# Awards and Poster Presentations

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## Poster Presentations

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<td>Clinical Audit to Assess the Adherence of Antibiotic Prophylaxis in General Surgery</td>
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<td>Fhezan Ashraf, Wingyee Lee and Akila Ahmed, Sandwell and West Birmingham Hospitals NHS Trust (SWBH), Birmingham</td>
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**BPSA Conference 2017 Winning Research Poster**

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Introduction
Antimicrobial resistance (AMR) is an international concern whereby the World Health Organisation predicts around 10 million deaths per year will be caused by drug-resistant infections 1. The Royal College of Nursing (RCN) published its position on the nursing contribution to antimicrobial resistance in 2014 that focuses on key antimicrobial stewardship (AMS) activities such as complying with guidelines, accurate documentation and plans, maintaining therapeutic levels, and educating patients 2. Leicestershire, through its rich and diverse population, is presented with a number of unique challenges when it comes to resistant organisms. Nurses are an important staff group to target for AMS teaching as they frequently come into contact with antimicrobial prescriptions and administer antibiotics 3,4. However, there was no formal face-to-face training on AMS for nursing staff at University Hospitals of Leicester NHS Trust. A lack of understanding of these issues has been self-reported by student nurses and also demonstrated through the Trust’s incident reporting system. In response to this the antimicrobial pharmacist (AMP) team developed an interactive education session for nursing staff undertaking preceptorship training to improve knowledge and build a professional relationship with this professional group.

Objective
The overall aim of this work was to evaluate the impact and value of these education sessions by:

1) Objectively measuring AMS knowledge of participants before and after the education sessions
2) Reviewing objective feedback on the value of these sessions from participants

Method
The antimicrobial pharmacist worked in collaboration with the medicines management and education nurses to ensure the topic was added to the agenda and to understand the general expectations of this professional group.

A 1 hour teaching session for all nurse preceptorship students was developed to meet the following learning objectives (appropriate for Level 5 learners):

- Define the key aspects of antimicrobial stewardship
- Describe what is driving antimicrobial resistance
- Explain the role of nurses in antimicrobial stewardship
- Reflect on current practice and prepare for future practice

The content was approved by a microbiologist, nurse education team and medicines management nurses. To measure change in understanding, all participants were asked to complete an identical questionnaire, comprised of 13 questions based on general antimicrobial stewardship topics, before and after the session. The post session questionnaire also collected subjective feedback on the quality and value of the session from the viewpoint of the participants. Data was stored and analysed in Microsoft Excel. Ethics approval was not required.

Results & Discussion
Twelve pairs of pre- and post-session questionnaires were completed for the session delivered April 2017. There was an improvement in the answer scores of 9 questions out of 13 and a worsening of scores of 4 answers (figure 1).

The areas of knowledge that demonstrated a drop in appropriate responses related to antimicrobial resistance being a public health issue, how often antimicrobial prescriptions should be reviewed, when to contact microbiology in relation to the treatment of red flag sepsis and when to use urine dip stick tests. As the session was designed to improve knowledge, no loss of knowledge should have been observed over this time period. This appeared drop in appropriate answers may be caused by participants not reading the questions correctly at the end of the session. However, the content for these themes should be reviewed for future sessions.

All other areas saw an improved level of knowledge post-intervention. Increased knowledge around general AMS (questions 2 to 6) is expected to improve practice on the wards and reduce the number of antimicrobial related incidents being submitted. The greatest improvement in understanding was reported for “what is an appropriate review” (40%) and “samples should be sent before the first dose” (31%). From this it is expected that more
samples will be available, allowing for better clinical review of antimicrobial therapies. This increased knowledge should also empower nurses to understand clinical reviews and push for a plan where one is not documented. In the feedback all participants felt they had improved knowledge of AMR and AMS and would recommend this session to other colleagues. Seven participants rated the usefulness of the session as excellent and 5 ranked it as good, and all feedback stated it was relevant to their role. Participant 3 commented “This is something that was not covered in nurse training but feel is paramount to oncology nursing.”

Conclusion
Although this project is limited by the number of participants for which paired questionnaires were available an overall improvement in AMR and AMS knowledge was demonstrated after the session. Content will be reviewed to clarify and strengthen the areas that reported a reduction in understanding.

Feedback was positive and all participants would recommend this to continue. This session could also be rolled out to undergraduate nursing students and current nursing teams to support the RCN and national positions on AMR and AMS.

References:

Table 1. Type and number of queries received by the pharmacist NMP

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<th>Type of query received</th>
<th>Number</th>
<th>% of type of query received</th>
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<tr>
<td>Prescription renewal</td>
<td>190</td>
<td>70%</td>
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<tr>
<td>Blood requests/results</td>
<td>43</td>
<td>16%</td>
</tr>
<tr>
<td>? Relapse symptoms</td>
<td>9</td>
<td>3%</td>
</tr>
<tr>
<td>Homecare</td>
<td>11</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>7%</td>
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There was a total of 161 prescriptions written during the five month review period. Of the 161 prescriptions generated, 149 prescriptions (93%) were written by the pharmacist NMP and 12 prescriptions (7%) were written by either the registrar or consultant neurologist.

A total of 272 queries were received by the pharmacist NMP via telephone/email. The type and number of queries received are outlined in Table 1.
Feedback received from one MS patient:

“I am really happy having you involved with my treatment because, as a subject matter expert on my medication, I can ask you specific medication related questions and get a quick and accurate answer. It is also reassuring that you can order specific blood tests for possible side effects and monitoring of the medication I’m on so I feel that the risks are managed really well. It doesn’t bother me that you are not a nurse or a doctor because I know you are a fully qualified and trained medical professional who has experience and expertise in my particular disease field. In my opinion, the more professionals involved in the many aspects of my treatment, the better.” (Patient X, email June 2017)

Discussion

A pharmacist’s role can be extremely varied within the multidisciplinary team. As shown, the pharmacist NMP wrote 93% of prescriptions. Prior to the pharmacist NMP, DMT prescriptions were written by the registrars/consultants. Not only did this put a strain on the existing nursing service, but the registrars/consultants were somewhat unfamiliar with the newer oral therapies and this in itself increases the risk of prescribing errors. With a pharmacist NMP in place, the workload is taken from the registrars/consultants where the burden and pressure to the service is shared. In addition, blood monitoring is essential in the treatment protocol for all DMTs and the pharmacist NMP is able to request bloods to monitor for treatment efficacy and safety accordingly. The registrars/consultants have been educated for appropriate prescribing and monitoring of DMTs so that they can write such prescriptions in the pharmacist NMP’s absence.

Within this role the pharmacist NMP is also a contact point (telephone/email) for MS patients alongside the neurology specialist nurse. As shown in Table 1, the pharmacist NMP received 272 queries. Most queries related to prescription renewal and blood requests/results. The positive feedback received from the patient is extremely beneficial and shows the impact a pharmacist NMP can have in the treatment pathway of a MS patient.

Conclusion

Pharmacists play an important and vital role within the multidisciplinary team and can enhance their existing role as a NMP. Pharmacists have the capability in caring for patients with long term conditions ensuring compliance, adherence and to monitor for safety and efficacy of treatment. Without the pharmacist NMP service available to the MS patients at the Trust, the burden to the neurology service would be immense.

It is such a pleasure to write about pharmacists having such a crucial role in the treatment of MS.

References

1. MS in the UK, Jan 2016, MS Society UK, Available from: https://www.mssociety.org.uk/sites/default/files/MS%20in%20the%20UK%20January%202016_0.pdf (Accessed 01.06.2017)
Discussion
A seven day clinical pharmacy service has achieved demonstrable improvements in patient care and medication safety with significant changes to medicines reconciliation rates, reduced time to verification of medicines and greater involvement in the provision of discharge medications. The impact of the seven day service is seen not only in the improved service to those patients admitted to hospital at weekends but also in the reduced variation in care across the seven days.

References
Does pharmacy TECHnician supported MEDicines administration (TECHMED) reduce omitted doses in hospital?

