

# High alert medicines

Dr Cristín Ryan, Royal College of Surgeons in Ireland  
Dr Ahmed Awaisu, College of Pharmacy, Qatar University  
Dr Bridget Javed, College of Pharmacy, Qatar University  
Dr Wessam El Kassem, Hamad Medical Corporation  
Dr Abdul Pallivalapila, Hamad Medical Corporation  
Prof Derek Stewart, Robert Gordon University, Aberdeen  
Ms Alyson Brown, Robert Gordon University, Aberdeen

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# Aim of workshop

The aim of this interactive workshop is to enhance participants' knowledge and understanding of “*high alert*” medicines

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# Learning Outcomes

- Establish what a “*high alert*” medicine is
- Understand why a medicine is considered a “*high alert*” medicine
- Examine current, local policies with regards to ensuring the safe and effective use of “*high alert*” medicines
- Adopt and develop strategies to ensure the safe and effective use of “*high alert*” medicines

# Outline

- **Background:** 10 minute presentation on “*High Alert Medicines*”
- **Cases:** 50 minutes to discuss patient-safety incidents relating to “*High Alert Medicines*”
- **Feedback and discussion:** 30 minutes to discuss policies and strategies

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# What is a “High Alert Medicine”?

- *“Any medicine that bears a heightened risk of causing significant harm to individuals when they are used in error”*
  - Errors are not necessarily more common with these medicines than with others
  - The consequences of errors may be much more devastating than with other medicines
- *“High Alert Medicines”* should therefore be targeted for specific error reduction interventions

# Why target “High-Alert Medicines”?

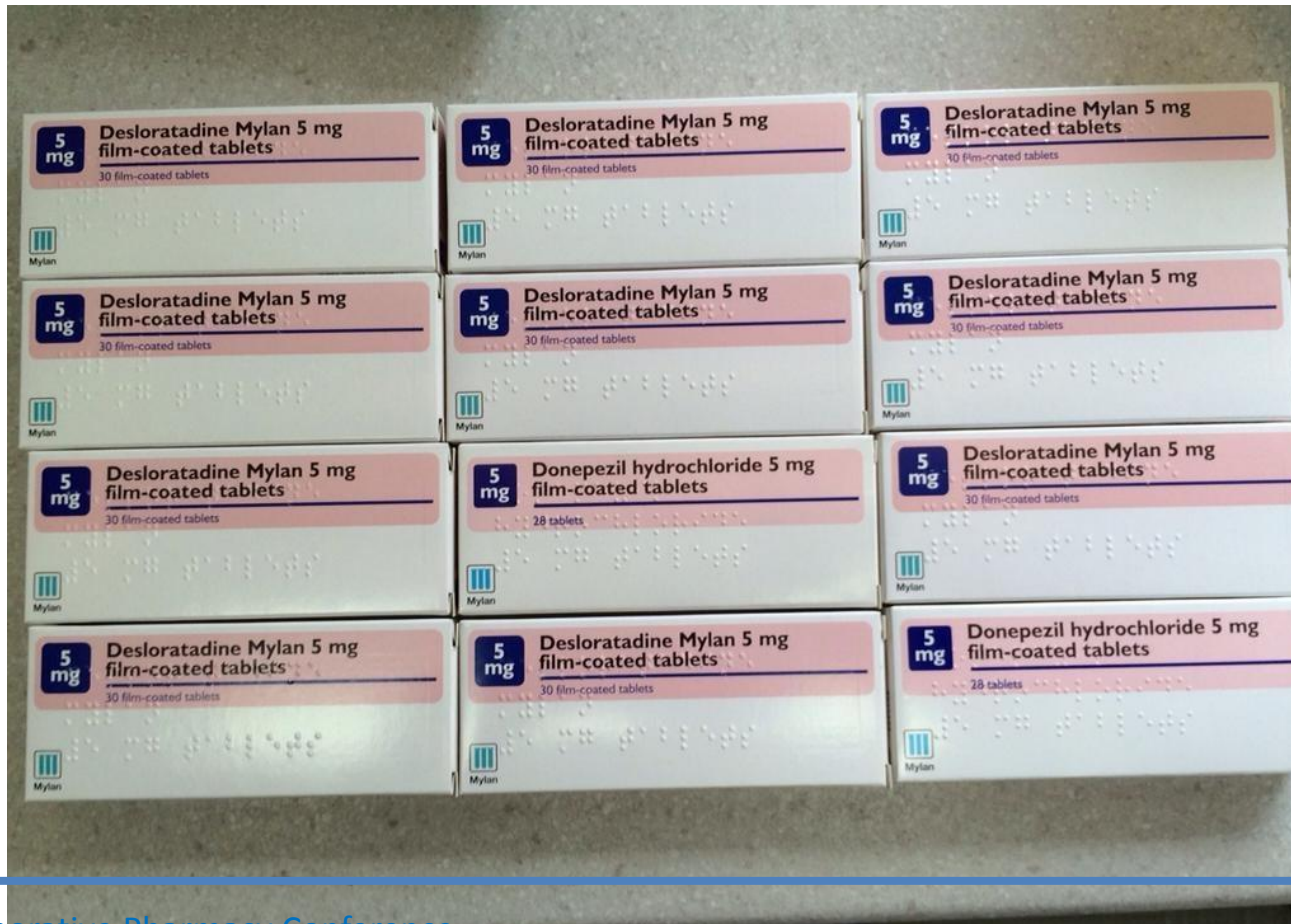
- More than 1.5 million preventable adverse drug events (ADEs) occur each year in the United States
- ADEs are the most frequent single source of healthcare mishaps, continually placing patients at risk of injury
- It is estimated that ADEs account for \$3.5 billion of additional costs incurred by hospitals
- One study found that three high-priority preventable ADEs accounted for 50% of all reports
  - Overdose of anticoagulants or insufficient monitoring and adjustment
  - Overdosing or failure to adjust for drug-drug interactions of opiate agonists
  - Inappropriate dosing or insufficient monitoring of insulins

