Improving the safety of anti-thrombotic drugs

Stephane Jaglin, Pharmacist
Thrombosis UK, Bristol, May 2019
Learning outcomes

- WHO 3rd global patient safety challenge
- Which medications are dangerous?
- The case of anti-thrombotic agents
- Anticoagulants: some figures
- Solutions: Hints from World Health Organization
- Examples and themes identified by NHS Improvement
Medication safety is now a global priority

2 previous challenges very successful:
- Clean care is safer care (2005)
- Safe surgery saves lives (2008)
WHO 3rd global patient safety challenge

- 3rd challenge: Medication without harm
  - Started in March 2017
  - Goal: 50% - 5 years

Reduce the level of severe, avoidable harm related to medications by 50% over 5 years, globally
How do we **Identify** the errors

- Current reporting/response in the UK:

  - NRLS (DPSIMS)
  - Monthly reports & OPSIR
  - Patient Safety Alerts -> CAS (ex-NPSA alerts)

- Medication Safety Dashboard (CCGs)
- EEPRU Feb 2018

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**Abbreviations:**

- NRLS: National Reporting and learning systems
- DPSIMS: Development of the Patient Safety Incident Management System
- OPSIR: Organisation Patient Safety Incident Report
- CAS: Central Alerting System
- NSPA: National Patient Safety Agency
How many? **237M/year!**
237M medication error in England/year
72% Little or no potential for harm
→ 66M moderate/severe
## Policy Research Unit in Economic Evaluation of Health & Care Interventions Feb. 2018

<table>
<thead>
<tr>
<th></th>
<th>Primary care</th>
<th>Care homes</th>
<th>Secondary care</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prescribing</strong></td>
<td>47.9%</td>
<td>3.0%</td>
<td>8.5%</td>
<td>21.3%</td>
</tr>
<tr>
<td><strong>Transitioning</strong></td>
<td>NO DATA</td>
<td>NO DATA</td>
<td>7.1%</td>
<td>1.4%</td>
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<tr>
<td><strong>Dispensing</strong></td>
<td>36.1%</td>
<td>3.6%</td>
<td>2.9%</td>
<td>15.9%</td>
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<tr>
<td><strong>Administration</strong></td>
<td>Not applicable</td>
<td>92.8%</td>
<td>78.6%</td>
<td>54.4%</td>
</tr>
<tr>
<td><strong>Monitoring</strong></td>
<td>15.9%</td>
<td>0.6%</td>
<td>2.9%</td>
<td>6.9%</td>
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<tr>
<td><strong>Total</strong></td>
<td>38.3%</td>
<td>41.7%</td>
<td>20.0%</td>
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### Error category

<table>
<thead>
<tr>
<th>Error category</th>
<th>Number of medication errors per annum in England</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary care</td>
</tr>
<tr>
<td>Minor</td>
<td>44,048,794</td>
</tr>
<tr>
<td>Moderate</td>
<td>43,479,825</td>
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<tr>
<td>Severe</td>
<td>3,476,282</td>
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<tr>
<td>TOTAL</td>
<td>91,004,902</td>
</tr>
</tbody>
</table>
A lot of potentially dangerous medication

- Antibiotics
- Digoxin
- Insulin
- Potassium
- Anticoagulants
- Lithium
- Morphine/opioids
- Anticoagulants
- Lithium
- Morphine/opioids
EEPRU Report February 2018

- 1/3rd of hospital admissions due to anti-thrombotic drugs
- GI bleed implicated in ½ death in primary care
- ↑↑ in elderly patients

8. Non-steroidal anti-inflammatory drugs, anticoagulants and antiplatelets cause over a third of admissions due to avoidable ADRs. Gastrointestinal (GI) bleeds are implicated in half of the deaths from primary care ADRs. Older people are more likely to suffer avoidable ADRs.
Complex processes

Prescribing → MEDICATION ERROR → Transitioning

Monitoring → Administering → Dispensing

#LetstalkClots Thrombosis UK
## Medication Safety Indicators

### List of Indicators

<table>
<thead>
<tr>
<th>Indicator 1 – GIB01</th>
<th>Patients 65 years old or over prescribed a non-steroidal anti-inflammatory drug (NSAID) and NOT concurrently prescribed a gastro-protective medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator 2 – GIB02</td>
<td>Patients 18 years old or over prescribed a non-steroidal anti-inflammatory drug (NSAID) and concurrently prescribed an oral anticoagulant (warfarin or a non-vitamin K antagonist oral anticoagulant (NOAC)) with an anti-platelet and NOT concurrently prescribed a gastro-protective medicine</td>
</tr>
<tr>
<td>Indicator 3 – GIB03</td>
<td>Patients 18 years old or over prescribed an oral anticoagulant (warfarin or a non-vitamin K antagonist oral anticoagulant (NOAC)) with an anti-platelet and NOT concurrently prescribed a gastro-protective medicine.</td>
</tr>
<tr>
<td>Indicator 4 – GIB04</td>
<td>Patients 18 years old or over prescribed aspirin and another anti-platelet and NOT concurrently prescribed a gastro-protective medicine.</td>
</tr>
<tr>
<td>Indicator 5 – AKI01</td>
<td>Patients 18 years old or over concurrently prescribed a non-steroidal anti-inflammatory drug (NSAID), a renin-angiotensin system (RAS) drug, and a diuretic</td>
</tr>
<tr>
<td>Indicator 6 – GIBC1</td>
<td>Composite Gastro Intestinal Bleeds comprising of unique patients from indicators 1 to 4.</td>
</tr>
<tr>
<td>Indicator 7 – PAIN1</td>
<td>Patients 18 years old or over currently prescribed an oral or transdermal opioid and concurrently prescribed benzodiazepines, Z-drugs, pregabalin or gabapentin</td>
</tr>
<tr>
<td>Indicator 8 – PAIN2</td>
<td>Patients 18 years old or over prescribed an oral or transdermal opioid and NOT prescribed a laxative.</td>
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</tbody>
</table>
Metrics on reported incidents from July 2012 to July 2017 (NRLs)

