1. How can we best provide a service to GPs?

2. The impact of Medicines Information advice on patient care and outcomes: perceptions of patients using MI helplines

3. Service evaluation of enquiries concerning the stability of medicines that have not been stored correctly under refrigeration

4. Medicines left out of the fridge: does a Medicines Information Service save money for it’s host trust?

5. Improving medication safety: The Danaparoid-Story

6. Exploring MI pharmacists’ views of the UKMi Training Workbook
Introduction
The East Anglia Medicines Information Service (EAMIS) provides a service to The Ipswich Hospital and also at the time of this study, to the following Primary Care Trusts: Bedfordshire, Cambridgeshire, Great Yarmouth & Waveney, Luton, Norfolk, Peterborough and Suffolk.

Research carried out by the EAMIS in 2011 showed that use of the service by GPs was low but increasing rapidly with the majority of GP enquiries originating from only four PCTs. It recommended that future research should identify why some GPs use the service and others do not, and to find out how GPs hear about the EAMIS.¹

Only one study has surveyed non-service user GPs but no comparison was made with current service users. This study also investigated which resources were used by GPs when seeking medicines information.²

Aims
The primary aim of this study was to identify the use of EAMIS by GPs and how it can be better promoted.

The objectives of the study were to determine GP awareness of the service, describe the reference sources currently used by GPs and explore future pathways for promotion.

Method
A total of 170 GPs from four PCTs in East Anglia (1621 GPs in this area) were sent a piloted postal questionnaire. The 85 GPs who had contacted the centre in the previous 12 months were identified from MiDatabank and the 85 GPs who had not used the service during this time period were identified from lists held by the PCTs.

Data from locum GPs and those GPs not currently employed within the four PCTs were excluded from the study.

The questionnaire sent to GPs in each group were in a similar format, differing only where they needed to be tailored to the target group. The questionnaires covered the following areas:

• Awareness and opinion  
• Current resource use  
• Access and promotion  
• Demographics  
• Additional comments  

A covering letter, sent with the questionnaire to each GP, was reviewed by an independent GP consortium so as to maximise the response rate.

Ethical approval was not required as this was a service evaluation. Data from closed questions and Likert scales were analysed by SPSS and Microsoft Excel. Common themes from open questions and comments were identified.

Results
The overall response rate for this study was 52% (89/170; 47/85 non-users and 42/85 users). However, 2 questionnaires from non-user GPs were incomplete and therefore excluded from data analysis.

There were no demographic differences between the GP users and non-users of the service.

GP Awareness
87% of non-users were unaware of the service and yet 84% of non-users still felt the service would benefit them.

Of the users, the majority (26%, 12/47) were introduced to the EAMIS after contacting their local hospital pharmacy, followed by 17% (8/47) who were told about the MI service by colleagues.

89% of users believed that EAMIS improved patient outcomes and 95% would recommend the MI service to colleagues.

Resources
The resources used by non-users compared with users reflect their awareness of the EAMIS (see below).

Promotion
Overall, GPs felt that the MI service could be better promoted particularly via emails (72%) and teaching sessions (31%).

Discussion
The EAMIS is highly valued by GPs within its region and plays a pivotal role in the provision of patient care. However, the service is utilised by only a minority of GPs. Those GPs who do not use the EAMIS make greater use of their PCT medicines management team compared to GP users. This should be explored in the future in view of the structural changes taking place in NHS England.

The MI service should be promoted to GPs by emails and teaching sessions. The way in which this is done needs to be carefully considered taking into account service capacity.

References
The impact of Medicines Information advice on patient care and outcomes: perceptions of patients using MI helplines.

Diane Bramley³, Navdeep Dhutty¹, Alison Innes², Radha Patel³.
1. Medicines Information, Guy’s and St Thomas’ Hospital/ Kings College School of Pharmacy, London. 2. London Medicines Information (Northwick Park)/ UCL School of Pharmacy, London**.

**Background**

Few studies have investigated patients’ opinions on the impact of Medicines Information (MI) advice¹.

The value of obtaining feedback from service users in the NHS is increasingly being recognised, and is crucial for assessing the impact of MI on meeting the needs of patients (such as patients’ understanding of their medicines, and patients’ ability to participate in decisions about healthcare)².

Previous research into the impact of MI on patients has found a positive impact on patients’ care and outcomes based on healthcare professionals’ opinions.³ The on-line questionnaire used in that study was a useful tool to determine the opinions of enquirers on MI advice and its impact, but the questions were unsuitable for patients to answer themselves because they required clinical knowledge.