Richard Keers*, Evangelos Kontopantelis†, Liz Lamerton†, Fiona Morris‡, Ailsa Burgess‡, Elizabeth Sexton*, Faith Mann*, Lindsay Harper*, Darren Ashcroft*, *Division of Pharmacy and Optometry, University of Manchester, †Salford Royal Hospital NHS Foundation Trust

Background
Some of the most frequently occurring omitted dose types include unavailable medications and ‘blank boxes’ left unsigned, which may be considered ‘preventable’ in nature.1 There has recently been interest in the role of ward based pharmacy teams supporting medicines administration to reduce ‘preventable’ omissions,2 and there is a need to expand this evidence base. A NHS teaching hospital in England therefore decided to implement a pilot pharmacy TECHnician supported MEDication administration (TECHMED) ward service.

Objectives
1. Conduct a pilot randomised controlled trial (RCT) to determine whether the TECHMED service reduced the rate of (a) all omitted doses and (b) ‘preventable’ omitted doses,
2. Conduct a concurrent qualitative process evaluation of TECHMED.

Method
The pilot RCT involved three pairs of matched medical and surgical wards over a four-week period in March/April 2016. One ward within each pair was randomly selected to receive TECHMED. Trained pharmacy technicians accompanied nurses on three of four weekday medication administration rounds. Pseudo-anonymised electronic prescribing and medicines administration data was retrospectively extracted and analysed. Multilevel logistic regression analysis was carried out using STATA v13* to present omitted dose event probabilities as predictive margins with 95% confidence intervals (CI). The process evaluation involved semi-structured interviews with stakeholders to explore the fidelity, acceptability and feasibility of TECHMED. Interviews were analysed using Carol Weiss’ Theory Based Evaluation Model.2 The study received university ethical approval (UREC2:15501) and is registered as a clinical trial (ISRCTN11642788).

Results
The RCT included 36,599 scheduled doses for 1076 inpatients. The adjusted predictive probability of ‘total’ and ‘preventable’ omitted doses between the wards receiving TECHMED services and those without was similar whilst TECHMED was in operation (‘total’ omitted doses: 19.2% (95% CI 16.8-21.5%) versus 19.0% (16.9-21.2%), respectively; ‘preventable’ omitted doses: 3.0% (2.2-3.7%) versus 2.6% (1.9-3.3%), respectively). The process evaluation interviews involved 10 pharmacy technicians, 9 nurses and 3 senior managers who reported that TECHMED was welcomed and well understood, though pharmacy technicians reported some workload balance concerns. Some pharmacy technicians questioned the impact of their presence on omitted doses, and others reported not following nursing staff during the medication round as per their training for various reasons. Most participants favoured targeted extension of TECHMED based on resource and clinical need.

Conclusions
The final TECHMED study report has now been published.3 The service was found to be acceptable to stakeholders, but was not associated with reductions in predicted rates of omitted dose outcomes. The process evaluation highlighted potential contributors to this finding. Future research should focus on understanding how stakeholders work together to deliver this service and whether a targeted approach would be effective.

References
Poster Presentations

1. The identification and management of sepsis in peripartum women
Ayesha Ali, Sally Stubington, Melanie Stevens, Dr Rajesh Rajendran, East Cheshire NHS Trust, Macclesfield

Background
In 11–15% of women worldwide, sepsis is the leading cause of maternal death (1, 2). The Sepsis Six care bundle (SSCB), based on the systematic inflammatory response syndrome criteria, was introduced with the aim of delivering all six elements of the bundle within one hour of sepsis being diagnosed.

Objectives
To evaluate the relative value of individual criteria in the diagnosis of maternal sepsis and to assess the use of the SSCB and its delivery within one hour.

Method
This study was an investigation into current practice, thus did not require ethics approval. It was conducted over a three-month period from 11th April to 11th July 2016. The study sample comprised all women admitted during the study period who received antibiotic therapy for a suspected or confirmed diagnosis of sepsis. Data were anonymously collected from patients’ medical notes, handheld and electronic health records. Data were entered into SPSS, validated and locked.

To evaluate the criteria associated with the determination of clinical sepsis, we conducted a binary logistic regression. This was limited to sepsis diagnosis and did not include severe sepsis, when blood pressure and mental status are considered for evaluation.

Result
A total of 89 women were diagnosed with sepsis using the bundle from a total of 2690 pregnancies, giving a rate of 3% of pregnancies. These women were exposed to antibiotic therapy for a diagnosed sepsis based on patient records. The binary logistic regression model produced an overall accuracy of 82.7%. The model was significant for temperature, heart rate and white cell count.

Conclusions
SSCB stickers were used in only 37.1% (n=33) of cases and only two of these women received the complete care bundle within one hour. There was good adherence to IV antibiotic administration and taking blood tests, which were delivered in 97% of the 33 cases (n=32). Oxygen was reported to have been delivered to only 27.3% of these women (n=9), which is unsurprising since most obstetric women present with normal saturation.

References
1. Ayesha Ali, Sally Stubington, Melanie Stevens, Dr Rajesh Rajendran, East Cheshire NHS Trust, Macclesfield


2. Clinical Audit to Assess the Adherence of Antibiotic Prophylaxis in General Surgery
Nouf Abutheraa and Alexander Mullen, Strathclyde Institute of Pharmacy and Biomedical Science, University of Strathclyde, Glasgow and June Grant, Women & Children’s Services, NHS Greater Glasgow & Clyde, Glasgow

Background
The use of antibiotic prophylaxis (AP) during surgical procedures is used to prevent the development of surgical site infections (SSI’s). SSI’s are related to significant post-operative morbidity, prolonged hospitalisation and considerable financial burdens1. Inappropriate use of prophylactic antibiotics can increase the prevalence of antibiotic resistant bacteria as well as pre-dispose patients to infections2. At present, there is no data regarding compliance to AP in general surgery at Macclesfield District General Hospital (MDGH).

Objectives
To determine whether the prescribing and use of AP (choice, dose, duration, route and timing of administration) for general surgical procedures at MDGH adhere to current local guidelines4. The target of 100% standard for each of the objectives was the aim.

Method
A prospective study of elective and emergency surgical procedures was conducted at MDGH from 02/6/14 to 27/6/14. Eligible patients included those ≥ 18 years of age undergoing a surgical procedure for which the hospital guideline recommends AP. Patients records were reviewed to assess whether the choice, dose, duration, dosing interval, route and timing of administration of AP was concordant with the local guidelines.

Conclusion
This study did not require ethics approval.

Results
A total of 32 eligible patients were evaluated. AP choice, dose, duration, route and timing of administration were compliant with guidelines in 32 (100%), 4 (13%), 29 (91%) and 30 (94%) cases, respectively. None of the cases required more than one dose of surgical AP during the operation. The prophylactic antibiotic administration time was not documented and therefore no case was totally compliant with every aspect of the guidelines.

Conclusion
Whilst adherence to guidelines regarding choice, duration and route were good, compliance with prescribing the correct dose required improvement. This was mainly attributed to the fact that the Gentamicin dose required calculation. Timing of administration of prophylactic antibiotics was difficult to assess due to a lack of documentation. Allowing for limitations, the results can be used to generate recommendations to improve current practice and compliance. Incorporating incision time into the documentation will assess compliance regarding the timing of surgical AP administration. Additionally, raising awareness of the guidelines through training all surgical staff may improve adherence, particularly educating staff regarding
dosing of Gentamicin or alternatively providing a standardised Gentamicin dosing guideline. Re-auditing annually will help understand if the recommendations that have been implemented and if current practice has changed.

References

3. An Evaluation of Dexamethasone-induced Hyperglycaemia
Roqsana Ara1, Meera Bhudia2, Dr. Stephen Thomas1, Rita Shah3, Sheila Burmiston1
1Guy’s & St Thomas’ NHS Foundation Trust, London, England, 2King’s College London

This study did not require ethics approval

Background
Steroid related hyperglycaemia is associated with significant complications1. There are instances of serious harm and hospital admissions, including intensive care admissions at Guy’s and St Thomas’ NHS Foundation Trust (GSTT). At GSTT, there is an established protocol for treating prednisolone-induced hyperglycaemia; however, most severe cases are seen with dexamethasone. Dexamethasone doses are comparatively larger, often intermittent, with a time course of glycaemic effect different to that seen with prednisolone2. Failure to recognise dexamethasone-induced hyperglycaemia in a timely manner is a significant risk leading to patient harm.