Proportion of severe harm and death

- AVK: 34%
- LMWH: 46%
- DOACs: 21%
- Other: 2%

Adapted from figures obtained from NHS improvement, David Gerrett UKCPA Nov. 2018
Examples of error analysed by NHS Improvement

The nature of error and the learning.

The perioperative period

These incidents described situations where anticoagulation, commonly warfarin, failed to be restarted post procedure/surgery. This often involved discharge of the patient without any specific advice regarding instructions to re-start at a specified time. There also appeared to be differing advice conveyed to patients from various practitioners. There were particular issues when patients had been advised to stop their anticoagulation and their elective procedure was cancelled but the patient was not advised to restart anticoagulation until the procedure was re-booked.

Patient was admitted for brachytherapy as part of cancer treatment. They had been on Warfarin for .....DVT. Patient was on SC heparin during the procedure. As they had significant haematuria heparin was stopped. Patient was discharged after haematuria stopped. However, no appointment with warfarin clinic was arranged and patient was without any anticoagulation. Patient subsequently developed pulmonary embolism and died at [name] Hospital … Reported Severe harm
Examples of error analysed by NHS Improvement

The nature of error and the learning.

Vit K antagonist+LMWH+interaction

Patient admitted on warfarin, co-prescribed [LMWH], INR 3.6 on admission but not checked regularly thereafter, on clarithromycin. Patient becomes unwell, INR [>] 10, bilateral subdural [haemorrhage] found 5 days later. Entered a phase of prolonged seizures and subsequently died. When bleed discovered, blood thinning stopped. Appropriate management after bleed detected. **Reported outcome – Death**

Speaks of
1. Monitoring issues
2. Combining warfarin with LMWH
3. Interaction with antibiotic

Case study obtained from NHS improvement, David Gerrett UKCPA Nov. 2018
Some of the solutions

- Education (HCP and Patients)
- Sharing good practice
- SPS WHO good practice repository
- PSA 18 revised in 2018
- Electronic prescribing
- NICE QS93 (AF), NG5 (reconciliation)
- Innovation (ASHNs)

Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes
Resources

Anticoagulant Therapy

Resource to Support:

- Patient Safety Alert 18: Actions that can make anticoagulant therapy safer
- Revised in 2018 to include DOACs

Peri-operative management of anticoagulation and antiplatelet therapy

David Keeling, R. Campbell Tait, and Henry Watson on behalf of the British Committee for Standards in Haematology

1Oxford University Hospitals NHS Foundation Trust, Oxford, 2Glasgow Royal Infirmary, Glasgow, and 3Aberdeen Royal Infirmary, Aberdeen, UK
Metrics on successful Litigation claims (since 2010)

<table>
<thead>
<tr>
<th>Clinical/Non Clinical</th>
<th>Thrombosis/Embolism</th>
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<tbody>
<tr>
<td>Clinical Injury1L1</td>
<td>Clinical</td>
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<table>
<thead>
<tr>
<th>Row Labels</th>
<th>Count of ClaimId</th>
<th>Sum of Damages Paid FOI</th>
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<tbody>
<tr>
<td>Successful</td>
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<td>£8,242,309.85</td>
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<tr>
<td>2010/11</td>
<td>25</td>
<td>£895,342.50</td>
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<td>2011/12</td>
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<td>2012/13</td>
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<td>2013/14</td>
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<td>2014/15</td>
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<tr>
<td>2015/16</td>
<td>63</td>
<td>£2,400,746.66</td>
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<tr>
<td>Unsuccessful</td>
<td>119</td>
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<tr>
<td>2011/12</td>
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<tr>
<td>Grand Total</td>
<td>331</td>
<td>£8,242,309.85</td>
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</tbody>
</table>
Solutions: Some hints from WHO

EVERYONE has a role to play in medication safety
Summary of topics discussed

- WHO 3rd global patient safety challenge
- Which medications are dangerous?
- The case of anti-thrombotic agents
- Anticoagulants: some figures
- Solutions: the current tools
- Solutions: Hints from World Health Organization
- Examples and themes identified by NHS Improvement
Some of the solutions in place

Some case studies

Soon coming on

http://www.thrombosisuk.org/