

This series brings you up-to-date information about medication safety and strategies to prevent medication errors. It draws on Australian incidents and US experience, including (with permission) material from ISMP Medication Safety Alert! a bulletin published by the Institute for Safe Medication Practices <www.ismp.org>. This series is coordinated via the Committee of Specialty Practice in Medication Safety (Chair, Rosemary Burke, Director of Pharmacy, Concord Hospital, NSW). Australian incidents are collated and editorial recommendations made by Penny Thornton (Pharmacy Services Manager, The Children's Hospital, NSW; <pennyt2@chw.edu.au>).

AUSTRALIAN INCIDENTS

Sound-alike, write-alike, Methyl Max confusion!

A specialist physician in metabolic disease at a large Australian hospital has found it necessary to alert patients to possible confusion with Methyl Max products. As pharmacists, our dispensing or advising of the correct product is extremely vulnerable as not only are these products a potential cause of sound-alike confusion, even handwritten or computer-generated prescriptions may be confused. For homocysteine reduction: Methyl-Max capsules (NutriWest) – pyridoxine, folic acid, vitamin B12 and betaine; (Tyler Encapsulations) – betaine, vitamin B6, vitamin B12, vitamin B6 and folic acid; (Fit BioCeuticals) – folic acid, vitamin B12, vitamin B6 and serine; and (Sanesco) – enteric coated s-adenosyl methionine. For fat-reduction: QSE Hardcore Methyl Max (BeFit) – six different sources of methylxanthines. Online shopping malls such as <WellnessWorks.net> enable purchasing of non-scheduled medication from multiple sources not just those listed with the Australian Therapeutics Good Administration. In patients who need these supplements for therapeutic stability it can give rise to much confusion. For patients with homocystinuria, purchasing the wrong Methyl-Max could be an error with severe consequences.



[Australian Incident 91, August 2008]

e-Prescribing error – difficult to amend

Without full computerised physician order entry functionality a medication summary entered as text may be the cause of repeated error if mis-recording is not easily amended. A patient's emergency department's summary in the e-medical record had not been amended and read 'risperidone 25 mg bd' on the entry for the

current episode of care. However, the emergency department summary entered two months earlier had recorded the correct medication 'Seroquel 25 mg bd'. So, although the correct information was available on file and his carer would certainly have known what he was taking, the incorrect order was made. All the other medications entered for this episode were correct so it could have been a documentation error that was compounded by the mistake being copied into the next document. This overdose was not administered but the record remained. When the pharmacist discovered the incorrect entry it was found that only the actual prescriber (who had gone off duty) could amend the entry. Clearly, a current medication list should be part of any medication history that can be reviewed and amended by authorised personnel as part of reconciliation on admission and discharge, as well as subsequent visits. This is even more crucial if the record is maintained so we have a complete picture of what a patient is taking, especially if they are seeing several consultants in different places and getting prescriptions dispensed from multiple places. A pharmacist entry of amendments to prescriptions dispensed on discharge is essential to this process, so that an accurate record of current medication is available at each contact with the hospital.

[Australian Incident 92, August 2008]

Compatibility issues when using burettes for IV administration

Intravenous Timentin was given via a burette followed by a 20 mL flush. After the flush had finished, intravenous vancomycin was given. About 10 minutes before the infusion would have finished the nurse went in to check on the patient. She noticed that the fluid in the burette was cloudy. She stopped the infusion and noticed that the fluid in the line was also cloudy. She immediately disconnected the line, withdrew 3 mL from the line and connected a new line and bag. The resident on duty was contacted, and she was told that it should not cause any problems – nil further action. Even if physical incompatibility is recognised and a flush used to clear the line, clinicians should understand that burettes retain medication within their structure and there are many reports of visible interaction with subsequently administered medication. It is concerning to speculate how many interactions occur in this manner without being visually evident.

Recommendation: Burettes are suitable for administration of single drug solutions. If successive drugs are to be given by short-term infusion or as additives into the burette, consider a separate container for each additive, such as a minibag or pre-loaded syringe. Opportunities for contamination also exist when an in-line burette is used for multiple drug administration over a period of time.