Objectives
- To determine the number of patients treated with dexamethasone and their diabetes status
- To determine the number of patients with blood glucose (BG) monitoring done and who developed hyperglycaemia post-dexamethasone treatment
- To establish the treatment used for patients with dexamethasone-induced hyperglycaemia.

Method
A retrospective analysis of inpatients and oncology outpatients between 21st September and 21st October 2016 was undertaken. Oncology outpatients were used due to many prescribed dexamethasone for nausea and previous notable cases. For inpatients, all dexamethasone prescriptions were identified using the electronic prescribing system (Medchart). Electronic medical notes and patient records were used to determine indication, diabetes status and BG monitoring. Treatment for hyperglycaemia was verified using Medchart. For oncology outpatients, the same was collected using the MOSAIQ program which contained prescribing, medical history, clinic notes and blood results.

The Trust’s standard target of BG levels >11mmol/l was recognised as hyperglycaemia. Exclusions were paediatrics and where dexamethasone administration was not oral, intravenous, intramuscular or subcutaneous.

Results
814 patients (172 inpatients and 642 outpatients) were treated with dexamethasone. 73 patients (11 inpatients and 62 outpatients) had diabetes. Only 13.5% (74 inpatients and 36 outpatients) received BG monitoring. Among those, almost a quarter, 24.5% (17 inpatients and 10 outpatients) developed hyperglycaemia (one patient developed diabetic ketoacidosis). A larger proportion of diabetes patients developed hyperglycaemia (16.4%, n=12) than patients without diabetes (2%, n=15). Only 33% (6 inpatients and 3 outpatients) of those with dexamethasone-induced hyperglycaemia had medication changed. The most common changes were the addition of short-acting insulin (aspart) as required or initiation of regular intermediate-acting insulin (isophane). One patient was referred to their general practice doctor to optimise diabetes medication.

Conclusions
This study highlights an urgent need for improved BG monitoring of patients treated with dexamethasone, particularly oncology outpatients. It also identified that most hyperglycaemia post-dexamethasone cases were untreated. Greater awareness of dexamethasone effects on BG should be raised; supported by initially developing a protocol for appropriate BG monitoring in this cohort. As there is currently limited evidence around treatment, this study provides baseline data. Further research will help develop a treatment guideline to improve patient safety. This study could be improved if it considered all outpatients and identified HbA1c levels to capture patients with poor long-term BG control.

References
4. Evaluating the safe use of intravenous gentamicin in neonates
Fhezan Ashraf, Wingyee Lee and Akila Ahmed, Sandwell and West Birmingham Hospitals NHS Trust (SWBH), Birmingham

Background
Gentamicin provides lifesaving first line treatment for suspected neonatal sepsis. However, dose-related adverse effects include ototoxicity and nephrotoxicity. A review of locally reported neonatal medication incidents (January-December 2016) identified that 19% involved the use of intravenous gentamicin. This audit provides a timely review of current local practice to improve the safe use of gentamicin seven years on from National Patient Safety Agency (NPSA) Alert 001 (2010).

Objectives
To audit gentamicin prescribing, administration and monitoring (PAM) practice against the trust neonatal policy.

Standards
1. 100% of PAM times are specified in the 24-hour format*
2. 100% of prescriptions specify the correct dose frequency based on the corrected gestational age (CGA)
3. 100% of staff wear a disposable coloured apron stating 'Do Not Disturb' when preparing and administering gentamicin*
4. In 100% of courses, all doses were administered following correct use of the double checking prompt*
5. In 100% of courses all doses are administered within one hour of the prescribed time*
6. 100% of courses requiring trough levels specify directions to “hold” or “give” post-level doses
7. In 100% of courses requiring trough levels, samples are taken one hour pre-dose
8. In 100% of courses requiring trough levels, results are specified on the drug chart

* NPSA Care Bundle element

Method
A prospective audit on gentamicin courses (n=58) prescribed on the neonatal unit (NNU) was conducted between 28th April and 19th May 2017. The neonatal pharmacist reviewed and collected PAM data for each treatment course during morning ward rounds using a pre-piloted Excel™ spreadsheet. Ethics approval was not required.

Results
1. 100% of PAM times were specified in the 24-hour format
2. 100% of prescriptions specified the correct dose frequency based on CGA
3. 0% of staff wore a disposable coloured apron stating 'Do Not Disturb' during preparation and administration
4. In 86% of courses, all doses were administered following correct use of the double checking prompt
5. In 81% of courses, all doses were administered within one hour of the prescribed time
6. 90% of courses requiring trough levels (n=41) specified directions to “hold” or “give” post-level doses
7. In 0% of courses requiring trough levels, samples were taken one hour pre-dose
8. In 52% of courses requiring trough levels, results were specified on the drug chart

Conclusions
Gentamicin PAM practices are not compliant with trust policy. In particular, NNU staffs show 0% compliance with Standards 3 and 7. The results of this audit along with a qualitative survey of staff perceptions will inform the following areas of the SWBH Patient Safety Plan:
- Implementation of an electronic prescribing and administration system (ePMA) by 2019, which will include a live dose calculator to support gentamicin prescribing, administration and monitoring
- Implementation of an early warning system within ePMA to support medicines safety
- Antimicrobial stewardship, through update of policy and collaborative design of educational tools to promote safer gentamicin practices.

References
2. NPSA. The Safer Use of Intravenous Gentamicin for Neonates, NPSA001. 2010.

5. Medicine Use Evaluation of Lidocaine 5% Patches
Amna Aslam, Carolyn MacKay, Paul Keeley, Carl Fenelon, Glasgow Royal Infirmary, NHS Greater Glasgow and Clyde (NHSGGC)

Background
Lidocaine patches are licensed for use in post-herpetic neuralgia (PHN) and offer a localised analgesic effect. Lidocaine patches are unlikely to be effective deeper than the subcutaneous layer as systemic lidocaine concentrations are insignificant. The SMC has restricted prescribing to patients where first-line therapies have been intolerable or ineffective. However, the Scottish Palliative Care Guidelines highlight alternative uses of lidocaine patches that can be considered under specialist care.

Previous work in the UK has shown that lidocaine patches are being used for a range of indications out with licensed and palliative guidelines. The use of these patches in NHSGGC has been associated with a year on year increase in expenditure, for both primary and secondary care.

Objectives
The aim of this study was to identify the range of indications that lidocaine patches are being prescribed for, where treatment is being initiated and which specialties are recommending treatment. This study also aimed to assess patient’s perception of lidocaine patch effectiveness, how often treatment is being monitored and whether a patch free period has been trialled.

Method
A convenience sample, of patients prescribed lidocaine patches were identified via ward pharmacist referrals and by stock orders to pharmacy. Following consent, data was collected using a structured interview to determine why, when and where patients were started on lidocaine patches, and their experience on efficacy.

Ethics approval was sought but not considered necessary.
Results
30 patients were interviewed and 83% were female. The mean patient age was 68 years. Only one patient was prescribed lidocaine patches for PHN, whilst 80% of patients were prescribed patches for unlicensed indications out with palliative care recommendations. Back pain was highlighted as the most common indication for patch use (58%).

It was identified that 46% of patients were initiated treatment in secondary care where 10% of recommendations came from the palliative care team and 20% from the hospital pain team.

When asked about effectiveness, 53% of patients communicated a good response from their lidocaine patch. However, 37% of patients experienced reduced benefits. During the course of lidocaine patch treatment, 43% of patients reported an increase in analgesia whilst 20% had a reduction.

Only 50% of patients could recall having a pain review since commencing lidocaine patches. Six patients had previously experienced a patch free period and four reported increased pain during this time.

Conclusion
This medicine use evaluation demonstrates that lidocaine patches are being widely used for unlicensed indications where there is no supporting evidence. Although many patients felt that these patches are helpful, any perceived benefits are likely to be a placebo effect.

To tackle this, there will be recommendations made to secondary care to restrict prescribing. Health care teams in all sectors of care will be encouraged to review and discontinue therapy where possible.