This study aimed to investigate patients’ opinions on MI advice they received from MI Patient Helplines and the impact this advice had on their care and outcomes.

**Method**

Three MI centres in London took part in prospective data collection during the study period in late 2011 or early 2012: • one centre: 6 week study period; Oct-Nov 2011; • two centres: two month study period; Feb-April 2012

Patients who contacted the MI Patient Helplines at these centres were invited to participate. Patients were only excluded if it was considered that contacting them might cause distress (for example because of the nature of their enquiry or health). A letter was sent to those who agreed to participate to confirm consent and provide information about the study.

A questionnaire was developed in collaboration with the Patient Experience Team at one hospital to determine patients’ perceptions on the usefulness and impact of the MI advice they received.

Participants were contacted by an independent investigator (between one and six weeks after they had received an answer to their enquiry) and completed a questionnaire via telephone interview.

**Results**

73 patients completed the questionnaire (63% of the 115 patients who agreed to take part in the study, of 135 originally invited to participate). Enquirer and enquiry types were similar to usual for the centres involved. The following results were obtained:

**Impact of MI advice on patient care**

- **Improved safety**
  - 43% (31) patients felt that MI advice prevented harm from their medicines
  - 14% (10) patients received additional advice that was not originally requested

- **Improved care**
  - 62% (45) patients understood their medicines better
  - 88% (64) patients felt reassured by the MI advice

**Impact of MI advice on patient outcomes**

- **Improved outcome**
  - 33% (24) patients reported that MI advice resulted in improvement in their health

**Discussio**n

The use of telephone interviews allowed the investigator to understand how the patient perceived the questions and whether the questions were interpreted as intended. Limitations of this study included low numbers, and the possibility that the opinions of participants may not reflect the wider patient population.

**Conclusion**

Advice provided by MI Patient Helplines had a positive impact on patients’ healthcare and outcomes based on patients’ opinions. The service was valued by patients and the majority followed the advice given.

**Recommendations**

A larger study using a refined, on-line questionnaire is needed to further explore this under-researched area.

Research into the impact of MI based on the opinions of both healthcare professionals and patients may give further insight into the extent and nature of the impact of MI advice, and how MI services can be further improved.

**References:**

Service evaluation of enquiries concerning the stability of medicines that have not been stored correctly under refrigeration.

T. House¹, N. Holmes²

¹ Lead Pharmacist Medicines Information, and ²Rotational Clinical Pharmacist, Cambridge University Hospitals NHS Foundation Trust.

Aim
To undertake a service evaluation to determine the reasons and outcomes of MI queries regarding inappropriately stored cold chain items and estimate the costs saved by the hospital MI service.

Introduction

▪ An estimated £300 million in medicine waste is lost by the NHS per year.¹

▪ Incorrect storage of cold chain items remains a problem area both in the pharmacy department and at ward level.

▪ Stability data requests are often received by Medicines Information (MI).

Method

▪ Data collection took place over an 8 month period between October 2009 and May 2010.

▪ Medicines Information staff collected information for those enquirers requesting information on stability following a temperature excursion for medicines with recommended storage between 2 and 8 degrees Celsius.

▪ The quantity of medicines and reason for the temperature deviation was recorded onto MiDatabank.

▪ Information was gathered from: the Summary of Product Characteristics, Fridge Database, manufacturers MI services and MiDatabank.

▪ Reasons were categorised and the cost of medicines deemed unusable by the information provided by Medicines Information were calculated using internal prices.

▪ The cost of the service was estimated by quantifying the time spent answering the enquiry as recorded by the MiDatabank and the minimum cost of a band 7 pharmacist.

Acknowledgements - Thank you to the School of Pharmacy at the University of East Anglia for their input into this project.

References:

Results

▪ 63 enquiries were made to Medicines Information.

▪ In total 109 different medicinal products underwent a temperature excursions outside of the 2-8 degrees Celsius.

▪ 57 enquiries were due to failure to refrigerate items upon receipt; 6 enquiries were due to refrigerator failure.

Figure 1. Outcomes of MI enquiries.

▪ 88% of the enquiries were made by pharmacy staff with 51% of these in relation to ward based events.

▪ 11% of the drugs enquired about had a subtotal value of >£1000 (£1116.60 to £7036.80); and 37% had a value >£100 (£100 to £879.60).

▪ For every £ of MI staff salary, £56.95 of medicines were judged. Of which £34.67 was saved.

Table 1. Summary of costs associated with MI enquiries.

