Learning Objectives

- Describe the importance of identifying and acknowledging medication errors
- Explain the significance of reporting and acting on near misses and incidents
- List the actions that are used to ensure a medication order is safe and complete
- Discuss why a complete and accurate medication history improves patient safety
The Case of Mr L

• An 85-year-old man has been brought into the emergency department with chest pain and breathing difficulties
• You will be presented with the patient's background and asked to answer questions about his case to explore how a serious medication error has occurred
Admission notes

MEDICAL RECORD

Patient's name: Mr L
Sex: M
Date of Birth: 08/06/19XY (85 yrs)
Ward: Emergency

ADMITTANCE DATE: 09/02/yy
ADMISSION NOTES

Dr B Little

09/02/20yy 1345 hrs

85-year-old male

PC: chest pain

HPC: STEMI 2 weeks ago with coronary artery stent insertion. No chest pains since then.
This morning, sudden onset stabbing chest pain.
Patient took 2 doses of sublingual glyceryl trinitrate with no effect - called ambulance

PMHx: Type 2 diabetes, hypertension, gout, hypercholesterolaemia

SHx: lives with son (carer), wife passed away about 3 months ago, ex-smoker (quit 20 years ago)

Abbreviations used in the patient notes:
PC – presenting complaint
HPC – history of presenting complaint
PMHx – past medical history
SHx – social history
STEMI – ST elevation myocardial infarction
Admission Medications

When asked about his medications, the patient responds that he has no idea what medications he is on as his son looks after them. He has not brought his own medications into hospital. He hands over the following medication list:

- Metformin 500 mg twice a day
- Gliclazide MR 30 mg morning
- Ramipril 2.5 mg morning
- Atorvastatin 20 mg night
- Allopurinol 100 mg morning
- Paracetamol 2 tablets when needed for pain

• Can this medication list be relied upon to be a full and accurate record?
• What other sources can you use to verify Mr L’s medication history?
Mr L's son arrives at the hospital a little later on. He has brought in the patient's own medications from home. Using these as prompts you interview the patient's son to clarify exactly what Mr L is currently taking at home. From the information gathered during the interview you write up Mr L's medicines taken prior to presentation to hospital as shown.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>Time of Day</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metformin</td>
<td>500 mg</td>
<td>BD</td>
<td>type 2 DM</td>
</tr>
<tr>
<td>Glimepiride</td>
<td>30 mg</td>
<td>morning</td>
<td>type 2 DM</td>
</tr>
<tr>
<td>Ramipril</td>
<td>2.5 mg</td>
<td>morning</td>
<td>Hypertension</td>
</tr>
<tr>
<td>Atorvastatin</td>
<td>40 mg</td>
<td>night</td>
<td>Hyperlipidemia</td>
</tr>
<tr>
<td>Metoprolol</td>
<td>25 mg</td>
<td>BD</td>
<td>Post-MI</td>
</tr>
<tr>
<td>Allopurinol</td>
<td>100 mg</td>
<td>morning</td>
<td>Gout</td>
</tr>
<tr>
<td>Fluoxetine</td>
<td>20 mg</td>
<td>morning</td>
<td>Depression</td>
</tr>
<tr>
<td>Glyceryl trinitrate</td>
<td>sublingual tablets</td>
<td>as required</td>
<td>chest pain</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>2 tablets</td>
<td>PRN</td>
<td>pain</td>
</tr>
</tbody>
</table>
Admission Medication Reconciliation

- Compare the pair – any differences?
Checking With Family Member

- Atorvastatin dose increased 2 weeks ago in hospital
- Metoprolol started 2 weeks ago after MI
- GP started Fluoxetine 3 months ago after Mrs L passed away
- Glyceryl Trinitrate prescribed 2 weeks ago in hospital, not used until today
An accurate medication history is the baseline from which drug treatment will be continued at the time of admission, therapeutic interventions will be made, and self caring will be continued after discharge.

To obtain the best possible medication history you should, where possible, use more than one source of information. One of these sources should always be a structured interview with the patient or their carer. In this case we used:

1. an interview with the patient's carer (his son)
2. the patient's own medication list
3. the patient's own medications

It is important to compare the information provided by the different sources and seek clarification on any differences. The medication history should be documented either on the Medication Management Plan form (if used in your hospital) or in the medical record.
Omissions

- Consider in context of patient’s medical history
- Can you identify any missing therapies?

