errors **Definitions**

Technology-related medication errors – incidence, nature and causes in a tertiary hospital

NR Samaranayake¹, STD Cheung², CMW Chui², BMY Cheung¹

¹Department of Medicine, University of Hong Kong, ²Department of Pharmacy, Queen Mary Hospital, Hong Kong



Analysis of technology-related medication

Incidence and types

Nature and underlying causes

Methods

Technology-related errors - Any error that involved technologies used in hospitals to reduce medication

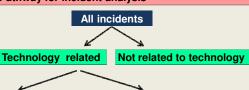
User related errors – Any technology-related error associated with a human failure

Device related errors – Any technology-related error that occurred due to a technical defect of a device

Study process

- 1538 incidents were reported during the period of analysis (2006 - 2010)
- All incidents were reviewed by a pharmacist and technology-related incidents were identified as follows

Pathway for incident analysis



User related errors

Device related errors

Results

Incidence of technology-related errors 17.3% of all incidents were 'technology-

related' and most were due to 'user errors' All incidents 100% 17.3%

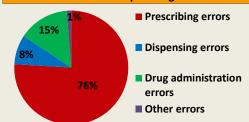
Not related to **Technology** technology related 17.0% 0.3%

errors

User related

errors

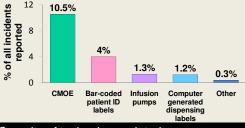
Types of technology-related errors Most technology-related errors were prescribing errors followed by drug administration and dispensing errors



Technologies involved in technology-related errors

Device related

Most technology-related errors were related to computerised medication order entry



Computerised medication order entry (CMOE)

Computer HUNLIN 1 100 UNITS NI. VIALLE generated NCCONDERSISON Days Roph 20 Marks 0 Otyp 20 M dispensing labels

Bar-coded patient identification labels

Automated drug infusion pumps



Severity of technology-related errors

12% of technology-related errors reached the patient and 6.4% caused some form of harm to the patient

Technology related errors (100%)

Reached patient (12%)Stopped before reaching

No harm to patients (5.6%)

Caused some form of harm to patients (6.4%)

Most common underlying causes and their % contribution to the occurrence of technologyrelated errors

Incorrect computer entry (49.2%)

Similar drug name appearance (6%)

Failure to comply with policies and procedures (39.1%)

Device related problems (1.9%) Lack of supervision

(1.1%)

Technologies

the patient (88%)

Computer generated dispensing labels

involved

CMOE

Bar-coded patient ID

Infusion pumps

Conclusions

- Technologies have a potential to introduce new errors
- Most technology-related errors are related to user errors than technical defects
- Common underlying causes were incorrect computer entry and staff not complying to policies and procedures
- When using technological interventions, systems need to be improved in a way that errors cannot happen

Staff training and continuous monitoring are also important to minimise technology-related errors