# Safe-guarding the use of “*High Alert Medicines*”

## Reduce or eliminate the possibility of error

- Reduce the number of “*High Alert Medicines*” in stock
- Remove “*High Alert Medicines*” from clinical areas
- Reduce the available concentrations/ strengths/ volumes
- Standardise dosing procedures
- Use differentiation
  - Use generic names which do not tend to sound alike as often as brand names
  - Separate look-alike/sound-alike medicines on the dispensary shelf
  - Tall man lettering

# Look-alike/sound-alike medicines



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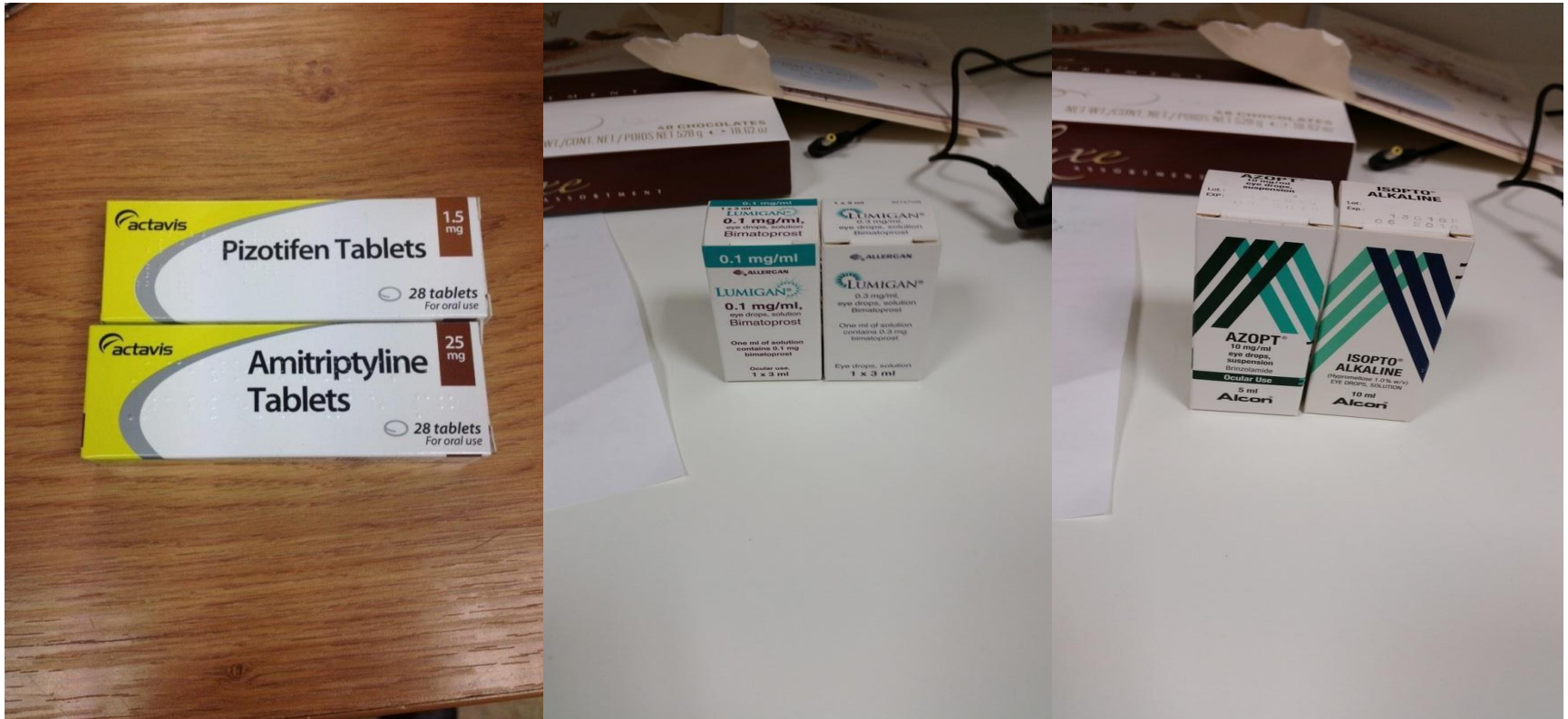
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# Look-alike/sound-alike medicines