References

6. An evaluation of peri-operative drug advice and documentation in a nurse-led pre-admission clinic

Neetu Bansal, Lead Enhanced Recovery Surgical Pharmacist, Central Manchester University Hospitals NHS Trust,
Grace Riley, Final year Pharmacy Student, Manchester Pharmacy School

Background
Peri-operative drug management is widely accepted to improve outcomes for those undergoing elective surgery by reducing recovery time and the incidence of peri-operative complications1. Current practice within the trust is that all patients listed for surgery attend a nurse led pre-admission clinic where advice is also provided on peri-operative drug management. Many studies have evaluated the effectiveness of nurse led pre-admission clinics, however little work has focused on the documentation of peri-operative drug advice given in the clinics, and patients’ interpretation and recall of this advice

Objective(s)
To evaluate:
1. The extent of medication history documentation and peri-operative drug management recommendations in the elective surgery pathway booklet
2. The appropriateness of the peri-operative drug management recommendations provided to patients
3. To investigate patients’ recall of advice and subsequent management of their medicines peri-operatively as a result of the advice provided

Method
The study was conducted on the surgical admissions lounge on one day each week over a two-month period between November 2016 and February 2017. In a retrospective review, patient demographic data was collected from patients’ notes. Type of procedure and co-morbidities were recorded. The extent of medication history documentation was also recorded, as was the documented advice with regards to peri-operative drug management.

A pharmacy student conducted structured face-to-face patient interviews. The purpose of the interview was to account for incomplete fields in the notes, to identify what advice patients recalled from the consultation and to investigate whether patients followed the advice they were given. Patients were made aware of the study and verbal consent was granted before interviews were conducted. Ethical approval was not required for this audit.

Results
52 patients met the inclusion criteria and were taking a total of 330 regular medicines. 265 (80%) of these medicines were documented at the pre-admission clinic. 278 (84.2%) medicines did not require intervention. 52 (16%) medicines required a pre-operative intervention; 31 (9%) of these medicines were managed appropriately as identified in the patient notes or recalled by patients at interview. The other 21 medicines (6.4%) were either continued or discontinued inappropriately upon advice of the clinic nurses. For 86 (26.1%) of the medicines, patients recalled no advice and there was no documentation of advice given. 11 (21.2%) of the 52 patients did not take any medicines on the morning of surgery. This was because they were unsure of what to take or because they believed they could not drink any water whilst ‘nil by mouth’. All data was collated on an Excel sheet and analysed using simple statistics.

Conclusion
The overall findings highlight the difficulty of translating the advice within clinical guidelines into clinical practice. The peri-operative medication advice given and its associated documentation could be improved by additional training and input and support from other relevant health care professions such as pharmacists in the pre-admission setting. Patients need to be counselled on the interpretation of being ‘nil by mouth’ and importance of taking medication through the peri-operative period.

References
Background
Between September 2006 and June 2009 of 21,383 reported incidents of omitted and delayed medication, 27 deaths and 68 cases of severe harm were reported to the NRLS. This lead to the NPSA publishing the patient safety alert titled: Reducing harm from omitted and delayed medicines in hospital. At present, a lack of knowledge exists on the current prevalence of omitted and delayed medications within surgical patients during the peri-operative period.

Objectives
This study aimed to investigate peri-operative omissions and delays in medication administration within the Trust. The objectives of this study are:
1. To identify medication classes which are most frequently omitted or delayed in peri-operative surgical patients
2. To categorise the risk associated with each peri-operative omitted and delayed medication

Methodology
Data collection for this study took place over 10 days on four surgical wards between November 2016 and February 2017. On the ward, patient medical notes and drug kardexes were collected. Each patient’s demographic information was recorded including patient initials, patient hospital number and number of regular and stat medications each patient had been prescribed. Each patient’s medical notes contained post-operative records from which the type, time and duration of surgery were identified and documented.

All peri-operative omitted and delayed medicines, considering one pre-operative dose administration time prior to surgery and a 24 hour post-operative period, were documented alongside all other relevant information for each omitted or delayed medication.

The risk categorisation of omitted and delayed medication was determined by the UKMi tool as well as by specialist surgical pharmacist review. Each record was given a risk classification of low, intermediate or high significance reflecting the impact on patient outcomes

Ethical approval was not required for this audit.

Results
This study reviewed drug kardexes and post-operative medical records for 61 patients, considering 552 medications. A 2% (n=11) rate of delay in drug administration was identified alongside a 29% (n=162) peri-operative medication omission rate. Medication classes most commonly omitted peri-operatively included cardiovascular drugs and central nervous system drugs. Rate of nursing record documentation for the omission of medication, in line with CMFT medication policy, was identified as being very low (23%, n=38 of 162), limiting the identification of the causes of medication omissions in peri-operative surgical patients. Comparison of risk categorisation of omitted medicines by the UKMi tool, a generic risk classification tool, and specialist pharmacist review, in most cases acknowledged the latter to identify omissions of higher significance as a result of considerations of patient specific factors e.g. patient co-morbidities.

Conclusion
Recommendations outlined for the trust surround identification of the barriers to effective nursing documentation and nursing staff education around medicines administration during the ‘nil by mouth’ period to minimise post-operative complications.

References

8. Antibiotic Drug Chart Pilot; Using CQUIN data to develop evidence-based Antimicrobial Stewardship
Baretto, B. UHCW NHS Trust, Coventry and Thaper, P. UHCW NHS Trust, Coventry

Introduction
An antibiotic drug chart was piloted that prompted Prescribers to review antibiotics after 48 hours and allow if necessary prescribing of antibiotics for an additional 3 days. This was part of antimicrobial stewardship and a National Antimicrobial Commissioning for Quality and Innovation (CQUIN) objective 2016/17.

Previously, an antibiotic chart was piloted that allowed up to 72 hours of antibiotics only to be given. However, it was demonstrated that this “hard stop” may compromise patient safety, through missed doses. The pilot was therefore re-done in the Emergency Department (ED) and the chart adapted: adding a review section after 48 hours, a stat antibiotic section and up to five days antibiotic prescription. This was an audit project and so ethics and approval were not required.

Objective
The standard was that 100% of antibiotic focus/review sections must be completed for all antibiotics.

Method
The focus/review section incorporated prescribing decisions to be ticked: I/V to oral, continue, change or stop. The antibiotic stat section allowed administration of 2 additional doses. Antibiotic charts were stapled onto the original antibiotic section of drug charts. The pilot drug chart and guidance notes were advertised Trust-wide to encourage staff engagement. The audit was started in ED, frequently an area for initiation of antibiotics. As patients could be admitted onto any ward, antibiotic charts were tracked and data collected by Ward Pharmacists using a shared spreadsheet. It was recorded if the focus/review had been completed, the outcome of antibiotics and any relevant comments. Outcomes were compared to data collected for the CQUIN.

Results
276 drug charts with stapled new antibiotic sheets were used by ED over 5 days. Every patient in ED required a drug chart but about a third would be admitted per day and only a further third would be prescribed antibiotics.

Antibiotic charts were analysed on 17 wards. 29 charts had 37 prescribed antibiotics. 62% of charts had the focus/review section completed and 68% of antibiotics had the focus/review completed and so the 100% standard was not achieved. Antibiotics were not included if outcomes were unknown. The results demonstrated that a higher percentage of antibiotics were reviewed to oral for the pilot compared to CQUIN data of March 17, (24% vs 5%). Also, a smaller percentage of antibiotics were just continued after 72 hours compared to the CQUIN data (37% vs 61%).
Discussion and Conclusion
The focus/review section of the new charts appears to have prompted prescribers to review I/V antibiotics to oral and dissuaded them to not just continue antibiotics. Also, after Trust-wide communication and engagement, all staff may have been reminded of general antibiotic stewardship. CQUIN data collected around the same time showed fewer favourable results. A survey for staff could confirm the change in behaviour and more training of all staff groups is required.

References

9. An audit assessing PGD compliance to legislation and national guidance
Sonali Bose, Deepal Mandalaya, Pritesh Bodalia, Pharmacy Department, University College London Foundation Trust

Background
A patient group direction (PGD) is a legal process that allows healthcare professionals to supply and/or administer specified medicines to pre-defined groups of individuals, without a prescription1-2. PGDs must be implemented in accordance to The Human Medicines Regulations 20121 and NICE MPG2. This aim of the audit was to measure the baseline compliance to the PGD policy before introduction of a novel PGD e-platform.

Objectives
To determine the number of PGDs that had all sections complete and up to date.
To assess the number of active PGDs in date and include a review date and expiry date.
To assess the number of PGDs that had been signed by the developers and Use of Medicines Committee Leaders.
To assess the number of PGDs that had appropriate staff competency and training records completion.