[Australian Incident 93, September 2008]

Nurse gave lethal dose of insulin, Coroner's Court hears

A patient was planning to stay at the local nursing home for as long as it took to recuperate from one operation and prepare for the next operation, before returning to live with his daughter. As it happened, the diabetic 81-year-old was there less than 3 days before he died after receiving a lethal dose of insulin. In September 2006, he was admitted to the nursing home from his local hospital, and he was meant to receive 8 units of insulin in the morning and 6 units at night. Two days later a nurse allegedly administered 10 times his dose of insulin after incorrectly reading a medication chart written up by the patient's general practitioner. That medication chart has become the subject of an inquest into the patient's death. The Coroner's Court was crowded with barristers angling to deflect blame from their clients and implicitly onto others. They represented the patient's family, the nurses who administered his insulin, the nursing home, the general practitioner who wrote the medication chart, the hospital where he was declared dead and the doctor who finally attended to him. The court heard that the patient's general practitioner wrote charts for 15 different medications he was to receive while in the nursing home, including insulin. A document tendered to the court indicated that the doctor had written what looked like '80 mane and 60 nocte'. The nurse who originally tended to the patient's medication, administered the correct amounts of 8 units in the morning and 6 at night, saying she read the zero as 'u', which she took to mean units. Patients did not usually receive more than 30 units of insulin, she said, and she would have checked with her supervisor if she believed she was to give him as much as 60 units. The court heard that a subsequent nurse, gave the patient 60 units of insulin. The inquest continues. This story is available from <www.smh.com.au/articles/2008/10/20/1224351155248.html>.

Reminder: In August 2008, the drug committee at the hospital recommended that the following guidelines should be used when prescribing insulin:

- the word 'units' should be written in full and 'U' should **not** be used; and
- the word 'units' should be written underneath the number and **not** next to it.

[Australian Incident 94, October 2008]

Look-alike, sound-alike errors: an update

Prescribing, dispensing and administering medications are complex processes, requiring time, skill, knowledge and concentration. They are also processes where errors occur. Many factors contribute to the selection and/or administration of the wrong medication but one common factor is that of look-alike, sound-alike (LASA) drug names. LASA drug names may be similar to read, leading to an incorrect interpretation of a written order, or may sound alike, leading to verbal orders being misheard, resulting in the wrong drug being prescribed, dispensed or administered. In this hospital, 40% of the reported incidents of patients receiving the wrong medication are attributable to LASA drug names. Some examples of the incidents are similar sounding names:

- patient ordered valaciclovir, pharmacy dispensed valganciclovir;
- patient prescribed oxycontin (sustained-release oxycodone), patient given MS Contin (sustained-release morphine);

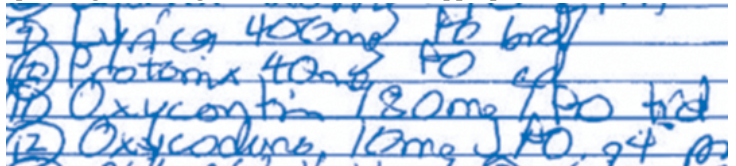
- patient prescribed oxycontin (sustained-release oxycodone), nurse administered Oxynorm (immediate-release oxycodone);
- patient told admitting doctor he took Imodium (loperamide) for diarrhoea four times a day *prn*, doctor prescribed Imdur (isosorbide mononitrate) for angina four times a day *prn*;
- patient prescribed mexiletine, over the weekend the ward administered perhexilene;
- patient given Zyprexa (olanzapine), when he was actually requesting Zyrtec (cetirizine);
- doctor prescribed Minax (metoprolol), pharmacist endorsed the chart with minocycline;
- patient taking over-the-counter Nurofen, doctor prescribes Nurofen on the medication chart. Nurofen is not the brand of ibuprofen kept by the hospital nor is it normally prescribed this way. The ward has a number of chronic pain patients using Neurontin (gabapentin). The nurse administered neurotin;
- Nurofen 400 mg tds was written as Neurofen 400 mg tds, this was misinterpreted from a poor yellow carbon copy of the medication chart and the pharmacy dispensed Neurontin 400 mg tds; and
- ampoules removed from their packaging can look similar, e.g. atropine and suxamethonium.

