HEPMA - National data flows and analytics

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Outline

Medicines data landscape

HEPMA* program – phase 1
  • The PHS HEPMA team
  • What have we done to secure data?
  • What data have we got?

Potential antimicrobial stewardship areas of interest
  • a starter for discussion

* HEPMA – hospital electronic prescribing and medicines administration
What do we need in a medicines toolkit (MICPOP)?
What does Scotland have nationally at scale in the toolkit?

<table>
<thead>
<tr>
<th>System</th>
<th>Medicine</th>
<th>Indication</th>
<th>Cost</th>
<th>Patient</th>
<th>Outcome</th>
<th>Prescriber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary care (PIS)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hospital (all) (HMUD)</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Electronic prescription * (HEPMA, n=5(6) Boards)</td>
<td>✓</td>
<td>✓</td>
<td>✓¹</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Chemotherapy (SACT)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

* In-patients only
✓ good coverage; ✓¹ list prices only (derived from dm+d)
✓ some coverage via record linkage
HEPMA Program Remit

**Remit:** collection to support COVID pandemic planning and delivery

**Examples of use:**
- Identification of patients at risk of COVID (vulnerable patients)
- Patient characterisation of COVID positive patients
- Medicines use to support COVID treatment and outcome
- Changing patterns of medicines use through the pandemic
Some of the PHS HEPMA Team

Marion Bennie
Kat Reid
Jennifer McCaig
Lynne Jarvis
Stuart McTaggart
Amanj Kurdi
Fiona Marra
Tanja Mueller
Why collect HEPMA data?

Why is the data important?

• No source of secondary care patient level prescribing/ administration data

• COVID-19 exposed the need to more acutely accelerate plans

HEPMA data project objectives

• To provide patient level medicines data to support analyses of medicines use in hospitals

• To provide the opportunity for PHS to link different data sets to offer an overview of treatment over time, supporting population level analysis e.g. antimicrobial resistance

Key points:

1. This will provide secondary care data – critical to the COVID-19 effort

2. The approach requires ‘minimum effort for NHS Boards’ and we’re working collaboratively with suppliers to support this
HEPMA data flow

NHS Scotland Health Board
- Confirms taking part (IG complete)
- Runs extract (prescriptions and administration)
- Transfer to NHS Digital

NHS Digital
- Land & load in NHS Digital Data Processing Service
- Remove CHI number for records with medicines associated with legally restricted conditions
- Dissemination to NSS National Integration Hub

PHS Scotland
- Medicines analysis/intelligence reporting
Data coverage - May 2021

• 5(6) NHS Boards live
  • NHS D&G, A&A, Lanarkshire, Forth Valley, Lothian, (Glasgow)

• Data
  • from Jan 2019 (where HEPMA deployed)
  • Weekly feed to PHS

• At 10th May 2021
  • Prescriptions 7,534,023
  • Administrations 40,969,021
What data do we have?

Data for all inpatient and discharge prescriptions ordered through HEPMA

*Prescription*
- Medication (including formulation and strength)
- Dose, route and frequency of administration

*Administration*
- Administration due time
- Administration actual time
- Reason for missed/delayed administration

Patient identifier (CHI) to enable record linkage to other data sets

Dm+d medicine – standardised medicine coding
Antimicrobial stewardship – a starter

Antimicrobial

• Use (patient /population level) in near real time

• Duration of treatment / treatment sequence (link to HARP* SAPG program)

• AWaRe** antibiotics monitoring

• Record linkage to better characterize exposed population and examine clinical outcomes

* HARP – Hospital Antimicrobial Review Programme
** AWaRE – Access, Watch and Reserve
Thank you

Questions ?
Globally

- Medicines third largest health system cost, after inpatient & outpatient costs
  - ~ 16% in OECD countries
  - ~ 23-30% in low/medium income countries

- Medicines can cause harm
  - 1 in 20 hospital admissions
  - ~ 50% preventable

Scotland

- 5.4 million population
- 14 Health Boards
- Medicine expenditure
  - NHS Scotland 2020 – £1.8 billion
    - Primary care - £1.1 billion (61%)
    - Secondary care - £0.7 billion
Safer Use of Medicines

1 in 5 adults in Scotland are dispensed 5 or more medicines. 59% of patients over 70 years old are dispensed 5 or more medicines.

- 435,000 items are prescribed in an average 500 bed acute hospital.
- 32,500 prescribing errors with up to 200 causing patient harm.
- 35 to 85 dispensing errors.
- 2 million doses of medicines administered in an average 500 bed acute hospital.
- 189,000 administration errors.
- 15,000 patients admitted to all acute hospitals experience an adverse event due to medicines.
- Up to 280 preventable deaths across all acute hospitals are due to medicines.

101 million prescription items are issued in primary care.

- 4 million prescribing errors.
- 40,000 to 3.4 million dispensing errors.

5 classes of medicines account for most admissions:
- NSAIDS
- Antiplatelets
- Anticoagulants
- Diuretics
- Anti-hypertensives

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