

# The true cost of chickenpox: At least £24 million in lost productivity a year in the UK

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Chickenpox in childhood results in £24 million in lost income and productivity every year in the UK, although the true cost is likely to be higher, according to new research to be presented at this year's European

Congress of Clinical Microbiology & Infectious Diseases (ECCMID) in Lisbon, Portugal (23-26 April). The study is by Associate Professorial Research Fellow Raphael Wittenberg and colleagues from the Care Policy and Evaluation Centre at the London School of Economics and Political Science (LSE), UK.

The direct medical costs of chickenpox have been widely reported, but less is known about the indirect societal costs of chickenpox in the UK. It is important that [policy decisions](#) relating to prevention and treatment of health conditions take into account the [indirect costs](#) of the conditions as well as the direct costs.

So the researchers set out to estimate the indirect costs, in terms of productivity loss, of chickenpox among children aged 15 years and younger in the UK, as measured by the number of working days lost caring for a child with chickenpox, and the estimated cost to society of each working day's output lost.

First, researchers searched for all [economic studies](#) published in English which reported on the costs of chickenpox in any country, or the costs of other childhood illnesses in the UK. In total, 23 peer-reviewed studies up to March 2021 were included in the analyses. No papers were found on the indirect costs of chickenpox in the UK.

To investigate how chickenpox impacts childcare arrangements, researchers invited over 1,500 parents of children aged 1 to 11 years to complete an [online survey](#). The survey was run by YouGov using their online panel.

Participants were asked whether any of their children had ever had chickenpox, and, if so, whether they had missed school or nursery because of chickenpox, and how many days they had missed. They were also asked whether they, their spouse or other family member had taken

time off from work to look after their children with chickenpox and, if so, how many working days they had missed.

In all, 1,526 [survey respondents](#) reported on 2,283 children, of whom more than half (52%; 1,185/2,283) had at some point in their lives contracted chickenpox.

Almost half (591/1,185) of the children who contracted chickenpox missed days off school or nursery. In around half of cases, an adult took days off work to care for a child—missing an average of 5 days per child.

Among respondents, working women (72%; 163/226) were significantly more likely to provide care for sick children compared to employed men (55%; 56/102). There was also a large gender difference for unemployed women (32%; 104/330) and men (18%; 22/124).

However, the numbers of workdays lost did not differ significantly by partnership status, ethnicity, housing tenure, [household income](#) and whether the respondent was the sole adult in the household.

To estimate the national cost of productivity loss, survey findings were applied to chickenpox incident data derived from GP consultation rates, taking into account that not all cases of chickenpox are captured through GP consultations.

Average income was calculated using survey respondent's annual income for those who missed work, and data from the Annual Survey of Hours and Earnings for family members who missed work. Employers' oncosts—national insurance and pension contributions—were also included.

The researchers calculated that the daily costs of lost productivity were

around £170, and there were around 200,000 GP consultations per year for chickenpox. They used the figures to estimate that the total cost of annual productivity losses due to chickenpox in the UK are around £24 million.

"Chickenpox, while rarely causing serious illness, does lead to loss of days of school or nursery among [young children](#) and consequent loss of workdays by their parents. The resulting lost productivity should be considered when decisions are made about policies to prevent chickenpox" says Associate Professor Wittenberg. "And since the number of [children](#) contracting [chickenpox](#) may greatly exceed the number of GP consultations, the true annual value of lost productivity is likely to be substantially higher than £24 million."

The authors note that since survey respondents are liable to recall bias of events, some information may not be completely accurate. And while the overall sample size was large, the number of respondents providing information on days of work taken off was far smaller. There were also limited responses from individuals in certain subgroups.

**More information:** Manjiri Pawaskar et al, Economic burden of varicella in Europe in the absence of universal varicella vaccination, *BMC Public Health* (2021). [DOI: 10.1186/s12889-021-12343-x](https://doi.org/10.1186/s12889-021-12343-x)

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