[Australian Incident 95, September 2008]

US SAFETY BRIEFS

Tail of the letter g

A physician wrote an order for Oxycontin (oxycodone) tid and oxycodone every 4 hours *prn* for a 53-year-old hospitalised patient's pain management. The pharmacist read the Oxycontin dose as 180 mg. Before dispensing such a large dose, the pharmacist reviewed the patient's list of medications taken at home. Although the patient was not taking oxycodone at home, the record showed that the patient had a history of requiring increasingly high doses of narcotics to treat her pain. Thus, the pharmacist concluded that the dose of 180 mg tid, although very high, was not unreasonable. After the patient received the first 180 mg dose, her physician noticed that she was lethargic. While reviewing the patient's medical record, the physician also noticed pulse oximetry readings between 86 to 90%. On inspection of the medication administration record, he noticed the error. The physician had prescribed Oxycontin 80 mg, not 180 mg tid. However, the tail of the 'g' from 'mg' in the Protonix 40 mg order on the line above Oxycontin looked like the number '1'. This led the pharmacist to view the Oxycontin dose as 180 mg. The patient only received the incorrect dose once, so medical intervention was not needed as subsequent pulse oximetry readings quickly rose to within normal limits. According to the Oxycontin package insert, special safety considerations must be addressed when prescribing Oxycontin doses greater than or equal to 160 mg every 12 hours. The package insert also suggests that it is appropriate to increase the amount of the q-12 hour dose but not the dosing frequency. However, individualised doses for opioid-tolerant patients can be quite high, making it difficult to assess appropriateness.



In this case, the pharmacist might have picked up the error based on the prescribed oxycodone dose for breakthrough pain – 10 mg – which was less than 2% of what he thought was the daily base dose (180 mg tid or 540 mg). Doses for breakthrough pain vary but are usually higher than 2% of the base dose. This error demonstrates a frequent problem – misinterpretation of handwritten orders, including legible orders. Pre-printed orders and e-prescribing can significantly reduce the risk of misinterpreted orders. This error clearly shows why healthcare facilities need to move in this direction.

[ISMP Medication Safety Alert! 23 October 2008]

Just a FLUke?

A float nurse working in a hospital inpatient area saw an order for influenza vaccine on her patient's medication administration record. She recalled a recent memo informing nurses that the vaccine would be stored in the automated dispensing cabinet to help assure that a patient would not miss receiving the vaccine when it was ordered to be given at discharge. The nurse looked but could not find the influenza vaccine. She was unaware that pharmacy staff had removed the vaccines in response to a recall of unit-dose syringes of the product because of an incorrect needle attachment. However, she did find another drug that appeared to be 'flu' vaccine and used the override feature of the automated dispensing cabinet to obtain this medication. Luckily, the nurse asked a pharmacist who was on the unit, 'Once I draw up the dose, do I just put the rest of the flu vaccine back in the cabinet?' Knowing that there were no vials of the vaccine on patient care units, the pharmacist looked at the vial and found that the nurse had drawn up 0.5 mL of flumazenil. The safest practice is to have pharmacy dispense vaccines when they are ordered. If the vaccine is kept in an automated dispensing cabinet with other drugs that start with 'flu' be aware of the risk for confusion when drug names appear sequentially on selection screens, and consider whether warnings to alert users to possible errors would be helpful. While it may be appropriate to remove a vial of flumazenil from an automated dispensing cabinet via override, nurses should not remove vaccines from an automated dispensing cabinet before the order has been reviewed by a pharmacist. The need to override the automated dispensing cabinet to obtain a dose can signal an error; so can removal of a drug thought to be a vaccine from non-refrigerated sections of an automated dispensing cabinet. One final point, if products are removed from unit stock due to a recall, pharmacy should post a note to indicate why the designated storage area is empty.

ISMP Medication Safety Alert! 23 October 2008]

Standard colours for wristbands

We were very happy to learn that the American Heart Association has taken steps to nationalise a colour-code system for patient wristbands. In 2006 we described a hospitalised patient with a history of an anaphylactic reaction to latex. The patient was given a green bracelet, which at that hospital, signalled a latex allergy. During his stay, he was transported to an ambulatory diagnostic centre for a test. Staff at that centre were not aware that green wristbands signalled a latex allergy and performed the test using latex-containing vials/syringes. The patient

experienced an anaphylactic reaction and required emergency medical treatment. The Pennsylvania Patient Safety Reporting System reported on a patient who had been incorrectly identified as 'do not resuscitate' during an arrest. A nurse had mistakenly placed a yellow wristband on the patient, which at that hospital signalled a 'do not resuscitate' status. The nurse worked at another hospital in which yellow wristbands were used to identify a 'restricted extremity' that should not be used for drawing lab studies or intravenous access. Luckily, the mistake was quickly realised and the patient was rescued. The American Heart Association is asking all hospitals to consider using three standardised colours for alert wristbands to improve patient safety – red for patient allergies; yellow for a fall risk; and purple for do-not-resuscitate patient preferences. Several states have already adopted these colours by consensus.

[ISMP Medication Safety Alert! 25 September 2008]

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