IRISH MEDICATION SAFETY NETWORK

# Briefing Document on
# Sound-Alike Look-Alike Drugs (SALADs)

**About the IMSN**
The Irish Medication Safety Network (IMSN) is an independent group of pharmacists and other specialists working in the acute sector, whose principal aim is to improve patient safety with regard to the use of medicines through collaboration, shared learning and action.

The Irish Medication Safety Network can be contacted via irishmedsafety@gmail.com

## Background

Can you read the following sentence?

> "it deosn't mttaer in waht oredr the ltteers in a wrod are the olny iprmoatnt tihng is taht the frist and lsat ltteer are in the rghit pcale"

Surprisingly, many people can. This may explain why the following similar-sounding drug-name pairs were frequently involved in errors/near misses in a recent survey of Irish hospitals.

**Table 1**

| | |
|---|---|
| Actimel® / Actonel® | Losec® / Lasix® |
| Amiodarone / Amlodipine | Nicorette® / Nitroderm® |
| Anexate® / Anectine® | Nimodipine / Nifedipine |
| Carbamazepine / Carbimazole | Novomix® / Novorapid® |
| Casodex® / Codalax® | Omacor® / Omesar® |
| Dipyridamole / Disopyramide | Oxynorm® / Oxycontin® |
| Lanoxin® / Naloxone | Senokot® / Seroxat® |
| | Zestril® / Xatral® |

### Mix-ups between Sound-Alike Look-Alike Drugs (SALADs)

Mix-ups between SALADs is one of the leading causes of medication error according to the WHO Collaborating Centre for Patient Safety Solutions[1] (See Figure 1).

**Figure 1**
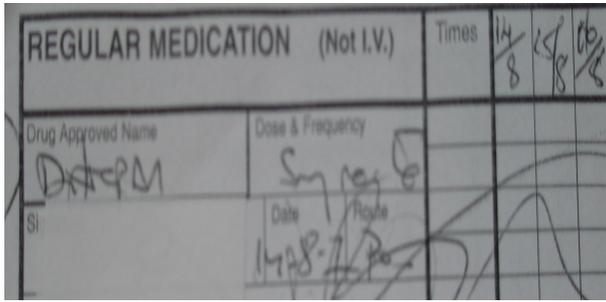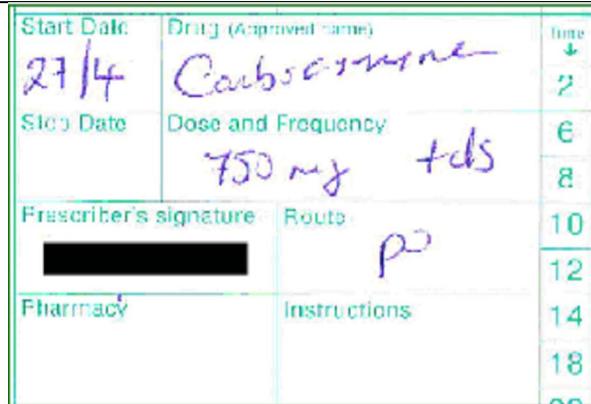


| Ditropan or Diazepam? | Carbocisteine or Carbamazepine? |
|---|---|

### Example 1[2]

A patient, in the course of treatment in an acute hospital, was given parenteral morphine. The patient was sensitive to the drug and developed respiratory depression. The patient's doctor called in an order for an ampoule of naloxone to be administered. A dose was prepared from ward stock and given but there was no response. A repeat order for a second ampoule of naloxone was also given and again the patient showed no improvement. The nurse then questioned the doctor; "How much of this Lanoxin do you want me to give?"

Instead of NaLoxone, the nurse heard LaNoxin. The patient subsequently died. Contributing to the error, the nurse had not repeated back the verbal order to the doctor, and the doctor had prescribed an ampoule of the drug rather than a metric weight dose. The nurse had accepted the incomplete order and administered an ampoule of LANOXIN® (digoxin) both times.

**Example 2**

On admission to hospital for a Lower Respiratory Tract Infection, a patient's Carbocisteine 750mg tds po dose was illegibly prescribed by a Medical Registrar. It was interpreted correctly by pharmacy staff who supplied Carbocisteine liquid and endorsed the drug chart with 'liquid supplied'. However nursing staff misinterpreted both the doctor's prescription and the pharmacist's instruction and administered Carbamazepine liquid for 5 days.

5 days later, the patient, whose condition had deteriorated significantly, was admitted to a second ward where the drug chart was transcribed by an Intern as Carbamazepine 750mg tds po. A pharmacist queried both the dose and indication for the Carbamazepine. It emerged that the intern had assumed that the patient was epileptic and was stabilised on this dose of Carbamazepine prior to admission. However, given that the patient's condition had deteriorated seriously and could be attributable to the high Carbamazepine dose, the intern contacted the GP for clarification. It was confirmed that the GP had commenced Carbocisteine the previous week as a mucolytic and that the patient was neither epileptic nor on Carbamazepine. The prescription was immediately stopped and the patient recovered fully over the following week.