<table>
<thead>
<tr>
<th>Location</th>
<th>Total value</th>
<th>Judged as useable (£)</th>
<th>Cost of MI service (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy</td>
<td>12,463</td>
<td>10,698</td>
<td>257</td>
</tr>
<tr>
<td>Wards</td>
<td>26,147</td>
<td>12,811</td>
<td>321</td>
</tr>
<tr>
<td>Total</td>
<td>38,610</td>
<td>23,509</td>
<td>678</td>
</tr>
</tbody>
</table>

Discussion

▪ Pharmacist are uniquely qualified to understand the consequences of temperature excursions.

▪ The cost of responding to these enquiries is negligible against the cost of medicines saved.

▪ The small number of enquiries from non-pharmacy staff suggests there is poor awareness of the role of the MI service. This may mean items are inappropriately destroyed or returned for use.

▪ The subtotal cost per drug is increased when it is provided in multiple quantities.

Recommendations for practice

▪ Promotion of the MI service to hospital staff.

▪ Continued recording of temperature excursions reported to MI onto an Excel spreadsheet as a tool for identifying constant or costly offenders.

▪ Recording quantities and costs of medicine involved to encourage awareness of cost implications of poor adherence to the cold chain discipline.

▪ Limited quantity of supply for high cost fridge items.

▪ Systems to ensure the maintenance of cold chain discipline need re-enforcing to reduce the number of enquiries.

▪ Potential ways to reduce inappropriate storage: Separation of fridge items from other stock when leaving dispensary, use of different colour bags for fridge items and signature receipt of fridge items from the dispensary.
A total of 56 suitable enquiries were received during the 4 month study period from August to November 2011 concerning 209 products. The value of the items that were able to be returned to the fridge and re-used during this time was £87,000. The most expensive item saved from destruction cost ~£1,400 per vial. The value of the items that needed to be discarded was approximately £8,000.

Analysis did not reveal much useful information about why medicines were not stored correctly, although broken fridges and ‘fridge’ stock simply being put away at room temperature by mistake were the most common reasons.

If these figures are extrapolated to cover a full 12 month period, this study suggests that the Wessex Medicines Information service could save UHS in excess of £260,000 per annum by answering enquiries about medicines stored outside of refrigerated conditions. With respect to learning why these storage errors occurred, this study added nothing of significance; analysis of past enquiries did not prove an effective means of collecting these data. Future studies could adopt interview methods or attempt formal root cause analysis in an attempt to prevent future refrigerator storage issues from arising. The limitations of this small retrospective study include the fact that we do not have details of the average number of malfunctioning fridges in this trust per year, so it is possible that these results may have been distorted, say, by an unusually large number of malfunctioning fridges during the study period. It also cannot be assumed that enquirers would have discarded the medicines if they had not spoken to the medicines information service – they may have sought advice elsewhere or simply re-used them anyway.
Improving medication safety: The Danaparoid-Story

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Introduction

- Starting point: correction of a subtherapeutic dose of danaparoid by a clinical pharmacist during rounds in a single case
- Cause of error: misleading information in the German Summary of Product Characteristics (SPC)
- Determination of error frequency, implementation of in-house measures to increase sustainable medication safety

Methods

- Chart review to deduct cases of Danaparoid use, April-June 2011
- Process optimisation during Danaparoid therapy

Fig. 1: Overall process to increase medication safety

Intensification of the routine check of orders for Danaparoid + of counselling on dose adjustment

Single case report to the manufacturer and the Federal Institute for Drugs and Medical Devices (BfArM); prophylactic doses despite of indications for a therapeutic anticoagulation

Development of an in-house guideline by an interdisciplinary working group (Fig. 2) + presentation in the hospital’s formulary committee meeting, an in-house journal published by the pharmacy and the intranet-based QMS

Suggestion for modification of the German SPC to the BfArM (Fig. 3)

Initiation of steps to effect a change in the German SPC on a European level by the BfArM

