

More opportunities found for respiratory infections to spread among staff in emergency departments

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(Medical Xpress)—After studying social contact between patients and staff in a busy emergency department (ED) for one year, researchers at Emory University have learned more about the spread of infection and why prevention strategies are so important.

The researchers looked at three types of interaction – patient-to-patient contact, patient-to-staff contact and staff-to-staff contact. The most common type of contact was staff-to-staff, and thus staff may be more likely to spread infections to other staff. The study was published recently in the *Public Library of Sciences (PLOS) One*.

For observation during the study, a radiofrequency identification system

was installed in the ED at Emory University Hospital Midtown. From July 2009 through June 2010, staff and [patients](#) wore radiofrequency tags that clipped onto their clothes to detect contact within one meter of another person also wearing a tag. Two 12-hour shifts per week (104 shifts for the study year) were randomly selected to track staff and patients to see how they mixed and for how long.

"Our goal of the study was to see how the spread of infections, like influenza, might be transmitted in a busy place like an [emergency room](#)," says Douglas Lowery-North, MD, MSPH, associate professor of emergency medicine at Emory University School of Medicine, and vice chair for clinical operations for [emergency medicine](#) at Emory Healthcare.

"In 2003, the SARS-CoV (corona virus) epidemic started in North America with a sick patient in an emergency room who infected other patients and health care workers through close contacts, with some of those people dying from the illness. New infectious microbes continue to threaten the health of our population. For example, our study coincided with the more recent novel H1N1 influenza outbreak. Now we have a new corona virus called MERS-CoV. We need to learn how to be better prepared to contain certain infections, especially novel infections, when they occur," explains Lowery-North, who is the first author on this paper.

By dividing up contact among the three interaction types, the researchers could see which groups were most likely to spread possible infections to others.

"Patients had very little contact with other patients, and staff would go in and out of rooms to see patients and monitor their progress, but not for long periods of time," says Vicki Hertzberg, PhD, associate professor of biostatistics and bioinformatics, Rollins School of Public Health at

Emory and co-author. "We found that staff had much more frequent contact and for longer durations of time with other staff, as one might expect in common in a health care environment."

An emergency room is the point of entry into a hospital where illnesses are being diagnosed and treated. While many may be concerned about patients infecting other patients and staff while hospitalized, this research suggests infected staff may be at a greater risk of infecting susceptible colleagues.

"The data supports what has become policy at Emory Healthcare and many other medical centers: mandatory flu vaccinations for health care staff," says Lowery-North. "We also believe that staff may need to take more precautions around each other and consider increasing the level of protection that staff members use all the time, particularly in the presence of novel infectious agents."

While hospitals typically have policies to discourage the presence of infectious staff at work, in reality staff may be asymptomatic for the first several days they are infectious. Staff shortages and other staffing pressures may subtly encourage staff to work even when sick. These new findings mean emergency rooms need to rethink ways to manage staff when they are ill.

But the research doesn't end here. "We now need to examine which [health care](#) staff in the ED come in contact the most and for what duration," says Hertzberg. "By looking at the roles of physicians, nurse practitioners, nurses, and other clinical and administrative staff, we may be able to better define what precautions are needed the most."

The study was funded through Emory's Center for Excellence in Influenza Research, which receives funding from the National Institute of Allergy and Infectious Diseases (NIAID). NIAID is a branch of the

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More information: www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0070854

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