HPC: STEMI 2 weeks ago with coronary artery stent insertion. No chest pains since then. This morning, sudden onset stabbing chest pain. Patient took 2 doses of sublingual glyceryl trinitrate with no effect - called ambulance.

PMHx: Type 2 diabetes, hypertension, gout, hypercholesterolaemia

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<tr>
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<th>Dosage</th>
<th>Time</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metformin</td>
<td>500 mg BD</td>
<td></td>
<td>type 2 DM</td>
</tr>
<tr>
<td>Gliclazide MR</td>
<td>30 mg</td>
<td>morning</td>
<td>type 2 DM</td>
</tr>
<tr>
<td>Ramipril</td>
<td>2.5 mg</td>
<td>morning</td>
<td>hypertension</td>
</tr>
<tr>
<td>Atorvastatin</td>
<td>40 mg night</td>
<td></td>
<td>secondary prophylaxis</td>
</tr>
<tr>
<td>Metoprolol</td>
<td>25 mg BD</td>
<td></td>
<td>post-MI</td>
</tr>
<tr>
<td>Allopurinol</td>
<td>100 mg</td>
<td>morning</td>
<td>gout</td>
</tr>
<tr>
<td>Fluoxetine</td>
<td>20 mg</td>
<td>morning</td>
<td>depression</td>
</tr>
<tr>
<td>Glyceryl trinitrate</td>
<td>300-600 microg</td>
<td>when chest pain</td>
<td></td>
</tr>
<tr>
<td>Subling tablets</td>
<td></td>
<td></td>
<td>required</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>2 tablets</td>
<td>PRN</td>
<td>pain</td>
</tr>
</tbody>
</table>
Antiplatelet Therapy

Following a STEMI, most patients benefit from combination therapy with long-term antiplatelet therapy (aspirin 75-150 mg orally, daily PLUS clopidogrel 75 mg orally, daily), beta blockers, angiotensin converting enzyme inhibitors (ACEI) (or angiotensin II receptor blockers [ARB]) and statin therapy.

Patients with coronary stenting are routinely treated with aspirin and clopidogrel*. Aspirin should be continued indefinitely following stenting. Dual antiplatelet therapy (aspirin and clopidogrel*) is recommended for 6 weeks – 12 months, depending on the type of stent used.

*prasugrel or ticagrelor can be substituted if clopidogrel cannot be tolerated.

• Is the patient currently taking any antiplatelet therapy?
• Mr L had a STEMI and insertion of coronary artery stent 2 weeks ago
• Dual antiplatelet therapy with aspirin and clopidogrel is usually commenced following these events
More Information

• Ask the family member if patient is taking these meds
• Check hospital discharge summary for discharge meds order
• Are there any contraindications to antiplatelet therapy?
• Check the notes from previous admission
# Medication Chart 1

## Chart 1

### AS REQUIRED "PRN" MEDICATIONS

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Medication</th>
<th>Route</th>
<th>Dose</th>
<th>Date/Time of Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>23/1</td>
<td>23/1</td>
<td>Aspirin</td>
<td>PO</td>
<td>300  mg</td>
<td>1400</td>
</tr>
<tr>
<td>23/1</td>
<td>23/1</td>
<td>Clopidogrel</td>
<td>PO</td>
<td>600  mg</td>
<td>1400</td>
</tr>
</tbody>
</table>

### Medical History
- **Allergies & Adverse Drug Reactions (ADR)**
  - Known: None
  - Drug (or other): None
  - Reaction Date/Time: None

### Notes
- **First Prescriber to Print Patient Name and Check Label Correct:** Mr. L

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**URN:** 21455654
**Family name:** Lxxxxxxx
**Given names:** Alfred
**Address:** 65 Monterey St, Lilydale
**Date of birth:** 08/06/19XY
**Gender:** Male

**Weight:** 85 kg
**Height:** 176 cm

**Facility/Service:** Royal Hospital
**Ward/Unit:** Cardiology

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**Telephonic Orders (To be signed within 24 hours of order):**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Medication</th>
<th>Route</th>
<th>Dose</th>
<th>Date/Time of Administration</th>
</tr>
</thead>
</table>

