

School closures as a possible solution to the spread of the flu

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Research conducted on 450 individuals in Tomsk (Russia) revealed how interrupting school activities affect limiting influenza cases

Russia is one of the few countries in the world where school closure policies are applied in response to the spread of influenza viruses. This led scholars from five universities and international research centers, including **Trento-based Fondazione Bruno Kessler**, to conduct a study that pointed out an extremely relevant finding: **when schools are closed, the number of contacts is reduced by 41 %**. Consequently – through computer simulations – the authors estimate that if these closure policies would not have been implemented, **the cases of influenza would have gone up by 33% ***.

“**What happens in Tomsk is an extraordinary case study** in the true sense of the word,” explains **Marco Ajelli**, researcher at the [FBK DPCS unit](#) – in fact, there are very few places in the world where school closure policies are applied to prevent the spread of influenza viruses. ” Through a checking and reporting system, school teachers initiate a process that allows them to decide on the closure of single classes or entire institutions: “First of all – adds the author of the [paper published in the US scientific journal PNAS](#) – even those who present the symptoms are not allowed in the school area. So, when more than one student is absent from school during the flu season, the teacher contacts the parents to ascertain whether the absence is related to the epidemic. If the percentage that falls into these cases exceeds 20%, the single class or the whole school can be closed.”

To understand what impacts there could be if this strategy were not applied, the researchers measured – in the 2015/2016 flu season – the network of contacts of a sample of 450 individuals, more specifically students and their parents. **The data obtained shows that when the school closure policy is applied, the reduction of physical contact** – therefore of people who have exchanged at least a minimum conversation – **is drastic among students (over 50%) but also decreases among working parents (over 20%), who are often forced to stay home to care for their children**. At a later stage, the researchers combined the data collected in the field with those provided by the local health system on the spread of parainfluenza

symptoms and those on school closures offered by the various schools to the end of performing computer simulations of the spread of influenza. “The solidity of the data collected and the computational models that derived from it – Ajelli added – offered empirical evidence on the effectiveness of this type of prevention policy in the spread of influenza epidemics and lay the foundations for future studies that could further improve its efficiency and related system costs, in this as in other areas”.

* during the flu season under analysis (2015/2016)

Organizations participating in the research:

- Laboratory for the Modeling of Biological and Technical Associate Systems, Northeastern University, Boston, USA
- ISI Foundation, Turin, Italy
- Complex Lab & Big Data Research Center, Chengdu, Sichuan, China
- Division of General Medical Practice, Siberian State Medical University, Tomsk, Russia
- Fondazione Bruno Kessler, Trento, Italy

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