Institute for Safe Medication Practices
200 Lakeside Drive Suite 200, Horsham, PA 19044
www.ismp.org

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CONTACT: Renee Brehio, Media Relations
704-831-8822, rbrehio@ismp.org

ISMP Calls for Elimination of "Teaspoonful" and Other Non-Metric Measurements to Prevent Errors

Horsham, Pa.— The Institute for Safe Medication Practices (ISMP) is calling upon prescribers, pharmacists, and other healthcare professionals, as well as pharmacy computer system and e-prescribing system vendors, to remove or prevent the use of "teaspoonful" and other non-metric measurements in prescription directions in order to better protect patients.

In the past, mix-ups involving confusion between measuring medications in milliliters or teaspoonfuls and other non-metric measurements have resulted in the serious injury of children and adults. The current issue of the *ISMP Medication Safety Alert! Community/Ambulatory Care Edition* newsletter highlights recent cases of mL-teaspoonful mix-ups that have been published separately by the California Board of Pharmacy and the *Cape Cod Times* that show these mistakes continue to happen.

ISMP itself has received more than 30 reports of mL-teaspoonful mix-ups, including cases where injuries required treatment or hospitalization. In one case, a child who recently had surgery was seen in an emergency department and later admitted with respiratory distress following an unintentional overdose of Tylenol #3 (acetaminophen and codeine). The pharmacy-generated label on the child's medication bottle instructed the parents to give the child 6 teaspoonfuls of liquid every 4 hours. The original prescriber stated the prescription was for 6 mL. The child received 5 doses before arriving at the emergency department.

In a second case, a child received an overdose of the antifungal medication Diflucan (fluconazole) suspension. The physician phoned a prescription for Diflucan 25 mg/day to a community pharmacy for a 3-month-old child with thrush. The pharmacist dispensed Diflucan 10 mg/mL. The directions read "Give 2.5 teaspoons daily." The directions should have read "Give 2.5 mL daily." Prior to the error, the child had been ill for the previous three weeks with an upper respiratory infection, nausea, vomiting and diarrhea. It is suspected that the child's subsequent hospitalization was related to this error.

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ISMP Safe Practice Recommendations

The healthcare industry--including practitioners and computer vendors--needs to acknowledge the risk of confusion when using non-metric measurements, especially with oral liquid medications. Steps must be taken to prevent errors such as the following ISMP recommended actions:

- Cease use of patient instructions that use "teaspoonful" and other non-metric measurements, including any listed in pharmacy computer systems. This should include mnemonics, speed codes, or any defaults used to generate prescriptions and labels.

- Express doses for oral liquids using only metric weight or volume (e.g., mg or mL)—never household measures, which also measure volume inaccurately.

- Take steps to ensure patients have an appropriate device to measure oral liquid volumes in milliliters.

- Coach patients on how to use and clean measuring devices; use the "teach back" approach, and ask patients or caregivers to demonstrate their understanding.

A copy of the ISMP article with the call to action appears in the May 2009 issue of the *ISMP Medication Safety Alert! Community/Ambulatory Care Edition* newsletter. For a copy, go to: www.ismp.org/Newsletters/ambulatory/archives/200905_1.asp. Other ISMP articles regarding non-metric dosing can be found at www.ismp.org/Newsletters/ambulatory/archives/200604_1.asp and www.ismp.org/Newsletters/acutecare/articles/20000628_2.asp .

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