**Medicines Taken Prior to Presentation to Hospital:**

- [ ] Medication
- [ ] Dose & frequency
- [ ] Duration
- [ ] Administration

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**Notes:**
- **DO NOT WRITE IN THIS BOUND MARGIN**
<table>
<thead>
<tr>
<th>Date</th>
<th>Medication</th>
<th>Dose</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>23/1</td>
<td>Allopurinol</td>
<td>100 mg morning</td>
<td>Gout, KK with food</td>
</tr>
<tr>
<td>23/1</td>
<td>Fluoxetine</td>
<td>20 mg morning</td>
<td>Depression, KK</td>
</tr>
<tr>
<td>23/1</td>
<td>Metoprolol</td>
<td>12.5 mg BD</td>
<td>Post MI</td>
</tr>
<tr>
<td>23/1</td>
<td>Enoxaparin</td>
<td>40 mg daily</td>
<td>VTE prophylaxis</td>
</tr>
<tr>
<td>23/1</td>
<td>Atorvastatin</td>
<td>40 mg night</td>
<td>Cholesterol, post MI</td>
</tr>
<tr>
<td>23/1</td>
<td>Metoprolol</td>
<td>25 mg BD</td>
<td>Post MI</td>
</tr>
</tbody>
</table>
Chart 2

### Regular Medications

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Medication</th>
<th>Dose</th>
<th>Administration Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>24/12</td>
<td>8:00 a.m.</td>
<td>Aspirin</td>
<td>100 mg</td>
<td>Morning</td>
</tr>
<tr>
<td>24/12</td>
<td>8:00 a.m.</td>
<td>Clopidogrel</td>
<td>75 mg</td>
<td>Morning</td>
</tr>
<tr>
<td>24/12</td>
<td>6:00 a.m.</td>
<td>Stent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Patient Information**

- **Name:** John Doe
- **Address:** 123 Main St, Anytown, USA
- **Date of Birth:** 01/01/1970
- **Gender:** Male
- **Contact:** 555-555-1212

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**Allergies & Adverse Drug Reactions (ADR)**

- **Drug:** None
- **Reaction Type/Date:** None

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**Notes**

- **Pharmaceutical Review:** 12/01/2022
- **Instructions:** Take with meals, avoid alcohol.

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**Doctor's Notes**

- **Prescription:** Signed by Dr. Smith
- **Refills:** 3

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**Other Information**

- **Weight:** 150 lbs
- **Height:** 6 ft
- **Blood Pressure:** 120/80

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**Patient Information:**

- **Lab Results:**
  - **Hemoglobin:** 14.5
  - **WBC:** 8,000

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**Contact:**

- **Pharmacy:** 800-808-0808
- **Doctor:** 555-555-1212

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**Emergency Contact:**

- **Name:** Jane Doe
- **Phone:** 555-555-1212
In this case the aspirin and clopidogrel were prescribed on the second medication chart, separate from all the other regular medications. It is likely that they have been missed off the discharge script because the prescriber has not transcribed the medications from the second chart.
What Happened As A Consequence?

- Re-admission to hospital
- ECG and blood test results suggest a second MI
- When taken to cath lab, found to have a thrombosis within new stent which caused MI
- The stent thrombosis and MI are directly related to the lack of antiplatelet therapy
Preventing Errors

- There were multiple points where a nurse, doctor or pharmacist could have picked up the error
- Corrective action may have prevented harm to the patient
- What actions could you have taken to avert or prevent this omission error?
- Avoid distractions
- Careful medication reconciliation
- Careful checking of prescriptions against each other
- Patient and family member education
- Electronic medication management systems
- Understanding underlying condition and usual treatment
- Critical thinking
- Clinical judgement
- Any others?
Patient education

Had the patient's son been better informed about the medications being given to his father during admission, he may have identified the lack of antiplatelet ("blood-thinning") medications on discharge. It is everyone's responsibility to educate patients and their carers about medications. Education should be a gradual and continual process throughout a patient's admission and not left until discharge, when the patient or carer may not fully absorb all the necessary information. If key information is reiterated throughout admission, the patient will be more likely to ask questions if an error like this occurs.

Referral to post-discharge education programs, such as cardiac rehabilitation, may also have helped identify the omission in therapy.
Communication of Errors to Patients

• Should the patient/family member be informed of error?
• What is the process of discussion of clinical incident called?
• Who should discuss the incident with the patient/family?
• How would you report and escalate the error?
Conclusion

• Act on and report near misses and errors
• This can prevent harm and facilitate trust in healthcare professionals
• We have a policy of open disclosure if a clinical incident has occurred – senior staff member
• A complete and accurate medication history on admission is vital
• Confirm accuracy of medication history by checking previous orders, medical history and asking the patient/family
Any questions?

The difference between something good and something great is attention to detail.

Charles R. Swindoll