**Drug names**

Over 7,000 human medicines are currently authorised by the Irish Medicines Board (IMB) for use in Ireland[3]. Most of these have both a generic and brand name, giving doctors, nurses, pharmacists, patients and carers over 14,000 drug names to deal with. And this is before unlicensed medicines, nutritional products and borderline products are taken into account. There is also an increasing number of 'branded generics' on the Irish market. For example pravastatin can currently be prescribed using eight different names, and fluoxetine by nine different names.

**Combination Products**

Recent years have seen a proliferation of combination products with multiple combinations of active ingredients, e.g. Avandamet® 1mg/500mg, 2mg/500mg, 2mg/1000mg and 4mg/1000mg. Lack of familiarity with the range of strength combinations may lead to incomplete prescribing (e.g. Avandamet® 2mg), which can lead to a variance in the product given to the patient. Other examples include Fosavance® 70/2800 and 70/5600, Co-Diovan® 160/12.5, 160/25, 320/12.5 and 320/25.

**Modified Release Products**

Confusion often arises when prescribing a drug that is available in different formulations, e.g. Diamicron® and Diamicron MR®.

**Look-Alike Packaging**

Look-alike packaging is also recognised as a serious problem. The examples shown in Figure 2, highlight the visual similarities between packaging of some medicines.

**Figure 2**

## Discussion points

**Practical Steps That Can Be Taken**

With an ever increasing number of medicines available each year, what steps can health-care professionals take to reduce the risks with SALADs?

**Nursing Staff, Prescribers and Pharmacy Staff**
- Encourage patients and carers to ask if they are unsure about any aspect of their medicine.
- Include the patient in the final check when administering medications. Ask them to confirm the indication and appearance of the medicine where possible.
- Minimise the use of verbal communication of medication lists/details. If verbal communication is necessary, write down and read back the entire medication list at the end of the conversation for verification.
- Address SALAD pair mix-ups during staff orientation, at educational talks and in Continuing Professional Development programs.
- Implement a 'Purchasing for Safety Policy'. When ordering a new medicine, consider potential for SALAD mix-ups.
- Inform the IMB and relevant drug manufacturers of serious/potentially serious SALAD mix-ups.
- Provide patients with a printed list of their medicines including the indication for each.

**Prescribers** [4,5].
- Write the full drug name when prescribing – never abbreviate.
- Specify the exact dose on the prescription – never use 'as directed'.
- Consider 'tall man' lettering e.g. OxyCONTIN®, OxyNORM® on prescriptions/labels etc. to identify key differences in high-alert SALAD pair names.

**Pharmacy Staff**[1]
- Develop strategies to accommodate patients with sight impairment, language differences and limited knowledge of health care.
- Provide patient information leaflets in other languages if available.
- Always include full directions on labels – not just 'as directed'.
- Inform regulatory bodies and manufacturers of potential SALAD issues as they are identified.
- Users of electronic databases should consider the proximity of SALAD medicines on drug data files.
- Store SALAD medicines in separate locations with high-alert shelf markings.

**Multi-Disciplinary Teams/Management**[6,7,8]
- Ensure that a list of SALAD pairs that are used in your organisation is published at least annually and distributed to front-line staff & clinical areas.
- Review design of Hospital Prescription Forms – Increase paper size to at least A4 to allow adequate space for completion.
- Consider changing to electronically produced prescriptions where possible.
- Create an agreed policy on what abbreviations are allowed in your organisation e.g. National Hospitals Office Code of Practice for Healthcare Records Management. Abbreviations. Audit adherence to this policy regularly.
- Incorporate Medicines Reconciliation in high risk processes such as admission to and discharge from hospital.

## References

1 Look-Alike, Sound-Alike Medication Names, WHO Collaborating Centre for Patient Safety Solutions, volume 1, solution 1, May 2007 (accessed 7 May 2010). Available at http://www.ccforpatientsafety.org/common/pdfs/fpdf/Presskit/PS-Solution1.pdf

2 ISMP Medication Safety Alert! Acute Care (ISSN 1550-6312) ©2009 Institute for Safe Medication Practices (ISMP). Volume 14 Issue 15 July 30, 2009.

3 Irish Medicines Board Annual Report 2006 (accessed 25 March 2009). Available at http://www.imb.ie/images/uploaded/documents/IMB%20Annual%20Report%20final.pdf

4 Use of Tall Man Lettering is gaining wide Acceptance, Institute for safe Medication Practice, July 31, 2008 (accessed 11 Nov 2009). Available at http://www.ismp.org/newsletters/acutecare/articles/20080731.asp

5 Medicine labelling: Name differentiation designs for generic cephalosporin products, MHRA (accessed 11 November 2009). Available at http://www.mhra.gov.uk/home/idcplg?IdcService=SS_GET_PAGE&ssDocName=CON06266 78

6 NPSA Designs for patient safety documents. Available at http://www.nrls.npsa.nhs.uk/resources/collections/design-for-patient-safety

7 National Hospitals Office Code of Practice for Healthcare Records Management. Abbreviations, June 2007 (accessed 11 Nov 2009). Available at http://www.hse.ie/eng/services/Publications/services/Hospitals/NHO_Abbreviations_Booklet.pdf

8 Building a Culture of Patient Safety. Report of the Commission of Patient safety and Quality Assurance July 2008 (accessed 2 March 2010). Available at http://www.cpsqa.ie/publications/pdf/patientsafety.pdf