



**To be completed by the Office of the Secretary of the House of Delegates**

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**American Pharmacists Association  
House of Delegates – Baltimore, MD  
March 4 - 7, 2016**

**NEW BUSINESS**

**(To be submitted and introduced by Delegates only)**

**Introduced by:** Lucianne West on behalf on APhA-ASP; Nicki Hilliard on behalf of APhA-APPM

**(Name)**

02/03/2016  
**(Date)**

APhA-ASP and APhA-APPM  
**(Organization)**

**Subject:** Labeling and Measurement of Oral Liquid Medications

**Motion:** Move to adopt the following policy statements,

1. APhA supports the use of the milliliter (mL) as the standard unit of measure for oral liquid medications.
2. APhA encourages the mandatory use of leading zeros before the decimal point for amounts less than one on prescription container labels for oral liquid medications.
3. APhA discourages the use trailing zeros after the decimal point for amounts greater than one on prescription container labels for oral liquid medications.
4. APhA supports access to and universal availability of dosing devices with numeric graduations that correspond to the unit of measure on the container labeling for oral liquid medications.

**Background:**

Between 2002 and 2012, 81.9% of medication errors involving children six and younger were attributed to liquid medications. The second and third most common causes of these medication errors were incorrect dose and confused unit of measure, respectively.<sup>1</sup> Sobhani et al. compared the use of dosing cups and syringes to measure a dose of an over the counter (OTC) product. The investigators concluded that no participants measured an excessive dose while using the syringe. Alternatively, 85.4% of participants using a dosing cup measured an excessive dose.<sup>2</sup>

The Centers for Disease Control (CDC) recently launched the PROTECT initiative to address the alarming increase in emergency room visits due to OTC and prescription medication overdoses in children. The initiative focused on promoting safe medication packing with clearer dosing measures and labeling to ensure ease of administration by caregivers and increased education for parents and caregivers about proper use and administration of OTC medications.<sup>3</sup>

The National Council for Prescription Drug Programs' white paper describes the measures relating to the standardization of dosing designations by which these parties can play that role. The document addresses the necessary standardization of oral liquid medication container labels and the dosing devices commonly used with OTC liquid medications. The recommendations include packaging a precision measuring device with OTC oral liquid medications. The recommendations also include the adoption of milliliters as the standard unit of measure for such products.<sup>4</sup>

The standardization of all units of measure to milliliters would decrease dosing and measurement confusion. Teaspoons have been shown to range anywhere from 2.5 to 7.8 milliliters. Furthermore, production inconsistencies are common in measurement devices intended for cooking.<sup>5</sup>

Patient education has also been shown to significantly improve dosing accuracy in liquid oral medications. McMahon et al. found that 83% of patients that used a dosing syringe without a demonstration could dose a medication accurately, while 100% of participants who received a demonstration dosed the medication accurately.<sup>6</sup>

Yin et al. demonstrated that advanced counseling techniques with the provision of a precision measuring device is shown to be more effective (47.8% measured an accurate dose) than those who received neither (20.9% measured an accurate dose).<sup>7</sup> The provision of a precision measuring device and patient education and the standardization of units are synergistic in combination and beneficial to patient safety and quality of care.

#### References:

1. Smith, MD, et al. Out-of-Hospital Medication Errors Among Young Children in the United States, 2002-2012. *Pediatrics*. 2014; 134,5:867-876.
2. Sobhani, P, et al. Accuracy of Oral Liquid Measuring Devices: Comparison of Dosing Cup and Oral Dosing Syringe. *The Annals of Pharmacotherapy*. 2008;42:46-52
3. The PROTECT Initiative: Advancing Children's Medication Safety. Centers for Disease Control. Accessed at: [http://www.cdc.gov/medicationsafety/protect/protect\\_initiative.html](http://www.cdc.gov/medicationsafety/protect/protect_initiative.html). January 31, 2016.
4. NCPDP Recommendations and Guidance for Standardizing the Dosing Designations on Prescription Container Labels of Oral Liquid Medications. Accessed at: <http://ncpdp.org/Education/Whitepaper>. January 31, 2016.
5. Yaffe, SJ, et al. Inaccuracies in Administering Liquid Medication. *Journal of the American Academy of Pediatrics*. 1975; 56:327
6. McMahon SR, et al. Parents can dose liquid medications accurately. *Pediatrics*. 1997; 100:300-3
7. Yin, SH, et al. Liquid Medication Dosing Errors in Children: Role of Provider Counseling Strategies. *Academic Pediatrics*. 2014; 14,3:262-270

### **Current APhA Policy & Bylaws:**

No current APhA Policy. However, the 2015 APhA-ASP House of Delegates adopted the following resolutions:

#### **2015.2 – Labeling and Measurement of Oral Liquid Medications**

1. APhA-ASP supports mandatory inclusion of a precision measuring device, such as an oral syringe, with all prescription and non-prescription oral liquid medications.
2. APhA-ASP encourages student pharmacists and pharmacists to educate patients and caregivers on accurate oral liquid medication administration.
3. APhA-ASP supports the use of metric units (versus teaspoons and tablespoons) as the standard measurement on all oral liquid medications and precision measuring devices.

New Business Items are due to the Speaker of the House by **February 3, 2016** (30 days prior to the start of the first House session). Consideration of urgent items can be presented with a suspension of the House Rules at the session where New Business will be acted upon. Please submit New Business Items to the Speaker of the House via email at [hod@aphanet.org](mailto:hod@aphanet.org).