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# “Tall-man” lettering

Highlighting sections of drug names using tall man letters (mixed cases) can help distinguish similar drug names making them less prone to mix-ups

Drug Name	Confused Drug Name
aMILoride	amLODIPine
DOPamine	DOBUTamine
ePHEDrine	EPINEPHErine
gliBENClamide	gliCLAZide
MOXifloxacin	mocoNIDINE
Losartan	VALsartan
IRBEsartan	Losartan
LORazepam	ALPRAzolam

# Safe-guarding the use of “*High Alert Medicines*”

## Make potential errors visible

- Have two individuals independently check infusion pump settings for high-alert drugs
- Use reminders
  - Auxiliary labels on high-alert medications
  - Computer screens with warning information about high-alert drugs

# How do medicines become “High Alert”

- The list of “High Alert Medicines” is derived from:
  - Error reports submitted to regulatory authorities e.g. The Institute for Safe Medication Practices National Medication Errors Reporting Programs
  - Reports of harmful errors in the literature
  - Studies that identify the drugs most often involved in harmful errors
  - Input from practitioners and safety experts

Need for regular updating

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# Common high alert medicines

- Insulins
- Anticoagulants
- Narcotics & opiates
- Sedatives
  
- Harm associated with these medicines:
  - hypotension, bleeding hypoglycaemia, delirium, lethargy, over-sedation

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# “High Alert Medicines” process



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# “High Alert Medicines” example 1: Insulin

A physician ordered IV dextrose 50% injection (50 mL) along with 4 units of regular insulin IV (U-100) for a patient with renal failure and severe hyperkalemia.



However, a nurse drew 4 mL (400 units) of insulin into a 10 mL syringe and administered the dose IV.



The patient became severely hypoglycemic and had to be transferred to a critical care unit for treatment and monitoring.

## “High Alert Medicines” example 2: Insulin

A new graduate nurse was asked to prepare a “1:1” insulin infusion (1 unit/mL).



The solution was checked, but the error was not identified.

**Error: 10 mL (1,000 units) of insulin was added to a 10 mL syringe, instead of 1 mL (100 units) in an insulin syringe, and then added that amount to a 100 mL bag of 0.9% sodium chloride.**



This resulted in a 10 units/mL insulin infusion.



When the error was discovered, the patient had already received 160 units of insulin over several hours instead of the prescribed 16 units.



# Suggested improvements to insulin prescribing

- Provide education
- Supply insulin syringes
- Dispense from pharmacy
- Provide reminders
- Conduct an independent double-check
- Monitor patients

# Insulin high alert policy

Common Problems	Key improvements
Other medicines/ excessive doses given	Store other medicines separately
Incorrectly programmed pumps	Require two independent checks of all pump settings
Ordering insulin with only a “U” and not the word “Units”	Use “Units” instead of U
Mix-ups may occur because of sound alike names e.g. humalog/ humalin, multiple types of insulins (e.g. animal/ human) and varying concentrations (U500/ U100)	Care with storage
Given to wrong patient	Nurses should inform patient that they are to receive insulin

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# “High-alert” medicines in HMC



## POLICY/PROCEDURE

TITLE:	HIGH ALERT MEDICATIONS	ORIGINAL DATE: November 2008
IDENTIFICATION NUMBER:	CL 7207	LAST REVISION DATE: December 2014
HOSPITAL(S)	ALL HMC HOSPITALS	NEXT REVIEW DATE: December 2017
		Sheet No. 1 of 3

### 1.0 POLICY STATEMENT:

- 1.1 This policy is formulated for Hamad Medical Corporation Health Care Providers to establish safe medication practices for High Alert medications throughout all clinical areas in order to protect patients from medication errors or significant adverse outcomes.

# “High-alert” medicines in HMC

Medicine	Procedure
Aminophylline/ Theophylline	Monitor drug level periodically (especially for chronic users, elderly and renal patients)
<b>Amiodarone Injection</b>	Double check Dosage Calculation before administration. Question all patients about any potential drug allergies
Insulin products	Do not use “U” as an abbreviation Store each type of insulin separately After dispensing/using insulin, carefully return to the same box/bin it came in
<b>Opiate narcotics</b>	Naloxone must be available in all areas where narcotics, PCA and epidural medication protocols are used

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