Incident Investigation and VTE

Cate Malone
A/Manager Patient Safety Program
CLINICAL EXCELLENCE COMMISSION

September 2014

Acknowledgement to
Lillian George, Project Officer, Medication and Safety Program CEC
Patient with previous cardiac history was admitted and underwent elective transurethral resection of the prostate (TURP) surgery. No VTE risk assessment undertaken nor was any pharmacological prophylaxis given, however TED stockings were prescribed. Patient suddenly deteriorated and had a cardiac arrest. The cause of death was found to be secondary to pulmonary embolism.
Situation continued

• Patient Story 2-

Patient 47 years old underwent bilateral knee arthroscopy and discharged home. The patient was readmitted 2 days later following collapse at home from a cardiac arrest. Most likely cause was a massive pulmonary embolism. The patient was intubated and transferred to ICU, however died the following day.
Background - VTE Reality Check

• Hospitalisation is a major risk factor for the development of VTE. Incidence is 100 times greater in hospitals.

• Of all deaths in Australian Hospitals 7% are due to VTE

Background

• The CEC is committed to developing a strategy that addresses this patient safety priority for NSW.

• The CEC Medication Safety VTE project has reviewed available data for a Clinical Focus Report currently in development.
  – SAC 1 Root Cause Analysis (RCA) reports
  – Incident Information Management System (IIMS) data
  – NSW VTE data
  – data from Collaborating Hospitals Audit of Surgical Mortality (CHASM) reports.

• There is no perfect set of data, limitations exist with the data set that was reviewed. These limitations include that:
  – VTE is often thought of as a complication and not an adverse event;
  – approximately 30% of VTEs are not preventable.
  – pulmonary embolism (PE) as a cause of death is not always obvious or evident;
  – hospital-associated VTEs following discharge are often not reported;
  – hospital-associated VTE readmissions are often not reported;

• The value in incident reports is in the narrative (themes/system issues) not the numbers
Assessment
Analysis Of Incidents And Contributing Factors

• **IIMS data** from 1 Jan 2012 to 25 March 2014 was examined. A total **94** notifications were identified and reviewed that related to hospital acquired VTE.

• There were **16 SAC 1** incidents (patient deaths) reported in that period

• **HIE coding data** identified a large number of hospital-associated VTEs in 2012 and 2013, with a total of **2229** cases.

• **Approximately 4% of these were reported through IIMS**
Assessment

Contributing factors

- An analysis of the 94 IIMS notifications identified potential contributing factors to the development of hospital-associated VTE. The identified factors are shown below.
- There were 45 cases (47.9%) where there was insufficient information to determine the underlying contributing factor.
- Improved investigation of VTE incidents is required.

![Bar chart showing the distribution of contributing factors]
From the **15 SAC1 RCA reports (patient deaths)** reviewed (one SAC 1 not included as incomplete at the time of review)

- 33.3% (5 cases) had inconclusive information to determine if the VTE was preventable or not
- 40% (6 cases) had appropriate precautions observed (unpreventable)
- 26.7% (4 cases) the patient death may have been avoidable had appropriate VTE prophylaxis been in place (preventable)
Recommendation

- IIMS and RCA findings are consistent with published studies which have indicated that underutilisation of VTE prevention methods are mainly due to
  - Limited awareness of the risks and harm of VTE;
  - Limited clinician buy-in;
  - Limited standardised guidelines and protocols;
  - And a general underestimation of clotting risk and an overestimation of bleeding risk.

A multifaceted approach to VTE prevention is required to overcome the potential barriers in reducing VTE rates.

Recommendation

• There is a clear need to encourage improved IIMS reporting and investigation of this highly preventable adverse event to identify system issues and effective improvements.
Incident Management Tool

- Non-SAC 1 incidents
- Acknowledgement to Prof Arya and his team
Aim is to identify system issues and system improvements to reduce risk of reoccurrence

**Systems approach is - why? How?**
- Communication
- Knowledge/skill
- Work environment & scheduling
- Patient factors
- Equipment
- Policies/procedures/guidelines
- Safety mechanisms

---

Causation

Effective System improvement and reduced risk
## System issues Contributing factors

**What**  
**When**  
**Where**  
**How**  
**why**
### System issues

#### Contributing factors

<table>
<thead>
<tr>
<th>What</th>
<th>When</th>
<th>Where</th>
<th>How</th>
<th>Why</th>
</tr>
</thead>
</table>

#### Mechanical Prophylaxis

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Was the prescribed treatment appropriate?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate agent</td>
<td>Yes/No/ N/A</td>
<td></td>
</tr>
<tr>
<td>Appropriate dose</td>
<td>Yes/No/ N/A</td>
<td></td>
</tr>
<tr>
<td>Appropriate duration</td>
<td>Yes/No/ N/A</td>
<td></td>
</tr>
<tr>
<td>Missed doses</td>
<td>Yes/No/ N/A</td>
<td></td>
</tr>
<tr>
<td>Delayed start</td>
<td>Yes/No/ N/A</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Was there a contraindication to pharmacological prophylaxis?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>11. What was the contraindication?</td>
<td>NIMC Medical Notes Risk Assessment Tool/Form Other (specify)</td>
<td></td>
</tr>
<tr>
<td>12. Where was it documented?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Was mechanical prophylaxis recommended according to the patient's risk level?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2. Was mechanical prophylaxis prescribed?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3. Mechanical device prescribed</td>
<td>Anti-embolic stocking Graduated Compression Stocking Intermittent Pneumatic Compression Foot Impulse Devices N/A</td>
<td></td>
</tr>
<tr>
<td>4. Date commenced</td>
<td></td>
<td>5. Date Ceased</td>
</tr>
<tr>
<td>6. Was there a contraindication to mechanical prophylaxis?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7. What was the contraindication?</td>
<td>NIMC Medical Notes Risk Assessment Tool/Form Other (specify)</td>
<td></td>
</tr>
<tr>
<td>8. Where was it documented?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
System issues
Contributing factors

What
When
Where
How
Why

VTE Incident Management tool
• Available on CEC Website
• Version/format available so information can be copied directly into IIMS
VTE Quality and Safety- way forward

• Recognise our human factors and interfaces
• Encourage VTE incident reporting
• Actions based on ‘just culture’
• Build a learning culture/learning organisation from VTE investigations
• High level of management involvement in VTE safety & quality strategies
• Recognise the importance of teamwork
Thank you

Questions

For further information:

Cate.malone@cec.health.nsw.gov.au
www.cec.health.nsw.gov.au