Main Standards
100% of all legally required information on the PGD is complete and up to date3.
100% compliance to trust requirements stated in the hospital PGD Policy1-2.

Method
All sections of the approved PGDs published on the Trust intranet page were assessed with the data collection tool against the 11 PGD standards set for the audit in April 2017. Findings were analysed. For a PGD to pass, all standards set in the audit had to be fulfilled. This study did not require ethics approval.

Results
40 PGDs were included in the audit. 100% (40/40) PGDs met the standard of legally required information in line with regulations1 and PGD active, due for review and expiry dates. 72.5% (29/40) of PGDs met the standard of developer signatures and 75% (30/40) of authorisation leads signatures. Only 50% (20/40) of PGDs on the Trust intranet met the Trust requirements around staff authorised and training records. Overall, 50% (20/40) PGDs passed the audit. Although a paper copy with signatures is kept by the Head of Pharmacy, this was not visible to users on the intranet.

Conclusions
In summary, the areas that require improvement relate to developer and authorisation signatures, and training records of individuals authorised. The limitation of the audit was that we were unable to access the training records kept in the clinic areas of staff authorised. An electronic platform has been developed by Senior Pharmacists together with Pharmacy IT Team, which will improve governance in the Trust on documentation and allow information on authorised individuals, developers, authorisation leads and authorising managers accessible centrally on the PGD e-platform. The authorising manager will also have access to full training records and details of individuals authorised. The CPPE PGD module is now available for staff via the electronic Trust learning portal. Future work involves launching the PGD e-platform and a review of all PGDs.

References

10. An audit looking at safe insulin prescribing using an electronic prescribing system
Hannah Beba and Emma Boyle, County Durham and Darlington Foundation Trust

This study did not require ethics approval.

Background
The National Diabetes Inpatient Audit in 2016 revealed scope for improvements around insulin prescribing, showing that 46% of patients treated with insulin had a medication error 1. Ensuring prescriptions of this high risk medication are correct is essential for patient safety 2,3.

County Durham and Darlington Foundation Trust (CDDFT) uses a cross-referenced system of paper insulin charts and a place saver on the iSOFT Clinical Manager electronic prescribing system. The place saver only specifies the type of insulin and the device, while the paper chart contains all the details of the insulin including doses and timings.

Objectives/Standards
This audit aimed to look at insulin safety for inpatients at CDDFT post-implementation of an electronic prescribing system. The following standards were set according to trust policy and national guidance1,4:

- 100% of patients will be prescribed the correct insulin, brand, and device.
- 0% of insulin prescriptions will include abbreviations for units (‘u’ or ‘iu’).
- 100% of orders will be signed by a prescriber and administrator.
- 100% of insulin orders on paper charts will be cross-referenced to the electronic prescribing system.
Method
This was a snapshot audit taken over one week (Monday-Friday) on a general medical ward. 15 insulin-dependent diabetic patients were identified and reviewed during the medicines reconciliation process. The data was collected and analysed by the same Band 6 pharmacist, standardising data collection and analysis.

Results
None of the standards were met.
• 93% (14/15) of patients had the correct insulin prescribed on both electronic and paper chart
• 20% (3/15) had the correct device prescribed on both electronic and paper charts
• 73% (11/15) had the brand specified on the paper chart
• 7% (1/15) of paper charts included an abbreviation for units (‘u’ or ‘iu’)
• 73% (11/15) of insulin was signed for by prescribers and administrators on the paper chart
• 73% (11/15) of insulin prescribed was cross-referenced to the electronic medication chart
• 73% (8/11) of those that were cross referenced were correct

Conclusions
The results of this snapshot audit have major safety implications. The use of two concurrent prescribing systems for insulin carries increased risk of errors. Switching entirely to electronic prescribing may improve compliance with safety standards, including avoidance of abbreviated units, ensuring that brand specific insulin is selected, avoidance of missed doses and provision of a much clearer accountability record for prescribing and administration.

References

Gillian Cavell. Consultant Pharmacist, Medication Safety, King’s College Hospital NHS Foundation Trust

Background
The Carter Review [1] examined operational productivity and performance in the NHS where unwarranted variation in costs and practices exist. It describes Medication Safety as a Clinical Service providing organisational assurance and governance to reduce risks of harm from medicines use. However the Hospital Pharmacy Medicines Optimisation dashboard [2] reports numbers of incident reports and harms (Safety I). Patient safety is being measured by the lack of safety.

We propose that presence of safety with medicines use (Safety II) can be measured using a simple metric illustrated here for intravenous potassium chloride (KCl)

The risks of inadvertent, rapid administration of concentrated potassium solutions are widely recognised. Use of ready-to-administer (RTA) infusions of potassium is recommended [3]. Availability of concentrated KCl in ampoules should be restricted to areas where RTA infusions cannot be used. Organisations managing risks with KCl will therefore use more RTA infusions of KCl than ampoules. The amount of KCl supplied as high strength RTA infusions (>80mmol/litre) compared to the total amount of intravenous high strength KCl supplied to clinical areas will have a high value:

KCl metric (%) =

\[
\frac{\text{mmols of KCl issued as high strength RTA infusions (>80 mmol/litre)} - \text{mmols of KCl issued as amps + mmols KCl issued as high strength RTA infusions}}{\text{mmols of KCl issued as high strength RTA infusions (>80 mmol/litre)}}
\]

Objectives
• To measure the extent to which safer formulations of KCl are used within our organisation using the metric
• To provide assurance that our hospital comply with national guidance to reduce the risk of patient harm from intravenous KCl.
• To identify clinical areas where compliance could be improved.

Method
Issue data for IV formulations containing >80mmol/L of KCl to all clinical areas for the period January to December 2016 were extracted from the Pharmacy stock control systems on our two hospital sites. For each formulation the number of mmols KCl issued was calculated to take into account concentrations of different formulations. Recognising that RTA KCl infusions are not always available for paediatric administration, and that 20mmol/10ml concentrated KCl solutions are used for certain restricted indications we recalculated the metrics excluding these. The metrics for each site were compared.

Results
KCl metrics at Site 1 and Site 2 for the period January to December 2016 were calculated as 86.69% and 81.23% for all clinical areas, and 94.5% and 85.65% for all areas excluding paediatrics.

Conclusions
There is ‘unwarranted variation’ in the IV KCl use between the two sites. Concentrated KCl ampoules are used more frequently than expected in adult clinical areas.

Results were reported to the Medication Safety Committee; a target to achieve a value of 95% for KCl use on adult wards was set.

Areas ordering KCl 20mmol/10ml ampoules have been identified. Pharmacists are required to review KCl prescriptions to promote prescription and administration of RTA infusions to adults. An audit of KCl use in paediatrics has been undertaken to identify opportunities to maximise the use of RTA infusions.
The metrics project is being extended to other drugs where national guidelines to reduce risk have been published. Work is in progress to benchmark data between partner hospitals to identify best practice.

References

Gillian Cavell, Alice Oborne, Virginia Aguado, Namrita Sen-Green, Jacqui Nunn, King’s Health Partners. London

Background
Optimisation is defined as ‘the action of making the best or most effective use of a situation or resource’ [1]. The Medicines Optimisation Dashboard [2] aims to support NHS organisations by identifying variations in practice and encouraging comparison to maximise performance where variation might be unwarranted.

Metrics are useful to set targets, compare performance over time or between sites and provide organisational assurance.

Objectives
To measure the use of high risk drugs over a 1 year period across three organisations
To compare metrics between organisations to identify variations

Method
We measured the use of formulations of four high risk intravenous drugs in five hospitals across three organisations. Choice of drugs was based on recommendations promoting use of ready-to-administer (RTA) or lower concentration formulations of injectable medicines and included high-strength potassium chloride (KCl), midazolam for conscious sedation, magnesium sulphate in obstetrics and insulin [3]. Data were extracted from local Pharmacy computer systems for the period January–December 2016.

Ethics approval was not required for this service evaluation.

