

# Medication Safety Alert

## Amphotericin



### Safe Practice Recommendation No. 05

#### ***Administration of a non-lipid formulation of intravenous amphotericin where a lipid formulation has been prescribed can be fatal***

Amphotericin is used in the treatment of systemic fungal infections. Intravenous amphotericin is available in non-lipid and lipid formulations. In the United Kingdom, there have been two recent sentinel events associated with administration of the wrong formulation of amphotericin. Additionally, numerous near misses have been reported internationally.

Four types of errors have been reported: mis-selection of amphotericin formulation, dose miscalculation, dose preparation error, and administration error.

Intravenous amphotericin is available in four different formulations: non-lipid deoxycholate complex (Fungizone<sup>®</sup>), cholesteryl sulfate complex (Amphocil<sup>®</sup>), lipid complex (Abelcet<sup>®</sup>) and liposomal (AmBisome<sup>®</sup>). The dosage recommendations for these preparations range from 0.25-5mg/kg daily. Administration of the incorrect intravenous amphotericin can lead to:

- Excessive or sub-therapeutic dosing due to the different dose recommendations for each product;
- Patients experiencing potentially lethal side effects, including renal failure, cardiovascular toxicity, arrhythmias, ventricular fibrillation, cardiac arrest, cardiac failure, shock, haemorrhagic gastroenteritis, encephalopathy; convulsions, acute hepatic failure, dyspnoea, bronchospasm.

Slade Pharmacy recommends the following action to reduce the risk of error with intravenous amphotericin. They are based on recommendations by The Institute of Safe Medication Practice Canada and the National Patient Safety Agency United Kingdom.

#### **1. Undertake an immediate awareness campaign regarding the potential risks with intravenous amphotericin.**

Pharmacy managers and hospital management should ensure all medical, nursing and pharmacy staff involved in the prescribing, preparation, supply and administration of intravenous amphotericin are aware of the potential risks.

Only healthcare staff that have been trained can be involved in prescribing, administering and monitoring intravenous amphotericin.

#### **2. All intravenous amphotericin products must be labelled with a prominent warning label stating "CAUTION – Check formulation and dose prescribed".**

#### **3. All prescribing, dispensing and supply of intravenous amphotericin products must include both the complete generic and the proprietary name:**

- "non-lipid amphotericin (Fungizone)"
- "liposomal amphotericin (AmBisome)"
- "lipid complex amphotericin (Abelcet)"
- "cholesteryl sulphate complex amphotericin (Amphocil)"

#### **4. Details of the patient weight and dose calculation must be included as part of the prescription or medication order on the drug chart.**

#### **5. Healthcare staff must verify the dose of intravenous amphotericin prior to prescribing, dispensing and/or administering.**

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### **6. Staff administering intravenous amphotericin must use formal checking procedures**

- This should include a 'time out' involving at least two health professionals
- The patient identifiers, drug, dose, volume, route and rate should be verified against the medication order immediately prior to administration
- Both health professionals should then sign the order

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## Schedule 8 Medicine Selection Errors



### Safe Practice Recommendation No. 06

A recent report released by the Victorian Quality Use of Medicines Network has identified an increased prevalence of medication errors involving selection and administration of Schedule 8 medications, Australia wide. The medications most frequently involved are oral dose forms of morphine and oxycodone. In response to this report, Slade Pharmacy recommends the following action to reduce the risk of selection error in the dispensing, supply and administration of Schedule 8 medications.

1. A Schedule 8 medicine identification chart to be displayed prominently near all Drug of Addiction Safes in the pharmacy and throughout the hospital. Slade Pharmacy has developed a chart for oral dose forms of oxycodone and morphine products, which is attached.
2. Awareness and understanding of the coloured Schedule 8 medicine identification charts posted near the Drug of Addiction Safe that outlines the clear difference between the products.
3. Clear and consistent annotation of the medication therapy chart by pharmacists. Some appropriate examples include;

