The Medication Incident Reporting Programme (MIRP) has now been operating for 18 months. Up till present, there are 5 hospitals that have consistently reported zero MI for the past 4 quarters. Hospitals are not expected to report MI for the sake of reporting, instead the MIRP aims to identify areas where improvement can be made. It is perhaps worthwhile to take a closer look at the zero return from these hospitals to examine whether it is zero incident or zero reporting. If it is zero incident, then there must be lessons that these hospitals can perhaps share with others in achieving this ideal outcome. However, if it is zero reporting, then the hospitals should take a more serious approach in their reporting. It should be emphasised again that all colleagues are encouraged to adopt a more positive attitude towards reporting MIs. Workshops in which there are case presentations and analysis can be held with the aims of experience sharing, mutual emotional support and desensitisation towards medication error. Through workshops, areas for alerts, e.g. drugs with similar names can be identified and methods for alerting staff against error-prone procedures and behaviours can be derived. It is hoped that the medication incidents in hospitals can be brought from a “pseudo-zero” incident (i.e. zero reporting) to a true zero incident.

**Discussion:**

We had good response from health professionals on the “Prescription Quiz” which was published in the Issue No. 2 of the MIRP bulletin. The answers to the quiz are given in Figure 1.

Prescribers’ orders which are either illegible, inaudible, ambiguous or incomplete, which may cause or form a major contributing factor in many of the errors made by nurses and pharmacists. Prescriptions/MAR should be written such that the prescriber’s intentions are clear to nurses, pharmacists and medical colleagues.

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**Prescription of the month QUIZ**

“Increase warfarin, 2 mg daily”

What is the drug? Answer: warfarin
List the four errors in the way this prescription is written
1. Unacceptable abbreviation
2. “qd” instead of “once daily”
3. “2.0 mg” should have been “2 mg”
4. Illegible handwriting

Figure 1. Answers to the Prescription of the month Quiz

A poorly communicated order is the seed or fertiliser for errors - sole cause of an error, or the stimulus for the lack of knowledge or poor performance by other health professionals which results in an error. All health professionals have learnt to read most of what is written by doctors. It could be argued that on a ward with a regular throughput of similar patients, the doctor, pharmacist and nurse all know what is the correct practice, or what is meant by an abbreviation. However, this situation does not always apply as staff change jobs or staff from different wards are used. If a word or abbreviation is misinterpreted, a serious incident can occur. Thus any ambiguities on the prescription require clarification.

Improvement in prescription writing will improve the efficiency of the whole system, resulting in pharmacists, nurses and other clinicians being able to do their job quickly, more appropriate use of drugs and less time
being spent sorting out problems. Poor orders can be used as teaching tools, so please save copies of prescription orders and submit them to this office so that we can have similar quiz in the next issue.

Data Analysis

Statistical returns for the period between 1 January and 31 March 1995 were analysed and are presented as follow:

Medication Incidents Information

A) Number of Cases Reported:

There were 34 returns with a total of 3033 cases reported in this bulletin, which is slightly more than the 2699 cases from the last report (34 returns); reflecting positive support from various institutions. A significant proportion of cases is due to contribution from a hospital where over 2000 cases were reported for this quarter (1211 in the previous quarter). Although not all errors are realised or reported, it is possible to create a climate where there is no stigma attached to filling out a form, where instead, staff are encouraged to fill out and file reports whenever necessary. These are essential for indicating the kinds of errors occurring, so that the appropriate measures can be taken for their prevention. By taking an interdisciplinary approach, measurable improvement can be effected to ensure a good system can be made even better. The distribution of in-patient and out-patient cases is shown in Figure 2. The proportion of out-patient incidents rose from 67% in the last report to the present 89%.

B) Type of Staff Involved:

Pharmacy and medical staff were involved in over 90% of medication incidents (Figure 3). By and large the distribution of staff involved is similar to last quarter.

C) Type of Incidents:

The distribution of incidents by error category is shown in Figure 4 which depicts that wrong drug and wrong dose accounts for over 50% of events. These two categories consistently stand out as the most frequent types of error since the implementation of this programme. Wrong dose errors could be due to the lack of knowledge of proper doses and that more than one strength of a drug exists. Health professionals are recommended to read labels 3 times, check the prescription and drug before dispensing and administering to patients. If in doubt, check with another health professional.

D) Underlying Causes:
Figure 5 shows the distribution of events according to underlying causes. Unclear prescription and transcription constantly stand out as the most common underlying causes. Doctors are encouraged to avoid incomplete orders and re-read what they have just written.

E) Patient Outcome:

The majority of cases (96%) were non-patient related which were detected and intervened before medication actually reaches the patients (Figure 6). The clinical significance of most patient-related cases is minimal, with little or no adverse consequence to the patient morbidity.

