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Pillbox: Rapid Identification, Reliable Information

Presentation: Adulteration and Contamination: Technologies of the Future
Tuesday, September 22, 2008; 1:00 p.m. to 4:30 p.m.

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Medication identification is a key component in mitigating the 1.5 million adverse drug events which occur annually in the United States. Poison control centers receive over 500,000 medication identification calls annually. A 2008 Nebraska State Board of Pharmacy report found that one-third of pharmacists reported having been involved in a dispensing error in the previous six months, many of which involved an incorrect medication or dose.¹

While a variety of electronic databases exist to assist in the identification of unknown medications, quality standards for images of solid-dosage medications do not exist. Further complications arise from the lack of interoperability between pharmaceutical information systems at various federal agencies. The National Library of Medicine (NLM) at the National Institutes of Health and the Food and Drug Administration (FDA) have established a collaborative relationship to enhance patient safety through the linking of digital images of prescription solid dosage form medications to the Structured Product Labeling (SPL). The NLM is developing a public domain library of high-resolution macro images of solid dosage pharmaceuticals.

The focal point of this initiative is Pillbox, an application which combines pharmaceutical data from the FDA, NLM, and image analysis, enabling rapid identification of unknowns and creating connections across various federal pharmaceutical and chemical information databases. Pillbox's user interface is built on Adobe Flex, which allows a platform-independent rich user experience, based on user profiles generated through field study in a variety of modalities.

Pillbox's images and metadata will be made available at multiple resolutions for various applications and to be a resource for further research. NLM also intends to release the identification and reference system application source code into the open source community or public domain. Areas of innovation currently being explored include emergency response, disaster relief, poison control, clinical practice, anti-counterfeiting, and citizen use. A long-term goal of the project is automated identification of unknowns, based on an image taken with a mobile device.

NLM will present the project and schema, and demonstrate the identification system. Through dialogue with manufacturers and the health information technology community, NLM seeks to encourage participation in this patient-safety initiative and facilitate development of applications based on the data, images, and software.

References:

¹State of Patient Safety in Nebraska Pharmacy. (December 2008). Nebraska State Board of Pharmacy. Available at <http://chrp.creighton.edu/>