Institute for Safe Medication Practices

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ISMP Survey Shows Unnecessary Risks Still Exist with Automated Dispensing Cabinets

Huntingdon Valley, Pa.— Automated dispensing or distribution cabinets (ADCs) can decrease the amount of time before a medication is available for administration, ensure greater security, and reduce the risk of medication errors, but only when specific safeguards are consistently used. A recent survey by the Institute for Safe Medication Practices (ISMP) shows that although use of ADCs has become prevalent in the last decade, safety improvements have been incremental and not as widespread as needed to maximize the benefits that the technology offers.

According to the 800 respondents to the 2007 ADC survey, which was sent to readers of ISMP's acute care and nursing newsletters, 94% are using ADCs in their facilities. Of those, more than half (56%) are using the technology as the primary means of drug distribution. An analysis of the 2007 survey results was published in the January 17, 2008 issue of the *ISMP Medication Safety Alert!* newsletter. The analysis compares data from ISMP's 2007 and 1999 ADC surveys and highlights areas of concern.

Survey Findings of Concern

Checking Processes. The requirement for a pharmacist to check ADC stock medications before they leave the pharmacy increased from 65% in 1999 to 75% in 2007. However, no improvement was seen regarding verification processes after restocking. In both years, just 18% of respondents reported that another person verifies drug placement in the ADC. Requiring another practitioner to double-check a drug removed via an override, before pharmacy review, only increased by 10%. These manual checking processes are important to prevent stocking and/or wrong drug retrieval errors, similar to the events occurring in Indianapolis and Los Angeles that led to harmful 1,000-fold heparin overdoses in neonates.

Pharmacist Review and Overrides. In 1999, only 28% of respondents reported that a pharmacist must verify orders before drugs can be removed from ADCs, but in 2007, that percentage increased to 64%. However, just 59% of 2007 respondents reported that all ADCs in their facilities are capable of profiling, which provides a direct interface between the pharmacy information system and ADCs so that pharmacists can profile, screen, and approve medications before they are removed from the cabinet for administration.

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Cabinet Design. An increase by 20 percentage points occurred between 1999 and 2007 regarding the user's ability to remove only the requested drug from the ADC. Nevertheless, just 50% of respondents noted that individual compartments for each drug are always or frequently available in the ADC cabinets.

ADC Stock. In both 1999 and 2007, 35% of respondents reported that they always or frequently encounter multiple concentrations of medications in ADCs. In 2007, respondents also reported that they encounter fewer ready-to-administer medications in ADCs than reported in 1999. Almost a quarter (23%) of 2007 respondents reported that non-medications are being stored in ADCs, a 15% increase from 1999.

Workflow and Practice Habits. In 2007, additional questions were added to the ADC regarding workflow and practice habits. Almost a third (30%) of frontline nurses reported that they always or frequently wait in line to access the ADC, and almost half (48%) reported that the ADCs are not located in areas free from distractions. Only two-thirds (69%) of frontline nurses reported that they always or frequently remove just one patient's medication at a time, implying that multiple patients' medications are removed one-third of the time—a practice that is known to lead to drug administration errors.

Draft ADC Safety Guidelines

Few resources exist to guide healthcare organizations toward best practices and safest use of this technology. To address this deficit, ISMP convened a group of stakeholders in spring 2007 to develop ADC practice guidelines. The draft guidelines, which contain 12 core processes associated with safe ADC use, are posted at http://www.ismp.org/tools/guidelines/labelFormats/comments/default.asp Practitioners are encouraged to review the guidelines and core processes and attempt to employ as many as possible this year to reduce the risk of serious errors associated with ADC use.

For a copy of the full *ISMP Medication Safety Alert!* newsletter article on the survey, visit http://www.ismp.org/Newsletters/acutecare/articles/20080117.asp. For interviews with ISMP experts on ADC safety issues, contact Renee Brehio at 704-831-8822 or rbrehio@ismp.org.

About ISMP: The Institute for Safe Medication Practices (ISMP) is a 501c(3) nonprofit organization that works closely with healthcare practitioners and institutions, regulatory agencies, consumers, and professional organizations to provide education about medication errors and their prevention. ISMP represents more than 30 years of experience in helping healthcare practitioners keep patients safe, and continues to lead efforts to improve the medication use process.

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