For each drug the metric was calculated using the formula:

\[
\text{Metrics} = \frac{\text{amount of drug issued as low-risk formulations}^{*} + \text{amount issued as high-risk formulations}^{*}}{\text{(amount issued as low-risk formulations)}^{*} + \text{amount issued as high-risk formulations})^{*}}
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Metrics were calculated based on data for:

a) potassium chloride (potassium) issued as (RTA) infusions in concentrations exceeding 40mmol/500ml* and amount issued as ampoules*,
b) midazolam issued as 1mg/ml solutions* and 10mg/2ml solutions* to areas performing conscious sedation.
c) 20%* and 50%* magnesium sulphate solutions issued to obstetric wards

d) Insulin issued as 50unit/50ml pre-filled syringes and 1000units/10ml vials.

Metrics for each hospital were collated and circulated anonymously for local comparison.

Results
Data were unavailable for midazolam and magnesium from one hospital.

The results ranged from 0% to 86% for intravenous potassium chloride. Three of 4 sites scored over 98% for midazolam; the fourth site scored 9%. For magnesium in obstetrics scores ranged from 0% to 99.7%. No site issued insulin in prefilled syringes.

Discussion and conclusions
The metrics highlighted variation in implementation of national guidance on safer formulations of injectable medicines across participating sites. Barriers to implementation may include cost e.g. where RTA infusions are more expensive than concentrates. Non-availability of licensed formulations may affect risk-benefit decisions. This may account for the high midazolam score as recommended 1mg/ml formulations are available as licensed products, unlike magnesium where no licensed formulation of a 20% infusion exists.

Specialities may resist changes perceived to be pharmacy-led rather than multidisciplinary initiatives promoted by trust-wide committees, especially where they may impact clinical practice and drug budgets.

Metrics data can be used to promote sharing of practice and exchange of information to overcome possible barriers to organisational change. The variation identified highlights the need for future work to explore barriers to the use of safer formulations of high risk medicines.

References

13. Safety and cost-effectiveness of low molecular weight heparin (LMWH) treatment
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Abstract previously published elsewhere. Please refer to poster on display.
Background
Hypovolaemia and nephrotoxic medicines namely non-steroidal anti-inflammatory drugs (NSAIDs), angiotensin-converting enzyme inhibitors (ACEi), angiotensin II receptor blockers (ARBs) and diuretics exert damage at the pre-renal phase and account for 55-60% of AKI especially during dehydrating acute illness.1,2,3 In some health boards medicine sick day rules have been adopted to inform patients to withhold medication when unwell.4 As ‘Medicines Sick Day Rule’ cards were being considered in the studied health board, baseline data on AKI caused by concomitant hypovolaemia and nephrotoxic medicines is required.

Objective
The aim of the study was to identify patients with AKI concomitantly taking potential nephrotoxic medicines and actions taken by patients prior to admission to hospital and in hospital to discharge.

Method
Patients admitted with dehydrating acute illness and taking ≥ 1 nephrotoxic medicines were recruited from medical receiving units over 16 weeks. Patients were interviewed at bedside to assess patient awareness. Discharge prescriptions were monitored to determine if nephrotoxic medicines were restarted appropriately. This study did not require ethics approval.

Results
39 patients between 22 to 96 years old with 55.0% being females were recruited. 60.0% of patients have hypertension followed by 55.0% with cardiac diseases including heart failure. 25 patients (64.1%) were admitted with AKI and all were taking ≥ 1 nephrotoxic medicine. Diuretics (44.4%) are the most common nephrotoxic medicines taken by patients with AKI followed by ACEi (40.7%) and ARBs (14.8%). 18 patients (45.0%) were interviewed and patient awareness of withholding nephrotoxic medicines when unwell was generally poor. Only 1 patient had been advised to stop nephrotoxic medicines during acute illness but all patients had continued taking them. Mean length of stay in hospital for AKI patients was 12.6 days compared to 10.2 days for non-AKI patients however the difference was not statistically significant. Nephrotoxic medicines were withheld appropriately on admission but some were not re-introduced appropriately. 5 out of 8 patients on high dose ACEi and/or ARBs were not restarted at lower doses. ≥ 60% of patients who were not restarted on nephrotoxic medicines were discharged without documented clinical follow-up. Only 1 patient not restarted on furosemide was re-admitted with heart failure.

Conclusion
AKI is common in patients who continued taking nephrotoxic medicines during dehydrating acute illness. There is room for improvement in the management of medicines in the post-AKI phase by healthcare professionals in the hospital setting and measures need to be taken to promote patients’ awareness of sick day rules for nephrotoxic medicines.

References
• Identified 295 minor interventions.
• Identified 134 major interventions.
• Engaged in clinical governance- reviewing venous thromboembolism risk assessment and antibiotic guidelines.
• Promoting service development- investigating the use of 24 hour antibiotic infusers.

Discussion
Following the BSAC/BIA recommendations to have a pharmacist within the OPAT team, has demonstrated to have a multiple benefits at STHNFT. Patient safety and care has improved, evident from the number of the minor and major interventions identified. Many of these where only minor errors such as not annotating an allergy status, however 134 identified were major interventions e.g. intervening on sub-therapeutic teicoplanin levels or highlighting serious adverse effects such as pancytopenia. Furthermore, the presence of the pharmacist has reduced the dispensary workload, reducing prescriptions to dispensary by over 50% and streamlining the work flow for dispensing to quieter periods of the working day. Many service improvement schemes have begun such as utilising the pharmacist’s non-medical prescribing skills, designing a new venous thromboembolism (VTE) risk assessment chart for OPAT patients, as well as researching into the potential of utilising 24 hour antibiotic infusers that could broaden the inclusive criteria for OPAT and increase its capacity. Therefore a pharmacist within OPAT has proven to bring significant benefits to the OPAT unit.

References

16. Pharmacist Prescribing of Peri-operative Medication in a Neurosurgical Admission Lounge (NAL)
Deborah Clark, Kings College Hospital, London

Background
The NAL was opened in 2010 to provide an efficient route of admission and reduce length of stay for elective neurosurgical patients. A Pharmacist Independent Prescriber (PIP) was introduced in September 2013 after a number of medication incidents due to missed doses of essential medication peri-operatively and an audit conducted by the neurosurgical doctors demonstrated that 72% (n=13/18) of patients admitted via the NAL had significant errors in their prescriptions. Research demonstrates that PIPs can beneficially impact patient safety and medication management on surgical wards; therefore it is likely that benefit would be seen in a similar setting.

Objective
To ascertain whether the introduction of a PIP in the NAL has affected peri-operative medication planning for patients admitted via the NAL.

Method
Peri-operative medication management of elective patients admitted via the NAL was compared to patients admitted to the ward by simple statistical data analysis using excel. Data was collected over 4 weeks. Data was obtained from the electronic prescribing system (EPMA) retrospectively. Emergency, non-elective patients and patients discharged on a weekend were excluded. Ethics approval was not required for this audit.

Results
The total number of patients identified was 63, 38 patients admitted via the NAL, 25 patients admitted to the ward. Six standards, under 3 categories, were set out to measure the service against.

The first category assessed number of patients prescribed pain relief before return from theatre, of which 100% (n= 63/63) of all patients had.

The second category assessed impact on discharge times. Discharge medication lists written in the NAL were ready 24 hours before discharge (100% (n=20/20)), compared to 28% (n= 7/25) of those written on the ward. This appears to reflect in the discharge times, with 40% (n=8/20) of patients whose lists were written in the NAL being discharged before 13:00 compared to 16% (n=4/25) whose lists were written on the ward.

The third category assessed number of patients prescribed pain relief before return from theatre, of which 100% (n=63/63) of all patients had.

Conclusion
A PIP in the NAL improved peri-operative medication management for these patients. Further work will aim to assess whether prescribing post-operative analgesia in the NAL improves pain control. It was also identified that a PIP in the ward area could improve peri-operative prescribing on the ward. A business plan is in place to introduce a medicines management technician to the neurosurgical ward, which will provide more time for the pharmacist to implement these changes. Once actioned the process will be re-audited.