Results

Tab. 1: Determination of error frequency

<table>
<thead>
<tr>
<th>Number</th>
<th>Diagnostic text for HIT-II</th>
<th>Indication</th>
<th>Dosage [IE]</th>
<th>changed in</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>positive</td>
<td>DVT, Intolerance of Warfarin</td>
<td>2 x 750 I.E./s.c. = 1500 I.E./d for 8 d</td>
<td>Suggested therapeutic dose not put into practice</td>
</tr>
<tr>
<td>2</td>
<td>positive</td>
<td>DVT</td>
<td>3 x 750 I.E./s.c. = 2250 I.E./d or for 3 d</td>
<td>150 I.E./h i.v. = 3600 I.E./d</td>
</tr>
<tr>
<td>4</td>
<td>not previous</td>
<td>Bridging Marfan's: Antiphospholipid syndrome; PE aged&gt;75</td>
<td>2 x 750 I.E./s.c. = 1500 I.E./d</td>
<td>750 I.E./d s.c. 2.1-2 = 1575 I.E./d</td>
</tr>
<tr>
<td>5</td>
<td>positive</td>
<td>DVT</td>
<td>2 x 750 I.E./s.c. = 1500 I.E./d</td>
<td>750 I.E./d s.c. 2.2-2 = 1575 I.E./d</td>
</tr>
<tr>
<td>6</td>
<td>No data retrospectively , intervention dose adjustment by a pharmacist on time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>history of HIT-II</td>
<td>PE</td>
<td>200 I.E./s.c. = 400 I.E./d</td>
<td>200 I.E./h i.v. = 4000 I.E./d</td>
</tr>
</tbody>
</table>

7 of 21 patients (33.3%) with prophylactic doses despite of indications for a therapeutic anticoagulation.

References

1. Origan® (Danaparoid), Summary of Product Characteristics, via www.medicines.org, accessed on 09/07/2012; last update 07/2011; 2. Written and personal communication, Prof. A. Greinacher, Department of Immunology and Transfusion Medicine, Greifswald, Germany; 3. Written and personal communication, Dr. C. U.B. Federal Institute for Drugs and Medical Devices (BfArM), Bonn, Germany; 4. http://www.medizin.uni-greifswald.de/transfus/fileadmin/user_upload/doku_thrombo Gerinnung/2012/dosierschema_danaparoid.pdf, accessed on 09/07/2012; last update 07/2011
Exploring MI pharmacists’ views of the UKMi Training Workbook

Prof David Brown and Radhika Lakhani, School of Pharmacy, University of Portsmouth and Angela Badiani and Alex Weston Wessex Medicines Information Centre, University Hospital Southampton NHS Foundation Trust

Background
An important role of the UK Medicines Information network is to train and develop pre-registration and junior rotational pharmacists. This is achieved, in part, using the UKMi Training Workbook which was recently highly commended in the NHS Efficiency Awards. The development of this national training tool has so far been informed by two studies, but the primary objective of the present investigation was to explore whether a paper-based tool was still acceptable in today’s e-learning environment. In addition, the study looked at how the Workbook was used in practice and whether it saved the NHS time by delivering knowledge and skills, that would otherwise require one-to-one or small group teaching.

Method
Postal survey of UKMi pharmacists taken from the UKMi directory using a newly developed questionnaire.

Results
Of the 200 questionnaires distributed, 95 usable returns were received (48% response rate). Nearly 90% of respondents indicated that the Workbook should remain available in paper format. Interestingly, over half of them (59% n=48) also indicated that there was a need for the Workbook to be available in an electronic format, with interactive web-based learning being the most popular choice. The reasons given to support these results, in terms of advantages and disadvantages, are shown in figure 1.

Of those respondents that trained pre-registration pharmacists in their centres 100% (n=89) used the Workbook to support their development. For those centres training general rotation pharmacists (n=78), 95% used the Workbook in this way.

Most pre-registration (63%) and rotational (59%) pharmacists spent between 1-3 hours study per chapter. While the majority of MI tutors (72% with pre-registration, 76% with rotational pharmacists) spent between 10-30minutes discussing individual chapters with their trainees.

Nearly 90% (n=84) of pharmacists surveyed thought that the Workbook saved them time in delivering MI training and over 70% (n=60) estimated this saving to be at least 3 hours per individual student. In addition 82% (n=79) felt that the Training Workbook had improved the quality of MI in training in their centre.

Discussion
This study shows that the UKMi Training Workbook remains a very well used teaching tool throughout UKMi, supporting both pre-registration and rotational pharmacists in developing the clinical problem-solving skills that are essential for their future careers. For the first time there is also evidence that the Workbook saves NHS time, and improves teaching quality.

This study demonstrates that there is still a clear need for the Workbook to be available in a paper format. However, over half of respondents indicated that an additional electronic presentation would be helpful. This should be looked at as part of the continued user-driven evolution of the Workbook. Based on the helpful feedback from MI pharmacists about the merits and otherwise of e-delivery, it will be vital to involve them in designing and testing any new presentations so that their needs and expectations are met.

This study investigated the views of MI pharmacists involved in the training of pre-registration and rotational pharmacists. For future work it would be valuable to also include the views of the trainees themselves as users of the workbook.

References