

Study ranks social contacts by job and social group in bid to fight infectious diseases

June 25 2013

Contact hours by social group

Social group	Average social contact hours	Number of respondents
Children	47.6	44
Transport workers	37.4	11
Labourers	37.3	43
Service sector workers	33.2	280
Health sector workers	32.9	354
Teaching staff	32.0	311
Mechanics	31.7	64
Office workers	30.2	1069
Home-based workers	28.6	390
Students	28.5	347
Research staff	26.0	315
Entertainment	23.4	36
Retired	19.2	1577
Unemployed	18.4	117

Credit: University of Warwick

In the light of Novel Corona Virus, concerns over H7N9 Influenza in S.E. Asia, and more familiar infections such as measles and seasonal influenza, it is as important as ever to be able to predict and understand how infections transmit through the UK population.

Researchers at the University of Warwick and University of Liverpool have mapped the daily contact networks of thousands of individuals to shed light on which groups may be at highest risk of contracting and spreading [respiratory diseases](#).

These scientists used an anonymous web and postal survey of 5,027 UK residents to collect information on the types of social contact likely to lead to the transmission of respiratory infections.

The survey is believed to be the largest national study of its kind to date and allowed the scientists, for the first time, to quantify social contact patterns and how these varied with age and job.

Although it is common sense that some jobs may be associated with more social contacts, there is huge value in possessing hard data on the number and duration of social contacts as it allows the complex interactions of the UK population to be analysed mathematically in the event of an [outbreak](#).

According to the study, children were top of the table for social contacts, making them most at-risk for catching and transmitting infection.

A social contact is defined as a face-to-face conversation within two metres or skin-on-skin physical touch with another person.

Among adults, those working in schools, in the health sector and in client-facing service jobs such as shop workers or commercial roles had among the highest number of social contacts.

Students, unemployed people and retired people had among the lowest levels of social contacts.

According to the data collected, during a working day a teacher sees on average 62.1 different people, whereas a retired person only sees around 19.3.

The length of time a person spends with a contact is an important risk factor in transmitting infection, so the results were converted into total contact hours, the sum of the durations of all contacts in one given day.

Most people have an average of around 26 social contact hours a day but a small number have up to 50 contact hours a day since people can spend time with more than one individual simultaneously.

For example, children have an average of more than 47 contact hours, a health sector worker has on average just less than 33 contact hours a day, a teacher has 32 contact hours whereas retired people have slightly more than 19 contact hours.

The researchers also found that sociability tends to decline as people get older, with school-age children having the most social contact hours and people of retirement age having the fewest.

However there is a noticeable rebound in social contact hours in people aged between 35 and 45, which the researchers suggest may be down to 'school-gate' contacts among parents with school-age children.

Dr Leon Danon from the Mathematics Institute at the University of Warwick said: "People working as teachers or health professionals are no doubt already aware that they have higher risks of picking up bugs like colds and flu.

"But before this study there was very little data mapping out the contact patterns humans have in their daily life.

"By quantifying those social interactions, we can better predict the risks of contracting and spreading infections and ultimately better target epidemic control measures in the case of pandemic flu for example."

Professor Jeremy Dale, Professor of Primary Care at Warwick Medical School, commented:

"This study provides light on why some groups may be at greater risk of being exposed to respiratory and other infections that are linked to close social contact.

"It should not however cause people in these groups undue concern.

"There are many sensible measures people can take to cut down on the risk of catching or passing on these kinds of infections. These include regularly washing your hands with soap and water, keeping surfaces clean and using tissues when you cough or sneeze."

Transport workers, such as taxi and bus drivers, also featured very high on the league tables but researchers were cautious about reading into this because of the small number of respondents in this group.

More information: The study, Social encounter networks: characterising Great Britain, was published in the journal *Proceedings of the Royal Society B*. [rspb.royalsocietypublishing.org/...
.1098/rspb.2013.1037](http://rspb.royalsocietypublishing.org/doi/10.1098/rspb.2013.1037)

Provided by University of Warwick

Citation: Study ranks social contacts by job and social group in bid to fight infectious diseases (2013, June 25) retrieved 18 April 2024 from <https://phys.org/news/2013-06-social-contacts-job-group-infectious.html>

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