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Smith RD, Keogh-Brown MR, Barnett T, Tait J. BMJ. 2009 Nov 19;339:b4571.

Objectives: To estimate the potential economic impact of pandemic influenza, associated behavioural responses, school closures, and vaccination on the United Kingdom.

Design: A computable general equilibrium model of the UK economy was specified for various combinations of mortality and morbidity from pandemic influenza, vaccine efficacy, school closures, and prophylactic absenteeism using published data.

Setting: The 2004 UK economy (the most up to date available with suitable economic data).

Main outcome measures: The economic impact of various scenarios with different

pandemic severity, vaccination, school closure, and prophylactic absenteeism specified in terms of gross domestic product, output from different economic sectors, and equivalent variation.

Results: The costs related to illness alone ranged between 0.5% and 1.0% of gross domestic product (pound8.4bn to pound16.8bn) for low fatality scenarios, 3.3% and 4.3% (pound55.5bn to pound72.3bn) for high fatality scenarios, and larger still for an extreme pandemic. School closure increases the economic impact, particularly for mild pandemics. If widespread behavioural change takes place and there is large scale prophylactic absence from work, the economic impact would be notably increased with few health benefits. Vaccination with a pre-pandemic vaccine could save 0.13% to 2.3% of gross domestic product (pound2.2bn to pound38.6bn); a single dose of a matched vaccine could save 0.3% to 4.3% (pound5.0bn to pound72.3bn); and two doses of a matched vaccine could limit the overall economic impact to about 1% of gross domestic product for all disease scenarios.

Conclusion: Balancing school closure against "business as usual" and obtaining sufficient stocks of effective vaccine are more important factors in determining the economic impact of an influenza pandemic than is the disease itself. Prophylactic absence from work in response to fear of infection can add considerably to the economic impact.

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Action plan on **Science in Society** related issues in **Epidemics and Total pandemics**
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