F) Severity Index of Incidents:

Most of the incidents belonged to index ‘1’ or ‘0’ and are incidents which had occurred without causing injury to patient. 41 incidents have occurred with severity index of ‘2’ or ‘3’ which required monitoring but without injury to patients and 3 cases were of index ‘4’ (Fig. 7). Severity Index is defined as follows:-

6= an incident occurred that resulted in patient death.
5= patient received medication incorrectly and sustained permanent injury
4= patient injured by the error and required either antidote reverse the process or transferred to a higher level of care.
3= patient required increasing monitoring with a change in vital sign as a result of the incident but no ultimate injury.
2= patient required increasing monitoring as a result of the incident but no change in vital sign and no patient injury.
1= incident occurred that did not result in patient injury.
0= incident stopped before reaching the patient.

Case Study 1: Doxorubicin

Description Of Incident

• Doxorubicin was written on a chemotherapy protocol chart for a patient.
• The drug was dispensed and distributed to the ward.
• Doxorubicin 65 mg was administered to the wrong patient by medical staff. As a result, both patients are the victims of medication incidents: one with a missing dose, whilst the other with an unauthorised dose.

Background

• Doxorubicin is an antibiotic antineoplastic which is active against a wide range of tumours. It is used to treat the acute leukaemias, lymphomas and a variety of solid tumours.
• Common toxic effects include GI disturbances, myelosuppression, alopecia, mucositis and dose-related cardiotoxicity which limits the amount that can be given to any patient.

Causes For The Incident

• Not properly checking the dispensed drug against the MAR prepared by others before administering a drug.
**Non-compliance to procedural guideline.**

**Recommendations**
- Utilise a second person to check before administration of drugs especially IV antineoplastic. The traditional double checking reduces the possibility of medication incident.
- Speaking to the patient just before administration of drugs. Educate patients so that they can serve as the final check. In other word, patients can be involved in medication incident prevention.

**Case Study 2: Mix up of Quinine with Quinidine**

**Description Of Incident**
- A prescription was written for Quinidine Bisulphate 300 mg nocte p.o.
- Due to the irregularities of the dosage and time of administration, the prescription was queried by pharmacy staff.
- Prescriber was contacted and the mix up of quinine with quinidine was subsequently discovered and rectified.

**Background**

**Quinine**
- Quinine salts are used in the treatment of falciparum malaria resistant to chloroquine or other antimalarials.
- The adult dosage regimen of quinine by mouth for the treatment of falciparum malaria is 600 mg (of quinine salt) every 8 hours for 7 days (if quinine resistance is not known).
- Quinine salts (200 mg to 300mg) is also given by mouth for the treatment of nocturnal cramp at bedtime.
- Hypersensitivity to quinine or accumulation of quinine from therapeutic doses may produce cinchonism, characterised by tinnitus, impaired hearing, headache, visual disturbance and nausea.
- Overdosage leads to severe ocular, cardiovascular, gastrointestinal and central nervous system toxicity.

**Quinidine**
- Quinidine and its salts are class Ia anti-arrhythmic agents which are used for the management of atrial fibrillation and ventricular and supraventricular arrhythmias.
- They may be used in the treatment of malaria when quinine is not available.
- Quinidine and its salts cause both cardiac and extracardiac adverse effects. They commonly cause GI irritation with nausea, vomiting and diarrhoea.
- Hypersensitivity reactions include blood dyscrasias, hepatotoxicity and lupus erythematosus.
- Adult dose for the suppression of supraventricular tachycardias and ventricular arrhythmias is quinidine sulphate 200-400 mg 3-4 times daily
- Quinidine sulphate 200 mg = quinidine bisulphate 250 mg

**Causes For The Incident**
- The incident was due to confusing drug names which sound and read alike.
- The mix-up was picked up by the pharmacy staff through double checking system and error remedied.

**Recommendations**
- All professional staff should be fully aware of the normal dosage and administration frequency of drugs.
- Unusual prescription should always be verified with the prescriber.
- Hospitals are recommended to draw up a list of drugs that are easily mixed up with periodic review of this list.

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**Complete the Prescription with the Rule of 6**

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>e.g. Salbutamol syrup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route</td>
<td>e.g. po</td>
</tr>
<tr>
<td>Strength</td>
<td>e.g. 2 mg/5ml</td>
</tr>
<tr>
<td>Dose</td>
<td>e.g. one 5ml spoonful</td>
</tr>
<tr>
<td>Frequency</td>
<td>e.g. tid</td>
</tr>
<tr>
<td>Duration</td>
<td>e.g. 7 days</td>
</tr>
</tbody>
</table>

**The Rule of 6 will:**
- minimise interruptions to work flow
- avoid delay in dispensing
- save trouble for everyone

Medication error reduction tips from the Chief Pharmacist’s Office