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To: ALL HEALTH CARE PROFESSIONALS
From: Ron Kirschner, MD, Medical Director, Nebraska Regional Poison Center
Subject: Timing of acetaminophen levels in overdose patients
Date: 4/20/15

- A recent study found that most patients with early presentation after APAP overdose had blood drawn too soon to be interpreted using the Rumack-Matthew nomogram.
 - Many patients have an APAP level done at 1-2 hours, but then need to have it repeated.
- When patients are seen after acute acetaminophen (APAP) overdose with a known ingestion time, the nomogram predicts the risk of liver injury. However the nomogram should only be used to interpret APAP levels that were drawn ≥ 4 (and < 24) hours post-ingestion.
- When a patient arrives after a suspected overdose, it's understandable that providers want to order needed blood work as soon as possible.
 - If APAP level is included in a standardized order set for suspected overdose patients, consider obtaining it separately at 4 hours post-ingestion rather than with routine labs.
- In early-presenting patients, it is more cost effective to wait until 4 hours post-ingestion before obtaining the APAP level.
- If the ingestion occurred over a period of hours, the poison center can assist in determining if use of the nomogram is appropriate or the patient should just be treated empirically (see below).
- **If the time of ingestion is unknown or uncertain or occurred over a period > 4 hours it is appropriate to draw an APAP level when the patient arrives.**
 - In such cases we recommend treatment with N-acetylcysteine (NAC) if APAP is > 10 mcg/mL or liver enzymes (ALT, AST) are elevated.
 - Note that therapeutic range should not be used to interpret APAP levels in patients with suspected overdose.
- Once the decision has been made to treat with NAC it is not necessary to obtain serial levels (as would be done with salicylate overdose).
 - However, we do recommend that providers make sure the APAP is < 10 before stopping NAC treatment.
- If you would like to receive future updates by e-mail or have any questions about the points discussed above, please contact rkirschner@nebraskamed.com.

Reference: Seifert SA. Acetaminophen levels prior to 4 hours: Don't just do something. Stand there! *Clin Toxicol* 2014; 52: 696 (abstract 31).

Our trained staff of nurse specialists in poison information and physician toxicologists is available 24 hours a day to answer your questions and can be reached at 1-800-222-1222.