References
17. Preregistration Pharmacist Trainee Educational Supervisors Self-assessment against the General Pharmaceutical Council Tutor Guidelines
Conway A1,2, Ong T2, Wright E1, 1 Brighton and Sussex University Hospital NHS Trust, 2 School of Pharmacy and Biomolecular Sciences, University of Brighton, 3 Health Education England London and the South East Centre of Pharmacy Post Graduate Education

Background
Preregistration Trainee Pharmacist (PRP) Tutors should demonstrate good professional practice and develop knowledge, skills and behaviour of their trainees(1). There are currently few steps taken to ensure that PRP tutors, or Educational Supervisors (ES) are consistently able to demonstrate competency in areas outlined by the General Pharmaceutical Council (GPhC) Tutor guidance (2). Through the use of a self-assessment approach, ES could assess themselves in relevant tutoring areas, identify gaps and take action to address. The self-assessment approach would enable ES to take responsibility and ownership for their development

Objectives
1. Develop a self-assessment tool (SAT)
2. Ascertain areas of the Tutor guidelines where ES require enhanced support.
3. Identify common resources used by ES.
4. Evaluate SAT satisfaction.

Method
The SAT framework used the GPhC Tutor Guidance to construct questions. It was developed based on the Declaration of Competence model used by Centre for Pharmacy Postgraduate Education to support pharmacists in delivering consistent and quality public health services (3). The SAT was piloted and distributed electronically by survey monkey to PRP ESs in South East Acute Hospital Trusts together with questions to identify ES Learning and Development resources and an evaluation questionnaire of the SAT. Results were quantitatively based on answers using a Likert scale. The % of the responses and the averages were calculated using Microsoft Excel 2011 and Survey Monkey. Data obtained from any comments were qualitatively analysed by coding the responses to form possible common ideas or themes. The study required and received ethics approval.

Results
The response rate was 27 (49%) ES representing 12 Acute Trusts. 27 (100%) ESs assessed themselves competent with GPhC Tutor Core requirements of monitoring and reviewing PRP progress, and providing regular, constructive feedback.

Two main areas of ES development were identified though the SAT. 14(54%) were unsure of mentoring principles and applying them in the context of being a role model to their trainee. 13(50%) identified uncertainty to assess their trainees holistically. The most acknowledged training resource was provided by Health Education England Kent Surrey and Sussex (HEEKSS) with an annual training event for new ES, network meetings and a practice supervisor e-learning course. 15 (58%) supported the usage of the SAT to others ES. Additional common themes identified were lack of time to access resources available and challenges of balancing their ES role with their primary pharmacist role. The potential influence of participants’ self-selection was acknowledged.

Conclusions
SAT was recommended to be formally introduced to new PRP ES training and aid ES annual appraisals. ES identified learning needs could be addressed by HEEKSS as the training provider most commonly accessed. Future work includes its evaluation by ES of other trainees and using self-assessment in other healthcare professions.

References

18. Results of the Implementation of Multi-Disciplinary Team (MDT) Paediatric Antimicrobial Stewardship Ward Rounds
Emma Cramp1, Ryan Hamilton1, Sharon Koo2 & Sriniv Bandi2 1Pharmacy Department, 2Department of Paediatrics, University Hospitals of Leicester NHS Trust

Introduction
The importance of antimicrobial stewardship is becoming increasingly accepted by other members of the MDT as a way of stemming antimicrobial resistance.1 It is well known that antimicrobial stewardship improves patient outcomes1,2. However, there is very little published literature about the impact of antimicrobial stewardship ward rounds on paediatric patients.3 Antimicrobial stewardship within paediatrics at University Hospitals of Leicester was identified as requiring improvement in the July 2016 Trust-wide antimicrobial prescribing audit. To address these issues a joint decision made by the antimicrobial pharmacist team and the paediatricians to commence weekly multi-disciplinary ward rounds designed to improve antimicrobial stewardship and patient care.

Objectives
To improve the documentation of indication and duration on antibiotic prescriptions within the paediatric ward and to measure the interventions made to determine their effectiveness.

Method
Weekly ward rounds on a 25 bedded paediatric medicine ward were conducted by a paediatrician, a consultant microbiologist and an antimicrobial pharmacist. All patients receiving systemic antimicrobial treatment were reviewed by the team. Documentation was reviewed to make sure an indication and duration were appropriately written on the drug chart and in the medical notes. The appropriateness of the antimicrobial was reviewed by checking allergies, previous antibiotic treatment, evidence of infection and severity, route and dose. Patient’s observation results, microbiology.

A standardised audit tool was produced by the antimicrobial pharmacist. Intervention data was analysed using Microsoft Excel. Ethics approval was not required for this project.
Results & Discussion
Between February and June 2017, 46 patients and 59 prescriptions were reviewed by the team. 54.2% prescriptions did not have a documented duration and 10.2% did not have a documented indication. 67.8% prescriptions required the MDT to document a new duration on the drug chart or amend the existing duration in line. This improvement in stewardship is anticipated to improve patient outcomes. Due to the lack of published studies investigating antimicrobial stewardship in paediatrics it is important for more work to be carried out.²

Conclusion
By conducting ward rounds, an improvement in stewardship was seen and this work forged better working relationships across different specialities. These results show that useful interventions can be made by undertaking targeted ward rounds. However, this approach is resource and labour intensive and investment should be considered for future programmes. We determined that 0.1 whole time equivalent band 8a antimicrobial pharmacist would need to be funded in order to maintain the ward round frequency.

References

19. Pharmacist Prescribing Activity in a Critical Care Team
Verity Cross, James Parker, Richard Bourne, Christine LawMin, Sheffield Teaching Hospital

Background
Clinical pharmacists make an essential contribution to the safe and effective use of medicines in critically ill patients¹. Patient care via pharmacist medication review is integral in reducing medication errors and optimising medication use². Pharmacist prescribing would therefore be anticipated to reduce the workload of colleagues and improve efficiency.

A 2014 survey of UK critical care pharmacists identified that by 2017, the majority of pharmacists would be prescribers³. The survey also provided an indication of perceived benefit and scope for pharmacist prescribing, however, actual quantitative data on this are scarce.⁴

Objectives
• To quantify total percentage of pharmacist prescriptions
• To establish the rationale behind pharmacist prescribing.
• To establish the range of medications prescribed by pharmacists.
• To quantify pharmacist prescribing error rate (an error was defined as any prescription which was incorrect at the time of prescribing and therefore needed subsequent amendment).
• To quantify the percentage of pharmacist prescriptions which obtained a second clinical check from another pharmacist.

Methods
Retrospective evaluation of e-prescribing across three general critical care units in a single large UK teaching hospital. All prescribing data were downloaded over a 1-month period (May-June 2016) and reviewed by a non-prescribing pharmacist. Five specialist critical care pharmacist prescribers were qualified at time of data collection. This study did not require ethics approval.

Results
In total 5374 medicines were prescribed in 193 patients during the evaluated period. Prescribing pharmacists were available on the units on 60% (38/66) of days and accounted for 10.7% (576/5374) of medicines prescribed, in 65.2% (126/193) of patients. Critical care pharmacists accounted for 10.2% (550/5374) of prescriptions, while the remaining 26 items were prescribed by specialist nutrition pharmacists on referral. The majority of pharmacist prescriptions were for new medicines 59.4% (342/576). Infections, CNS and Nutrition/blood were the top 3 BNF therapeutic categories, accounting for 60.6% (349/576) of prescriptions. The critical care pharmacist prescribing error rate was 0.18% (1/550).

Conclusions
Pharmacist independent prescribers demonstrated a high degree and wide-ranging scope of prescribing activity in general critical care patients. Pharmacists contributed a significant proportion of total prescribing, despite less than full service coverage. Prescribing activity was also safe with a very low error rate recorded.

References
20. Escherichia coli Bloodstream Infections and Appropriateness of Antibiotic Therapy
Lucy Des Clayes, Hayley Wickens. University Hospital Southampton NHS Foundation Trust, Southampton

Background
Over the past 10 years the incidence of E. coli Bloodstream Infections (BSIs) has risen in England, for reasons that are not well understood. Antimicrobial resistance is also increasing, and patients with an antibiotic resistant E. coli BSI, compared with a standard organism, have increased mortality and morbidity\(^1\). There is therefore a patient safety need to audit antibiotic management in patients with E. coli BSIs. This study did not require ethics approval.

Objectives
To audit the antibiotic management of patients admitted to University Hospital Southampton NHS Foundation Trust (UHS) with an E. coli BSI, both prior to and during admission, and to investigate pathogen-susceptibility.