Prescription	Pharmacist Annotation
Oxynorm	Oxycodone capsule (can be substituted with Endone depending on ward imprest)
Oxycodone IR	Oxycodone capsule (can be substituted with Endone depending on ward imprest)
Oxycontin	Oxycodone sustained release tablet
Oxycodone SR	Oxycontin tablet
MS Contin	Morphine sustained release tablet
Morphine SR	MS Contin sustained release tablet (can be substituted with Kapanol sustained release capsule depending on ward imprest)

4. Prescribers should avoid abbreviating medication orders to 'Contin' when ordering Oxycontin or MS Contin.
5. Where the National Inpatient Medication Chart is used, the prescriber should be encouraged to tick the "Sustained Release" box where appropriate.
6. A thorough and detailed patient medication history on admission should be carried out to ensure the correct form is prescribed for continued therapy.
7. The checking process for administration of any Schedule 8 medicine should be carried out by two nurses at the Drug of Addiction safe AND at the patient's bedside. All checks must be carried out against the original medication order.
8. The range of Schedule 8 medications available on imprest should be rationalised and minimised so as to still allow for appropriate therapeutic choice but to minimise the risk of confusion and occurrence of mis-selection. Examples include:
  - Endone as the only form of immediate release oxycodone (no Oxynorm available on imprest).

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## Schedule 8 Medicine Selection Errors



- Kapanol as the only form of modified/sustained release morphine sulfate in some high use areas (no MS Contin available on imprest in these locations). This has been successfully implemented in some institutions Australia wide.
9. Continual understanding and vigilance in administration with respects to look alike sound alike medications. This can be employed through regular and informative education sessions.

# Schedule 8 Medication Identification Chart

Please check ALL orders carefully to see which product is required.

Trade (Brand) Name	Presentations & Strengths Available
<b>OXYCODONE containing products</b>	
<b>Endone</b> <sup>®</sup> 	<b>Tablets - Immediate Release</b> 5 mg
<b>Oxycontin</b> <sup>®</sup> Should be swallowed whole –not cut, crushed or chewed 	<b>Tablets - Controlled Release</b> 5 mg 10 mg 20 mg 40 mg and 80 mg
<b>Oxynorm</b> <sup>®</sup> 	<b>Capsules - Immediate Release</b> 5 mg 10 mg and 20 mg
<b>MORPHINE containing products</b>	
<b>Anamorph</b> <sup>®</sup> 	<b>Tablets - Immediate Release</b> 30 mg
<b>Kapanol</b> <sup>®</sup> Should be swallowed whole –not crushed or chewed 	<b>Capsules – Controlled Release</b> 10 mg (no image) 20 mg 50 mg and 100 mg
<b>MS Contin</b> <sup>®</sup> Should be swallowed whole –not cut, crushed or chewed 	<b>Tablets - Controlled Release</b> 5 mg 10 mg 15 mg 30 mg 60 mg 100 mg and 200 mg
<b>MS Mono</b> <sup>®</sup> 	<b>Capsules – Controlled Release</b> 30mg 60mg 90mg and 120mg
<b>Sevredol</b> <sup>®</sup> 	<b>Tablets – Immediate Release</b> 10 mg and 20 mg

# List of Similar Names

Similar names contribute to medication errors when they are confused due to poor handwriting, lookalike or sound similar when verbal instructions are given.

Listed below are some examples of where such errors have or may occur. (Generic names are shown in *italics*.)

