibrosis Canada events and meetings?

In the interim, on the advice of the Clinic Subcommittee, the meetings of the Adult CF Committee and the Annual Day for Adults, which traditionally occur at Cystic Fibrosis Canada's Annual Meeting and Conference, will not be held in person this year. Until further notice, the Executive Committee is recommending that delegates with CF do not attend the 2011 AGM. Furthermore, individuals with CF should continue, as always, to take proper precautions to reduce the risk of spreading infection at other Cystic Fibrosis Canada meetings and events.

Where can I learn more?

For the complete Infection Control Q &A, visit www.cysticfibrosis.ca, or speak with your CF Clinic health care team for more information or answer questions.

The online scientific abstract on the Ontario study on transmissible *Pseudomonas* in *JAMA* (*Journal of the American Medical Association*), volume 304, November 17, 2010, can be found at <http://jama.ama-assn.org/content/304/19/2145.abstract?sid=818fcfbf-dfde-412d-b7bb-3048bf6a0014>

Who can I contact to offer suggestions and provide feedback?

Cystic Fibrosis Canada welcomes your thoughts and ideas on how the CF community can stay engaged with the organization and remain connected. Please send your suggestions to afernandes@cysticfibrosis.ca.

February 2011