

## Tamiflu side effects in children

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Tamiflu can cause several side effects

New research claims that “more than half of children taking Tamiflu to combat swine flu suffer side effects such as nausea, insomnia and nightmares,” said *The Daily Telegraph*. It also said the study suggests that one in five children who took part reported having a neuropsychiatric side effect, such as poor concentration, inability to think clearly, problems sleeping, and feeling dazed or confused.

This online survey looked at schoolchildren’s adherence to Tamiflu and any side effects they experienced. It had a low response rate, and no control group against which to compare the symptoms. As such, it is not possible to say for sure that this frequency of side effects is precise. It is possible that the rate of symptoms in a school that closed down because of a new epidemic would have been quite high anyway, whether pupils were given the drug or not. No serious or long-term side effects of the drug were reported.

### Where did the story come from?

The research was carried out by Dr Aileen Kitching from the European Programme for Intervention Epidemiology Training and colleagues from the Health Protection Agency (HPA) in London. The funding for this HPA study is not reported. The study was published in *Eurosurveillance*, the peer-reviewed journal of the European Centre for Disease Prevention and Control.

### What kind of scientific study was this?

The aim of this research was to survey schoolchildren’s adherence to oseltamivir (Tamiflu), any side effects they experienced, and how often they experienced them.

The study was conducted between April and May 2009, when a number of London schools with confirmed cases of swine flu were advised to close. At this time, antiviral prophylaxis with Tamiflu was offered to close contacts of cases. The researchers say that family doctors

in London at the time reported a number of patients (mainly children and adolescents) who had to stop the drug because of side effects (non-compliance).

Three independent (non-state) schools took part. Parents were emailed the web address of an online anonymous questionnaire, along with a letter that described the study, and sought consent and participation. Parents or guardians could complete the questionnaire on behalf of younger children.

Participants for the study were selected differently in the three schools. In two schools (one primary and one secondary school) the researchers selected all the classes who were offered prophylaxis, (age 4-11 years in the primary school), and all of one year group in the secondary school (age 13-14 years). In the other secondary school, the questionnaire was offered only to pupils in four of the classes in the year group (age range 11-13 years).

The questionnaire asked a series of questions, including:

- whether children who had been offered Tamiflu had taken it,
- how long they took it for,
- the presence or absence of influenza-like symptoms before taking Tamiflu,
- any other medication taken with Tamiflu,
- symptoms after taking Tamiflu (including specific gastrointestinal and neuropsychiatric symptoms).

Parents were also asked for their comments. As the information was required quickly, the weblink to the questionnaire was emailed to parents/pupils on the morning of May 14, and the questionnaire closed at midnight. The researchers used the responses to deduce who had been given the drug as prophylaxis (prevention) rather than treatment.

## **What were the results of the study?**

Out of a possible 256 schoolchildren, 103 replied (a response rate of 40%). Response rates were better from the secondary schools than the primary school. The researchers estimated that most of those who responded (95) were given Tamiflu for prophylaxis. Of those, only 85 (89%) took the drug. The 10 who did not take Tamiflu were all primary school pupils.

Less than half (48%) of primary schoolchildren completed a full course, compared to three-quarters (76%) of secondary schoolchildren.

More than half (45 out of 85) of schoolchildren (53%) who were taking it as prophylaxis reported one or more side effects. The most common side effects were gastrointestinal symptoms, such as nausea and vomiting, which were reported by 40% of children. The second most common were mild neuropsychiatric effects, reported by 18% of children. These were most frequently difficulty sleeping, bad dreams/nightmares or poor concentration.

Most parents reported in the comments section that they made their own risk assessment for their child. They were sceptical of the need for medication to prevent onward transmission, and they questioned the scientific basis of the advice. They also raised the possibility that Tamiflu may be doing more harm than good compared to the 'risk' from swine flu. They

wanted more information about the type and nature of any potential side effects in order to make informed decisions.

## **What interpretations did the researchers draw from these results?**

The researchers say that their results confirmed GPs' suspicions that children were adhering poorly to Tamiflu. They also said that it is 'timely information with which to assist decision-making.'

## **What does the NHS Knowledge Service make of this study?**

These results should be used in conjunction with other information to make informed decisions about Tamiflu. As there was no control group to compare against the children given tamiflu, and the survey had a low response rate, there are several points to be aware of when interpreting these figures:

- These side effects are recognised adverse effects of the medication, and have been reported in previous literature on the topic. Controlled trials of Tamiflu found that nausea occurs twice as frequently with the drug as with placebo, with about 20% of people given the drug reporting nausea or vomiting. Although controlled clinical trials do not always accurately represent what happens in settings outside of an organised trial, the results from these clinical trials suggest that the actual rate of side effects might be less than the levels seen in this study.
- The fact that the responses were requested within less than 24 hours may have contributed to the low response rate. The 60% of people who did not respond to the survey may differ from those who had the time to respond. Perhaps they were in larger families. It is not known how the results would have been affected if non-responders had been included.
- Relying on the responses to a questionnaire to determine whether children and adolescents had flu or side effects from medication might have caused some inaccuracies. With a proportion of cases of swine flu thought to remain asymptomatic (at least to begin with), it is possible that some of these children actually developed flu itself in the few days after the first case.

This study was carried out at a time when Tamiflu was being given to slow the spread of the virus. As with all drugs, the benefits and risks of taking Tamiflu need to be considered by individual patients and their healthcare providers in the context of their risk and symptoms at the time. No serious or long-term side effects of the drug were reported.