PATIENT SAFETY AUTHORITY

An independent agency of the Commonwealth of Pennsylvania

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Alert: Two Overdoses of Tamiflu in Pediatric Patients in Pennsylvania

A shortage of Tamiflu in liquid form has contributed to some dosage errors due to staff's unawareness of the higher concentration in the contents of the Tamiflu pill form when developing their own liquid version of the drug

HARRISBURG: Two pediatric patients in Pennsylvania hospitals received overdoses of the drug Tamiflu to treat their flu symptoms because of unawareness among staff as to the concentration of the drug given in an alternative liquid form. Both children were unharmed as a result of the errors, but details of the near misses have been published in a supplementary *Pennsylvania Patient Safety Advisory* to raise awareness of the issue.

For patients who have trouble swallowing Tamiflu capsules (usually elderly and children), a liquid form of the drug is available. For facilities that have a shortage of Tamiflu in liquid form, the U.S. Food and Drug Administration has approved directions listed in the product labeling for using the powder in the Tamiflu capsule to make a liquid form, which is a different concentration. However, reports show staff are unaware of the differences in the concentrations of these two products.

As of October 20, 2009, the Pennsylvania Patient Safety Authority has received two reports describing the dosage errors related to the varying Tamiflu concentrations. In each case, physicians prescribed 12 mg of the product to the patient in liquid form. However, due to shortages of the liquid form, which is available in a 12 mg/mL concentration, pharmacists compounded and dispensed a liquid form made from the powder of available capsules as a 15 mg/mL concentration, which was administered without adjusting the dose.

"We believe hospital staff — prescribers, nurses, and pharmacists — may be unaware of the potential for dosage errors due to the shortage of the drug in liquid form," Mike Doering, executive director of the Pennsylvania Patient Safety Authority said. "Doctors who are prescribing the Tamiflu in a liquid are unaware that the manufacturer produced liquid form of the product is not available."

The Authority's subcontractor, the Institute for Safe Medication Practices (ISMP), alerted healthcare professionals on October 15, 2009, about the risk of overdoses and under doses.

"In light of flu season, this is a real-time problem so the Authority and ISMP are working to get the word out as quickly as possible so that healthcare professionals across the board are aware of the potential risks of compounding their own liquid form of the drug," Doering said. "Some strategies previously released by ISMP to help healthcare providers reduce and eliminate the risks are also provided in the Advisory."

The guidance includes:

- Alert healthcare providers about the problem.
- At this time, prescribers are advised to communicate liquid doses in milligrams rather than by volume.
- Computerized prescriber order-entry systems should only list the available concentration on computer selection screens.
- Pharmacy computer systems should alert providers to verify the dose and concentration to be given.
- Proactive direct communication between the prescriber and pharmacist may be necessary to ensure the intended dose reaches the patient.
- Include the patient specific dose with the corresponding number of mL and the concentration of liquid provided on the pharmacy-generated label applied to the product given.
- If pharmacists are experiencing a shortage of commercial Tamiflu in liquid form, ISMP suggests proactively communicating with health system-owned physician practices and other area medical practices to advise prescribers of the shortage and steps being taken to reduce the possibility of dosing errors when giving the pharmacy compounded solution.
- As an alternative, Tamiflu capsules may be opened and the contents (30 mg, 45 mg and 75 mg) mixed with sweetened liquids, such as regular or sugar-free chocolate syrup, for single doses.

For the complete 2009 November supplementary *Pennsylvania Patient Safety Advisory*, go to www.patientsafetyauthority.org. For more information from ISMP, go to www.ismp.org. For more information about Tamiflu, go to www.tamiflu.com. For more information about the FDA-approved directions for compounding Tamiflu go to www.rocheexchange.com.

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