Achromycin	Aureomycin	Avandia	Avanza
Aclin	Zactin	Avapro	Avapro HCT
Aclin	Alprim	<i>Beclomethasone</i>	<i>Betamethasone</i>
Adalat	Aldomet	<i>Budesonide</i>	<i>Bumetanide</i>
Advantan	Ativan	<i>Calcitriol</i>	Citracal
Aldactone	Aldomet	Caltrate	Carafate
Aldactone	Aldazine	Capoten	Gopten
Aldazine	Amizide	<i>Carbamazepine</i>	<i>Carbimazole</i>
<i>Alfentanil</i>	<i>Remifentanil</i>	<i>Carboplatin</i>	<i>Cisplatin</i>
Alphamox	Amfamox	Cardiprin	Cardizem
<i>Amantadine</i>	<i>Cimetidine</i>	Ceflin	Keflin
<i>Amiloride</i>	<i>Amlodipine</i>	<i>Ceftriaxone</i>	<i>Cefotaxime</i>
<i>Aminophylline</i>	<i>Amitriptyline</i>	<i>Cephalothin</i>	<i>Cephazolin</i>
Amohexal	Atohexal	<i>Chlorpromazine</i>	<i>Clomipramine</i>
<i>Amorolfine</i>	<i>Aminophylline</i>	Cipramil	Ciproxin
<i>Amoxicillin</i>	<i>Ampicillin</i>	Clomiphene	Clomipramine
Anafranil	Largactil	<i>Clomipramine</i>	<i>Imipramine</i>
Anaprox	Aprinox	Cordarone	Cortisone
Anaprox	Aropax	Cycloblastin	Cyklokapron
Anaprox	Avapro	Daonil	Deseril
Apomine	Avomine	Deptran 25	Dothep 25
Aratac	Aropax	Deseril	Desferal
Aropax	Aurorix	Diamicron	Diaformin
Arthrexin	<i>Cephalexin</i>	Didrocal	Didronel
Atarax	Ativan	Differin	Difflam
Atromid	Clomid	<i>Dothiepin</i>	<i>Doxepin</i>
Atropt 1%	Azopt 1%	Endep	Endone
Enoxacin	<i>Enoxaparin</i>	<i>Olanzapine</i>	<i>Omeprazole</i>
<i>Ergotamine</i>	<i>Ergometrine</i>	Optimol	Optrol
<i>Fluoxetine</i>	<i>Paroxetine</i>	Oxycontin	Oxynorm
<i>Folic acid</i>	<i>Fusidic acid</i>	Panafcort	Panafcortelone
<i>Glicazide</i>	<i>Glipizide</i>	Paroven	Proven
<i>Hydralazine</i>	<i>Hydroxyzine</i>	<i>Pethidine</i>	Prothiaden

# List of Similar Names

Hydrea	Hydrene	Pramin	Premarin
Imdur	Imuran	<i>Prednisolone</i>	<i>Prednisone</i>
<i>Imipramine</i>	<i>Trimipramine</i>	<i>Prednisolone</i>	<i>Risperidone</i>
<i>Ketoprofen</i>	<i>Ketotifen</i>	Progout	Prograf
Lamictal	Lamisil	<i>Quinidine</i>	<i>Quinine</i>
Lamictal	Largactil	Rosig	Zomig
Lamictal	Lomotil	Sandimmum	Sandomigran
<i>Lamivudine</i>	<i>Lamotrigine</i>	Seretide	Serevent
Lanoxin	Lanoxin PG	Seroquel	Serzone
<i>Lansoprazole</i>	<i>Omeprazole</i>	<i>Tamoxifen</i>	<i>Tenoxicam</i>
Lasix	Losec	Tegretol	Tegretol CR
Lasix	Lescol	<i>Temazepam</i>	<i>Tenoxicam</i>
Losec	Prozac	Temodal	<i>Tramadol</i>
Lovan	Luvox	<i>Thioridazine</i>	<i>Thyroxine</i>
<i>Madopar</i>	<i>Monodur</i>	Tramal	Trandate
Maxolon	Moxacin	<i>Trimeprazine</i>	<i>Trimipramine</i>
Merieux	Meruvax	Xenical	Xeloda
Midoride	Modizide	Zantac	Zyrtec
Mobilis	Movalis	Zestril	Zyrtec
<i>Moxifloxacin</i>	<i>Norfloxacin</i>	Zinnat	Zinvit
<i>MS Contin</i>	<i>Oxycontin</i>	Zocor	Zoton
Murelax	Nulax	Zocor	Zoloft
Neurontin	Noroxin		

The list has been compiled from reports and complaints received by Slade Pharmacy, the Pharmacy Board of Victoria, Pharmacy Board of Tasmania, Pharmaceutical Council of Western Australia and Pharmaceutical Defence Limited together with the RGH, Daw Park, SA, Pharmacy Bulletin