

## Staphylococcus pseudintermedius infection: a downside to man's best friend?

*Staphylococcus pseudintermedius* is a bacteria identified in the past decade that is increasingly recognized to cause infections in people. *S. pseudintermedius* colonizes ~90% of healthy dogs, and the common sites are the pharynx, nares, rectum, and skin. Although other domestic animals such as cats and horses can also harbor this bacteria, the transmission to humans is thought to most commonly occur from contact with dogs. *S. pseudintermedius* can frequently cause skin and soft tissue infections in dogs but little is known about its role in human infections. As *S. pseudintermedius* is similar biochemically to the bacteria *Staphylococcus aureus* which is a frequent cause of many types of infections, it can be difficult to distinguish on conventional testing. Recently, novel microbiologic technologies have enabled accurate identification of *S. pseudintermedius* in infections that may have otherwise been un-recognized.

To understand the role of *S. pseudintermedius* in human infections, we conducted a population study in a southern Alberta urban region over two years from 2013-2015. A centralized diagnostic lab provides comprehensive services to the ~ 1.5 million people residing in this region. The study was approved by the research ethics board at the University of Calgary. All consenting patients aged >18 years with a culture positive *S. pseudintermedius* infection were included for analysis. Demographic data and clinical details surrounding the diagnosis and treatment of the infection were collected through review of patient charts. The culture samples of *S. pseudintermedius* underwent detailed testing to confirm identity, assess molecular typing, and determine antibiotic resistance patterns.

A total of 24 patients with 27 culture samples in the two-year period positive for *S. pseudintermedius* were identified. Of these, 58% were male, and the average age of the group was 61 years. The most common medical conditions observed were diabetes mellitus (29%), vascular disease (21%), and heart disease (17%). The vast majority of patients (95%) confirmed contact with dogs at the time of infection. Of the cases, 75% were skin and soft tissue infections. Notably, there were two more severe infections including one blood stream infection and one knee prosthetic hardware infection. Four of the 24 patients were deemed to not have an infection but simply be colonized with *S. pseudintermedius*. When infection rates were compared for skin and soft tissue (wound) infections, the yearly rate remained low at 0.05% for *S. pseudintermedius* compared with 30% for *S. aureus*.

When cultures were examined, there was frequent antibiotic resistance to a number of commonly used antibiotics including those for skin and soft tissue infections. Similar to methicillin resistance *Staphylococcus aureus* (MRSA) which can cause severe infections and is resistant to many antibiotics, this type of resistance was also identified in six of the 27 samples. When typing was done, the resistant samples were the same as strains found commonly in Europe.

*S. pseudintermedius* is a potentially important pathogen transmitted from canines, and although identified relatively recently, has likely been around for far longer. Improved diagnostics have allowed us to identify this bacteria in infections that otherwise may have been misdiagnosed as *S. aureus*. Cases of human *S. pseudintermedius* infection have been described but this study reflects the largest collection of human cases to date. Skin and soft tissue infections were most common although the overall rates of infection due to *S. pseudintermedius* were low. Serious infections also occurred, and have also been reported in other published cases in the literature include those involving the lung and heart tissues. As most of the cases had a history of contact with dogs, transmission of the bacteria is likely but the mechanisms and timing relative to infection needs to be further studied.

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## Publication

[Human infections due to \*Staphylococcus pseudintermedius\*, an emerging zoonosis of canine origin: report of 24 cases.](#)

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