Audit standards:
1. 100% of patients with E. coli BSIs are treated with empiric antibiotics on admission in accordance with guidelines.
2. 100% of patients with E. coli BSIs were prescribed antibiotics later shown to be effective against the pathogen isolated.
3. 100% of patients with a history of colonisation or infection with antibiotic-resistant organisms within the previous 6 months are treated with an appropriate second-line empiric antibiotic regimen.

Method
Antibiotic management and previous isolates and resistance patterns were reviewed from 35 patients admitted with an E. coli BSI between August and November 2016, using e-prescribing, e-document and microbiology records and patients Summary Care Record (SCR). Prescriptions were reviewed against UHS and local community guidelines for antibiotic prescribing and individual pathogen susceptibility.

Results
1. 34 (97%) of the patients with E. coli BSIs were treated with empiric antibiotics in accordance with guidelines on admission
2. 28 (80%) of the patients with E. coli BSIs were prescribed antibiotics later shown to be effective against the pathogen isolated.
3. 8 patients had a history of colonisation or infection with antibiotic-resistant organisms within the previous 6 months, and all were given pathogen-appropriate empiric antibiotics at UHS. 2 patients (25%) had received an antibiotic in primary care to which a previous pathogen had shown resistance.

Conclusions
This audit suggests that prescriber compliance to local guidelines is high, but resistance data may call into question the guidelines and/or initial diagnostics.

Primary and secondary care guidelines will be reviewed against the individual antibiograms from the ‘initially resistant’ organisms by the Trust Antibiotic Stewardship Team. Reasons for primary care prescribing of “ineffective” agents to individuals with recent isolates will be investigated, and fed into the current review of primary care antibiotic guidelines. We will discuss regional implementation of communication of pathogen/antibiotic history on discharge documentation from hospital, and/or incorporation into the SCR.

Reference

21. Proving the benefits of an extended Pharmacy service to the Emergency Department
Miss Victoria Rose Heald, Lead Pharmacist EAU/ED, Dr Jessica Lisa di Gesso, Rotational Clinical Pharmacist ED. Cambridge University Hospitals

Context
The improvement was implemented in a large, busy emergency department (ED) in the East of England. The pilot was carried out shortly after implementation of a comprehensive system-wide eHospital programme.

Pressure on ED’s across the country is well-documented\(^1\). No ethics approval was required.

Problem
The Pharmacy service to ED was locally judged as inadequate. Prior to August 2016 a Senior Pharmacist (8a) was available via bleep for ED and attended the Clinical Decision Unit (CDU) ward round for 3.5 hours per day. Visits to ED beyond this were limited due to management and directorate responsibilities.

Assessment of the problem
ED requested improved access to clinical Pharmacy services; particularly assisting accurate drug history acquisition and documentation and medication reconciliation in the early evening. The newly implemented electronic prescribing system was causing delays in ED; accurate medication history was required to allow good clinical decision-making, preventing missed doses of regular medication and improved patient safety. Incorrect information entered in ED was impacting on the quality of prescribing throughout admission and quality of information provided to GP’s on discharge.

Intervention
An 8am-8pm M-F service was proposed starting August 2016.

The primary aim was patient consultation, medication history documentation and initial review of medication prescribed for admission by a Pharmacist. The Pharmacy Technician focused more on drug history-taking and collected information about use of patients own drugs(PODs).

Strategy for change
A three-month pilot of a Pharmacist working 4pm-8pm in ED was conducted (December 15–March 2016), proving the concept of time saved for the clerking Doctor and highlighted important Pharmacist interventions improving prescribing safety.

A business case was approved by the Trust for a one year trial of an 8am-8pm Pharmacist and Technician service in November 2016.
Measurement of improvement
Intervention and activity data (clinical interventions made and number of patients seen) were collected from the eHospital system and an online survey August to September 2017. Data were themed using Microsoft Excel and compared to baseline data from the previous service and pilot. Financial impact was assessed using activity data.
Qualitative feedback was obtained from key stakeholders from across the hospital.

Effects of change
There was a 71% proportional increase in number of patients reviewed by the Pharmacy team in ED/CDU. Estimated to have saved 158 hours of Doctor time (£6762.40 over 2 months). Re-use of PODs was estimated to have saved £7,735–£14,365 by dispensing avoidance. There was limited data to suggest that improved speed of doctor clerking had reduced breaches related to “delayed medical review”. CDU had improved access to a Pharmacist; qualitative feedback from senior staff described maintenance of patient flow due to expedited turnaround of discharge prescriptions, better access to advice aiding medical decision-making and safer prescribing.

Conclusions
The new service was a success and both qualitative and quantitative measures showed positive impact. A number of patient case studies were produced highlighting excellent practice and exceptional patient care due to Pharmacy presence in ED.
The service was deemed to be cost-effective by the Trust and permanent investment for the expanded service was secured in November 2017.
There are plans to extend the pharmacy service further – aiming for 24/7.

References

22. Improving controlled drug discharge prescription prescribing by a simple intervention over six months
Odran Farrell MRPharmS, Claire Elworthy, Joanne Vessey, Scott Stringer, Royal Devon & Exeter NHS Foundation Trust, Exeter

Context:
At the Royal Devon & Exeter NHS Foundation Trust, discharge prescriptions requiring controlled drugs (CDs) are screened by a pharmacist on the ward before reaching the dispensary. Those requiring controlled drugs to be supplied must be written in accordance with certain legal requirements, i.e. strength, form, preparation, total quantity in words and figures (1).

Problem:
There was a perception, amongst the clinical pharmacy team, that a disproportionate amount of nurse, pharmacist and junior doctor time was spent having to amend/re-write these prescriptions, in order to make the prescriptions legal by the original prescriber. This results in increased processing times, delayed discharges and staff frustrations.

Assessment of Problem:
A baseline audit established that only 30% of discharge summaries complied with the legal writing requirements. This audit was undertaken via all clinical pharmacists, once a week, over the course of 8 weeks (December 2016 - February 2017), when screening discharge prescriptions both on their respective wards or, via our discharge bleep service. Only discharges requiring controlled drugs to be supplied were included in this audit.

Objective:
To increase the number of schedule 2 and 3 controlled drug prescriptions on discharge summaries that comply with legal prescription requirements by 50% over 6 months (December 2016 – May 2017). 50% increase was chosen, as this was the first time an improvement work around this area was undertaken and it was unsure what the scale of the problem would be.

Intervention:
A Plan-Do-Study-Act cycle was carried out using a laminated sticker, containing an example of how to write a CD correctly, was attached to the bottom of the screen of every computer in the hospital, following a two-week (March 2017) pilot on 2 wards for proof of concept. Data collection was carried out by pharmacists, screening discharges two days a week over eight weeks (March – May 2017). Data points were excluded if less than five discharges were screened that day. Data was analysed using the Life system (2).

Effects of Changes:
The percentage of prescriptions written that complied with legal requirements increased from 30% to 75% post intervention. Although not measured formally, anecdotal feedback from pharmacist colleagues indicated strong uptake by medical staff and decreased time spend chasing medical staff to correct errors. Further research is required to quantify this time gain.

Conclusion:
This was a successful project. The longevity of the intervention is to be tested over time, with further ideas being developed including a handy prescribing reference card. This will lead to further PDSA cycles.

This study did not require ethics approval.

References:
24. Up-titration of secondary prevention following acute coronary syndrome (ACS)
Fhadil S1, Timmis A1, Ruparella N2, Wright P3, Patel P1, Sud P1, Robson J3, Antoniou S1,3, 3Barts Heart Centre, Barts Health NHS Trust, London, UK 2 College of pharmacy, Purdue University, USA, 3 UCL Partners, London, UK, 4 Centre for Primary Care and Public Health, Blizard Institute, Queen Mary University of London, UK

Abstract previously published elsewhere. Please refer to poster on display.

25. Reducing unwarranted variations in the labelling of intravenous insulin infusions
Jennifer Flatman and Gillian Cavell, King’s College Hospital NHS Foundation Trust, London

Background
Following review of an adverse incident in which intravenous insulin was administered in error, and discussions with clinical staff, the need to improve the labelling of syringes was identified. Currently template labels are completed by hand at the time the syringe is prepared and attached to the syringe, therefore legibility and completeness are variable.

Objectives
To determine the accuracy and completeness of intravenous insulin syringe labels on adult wards and to propose ways to improve the labelling of this high risk drug.

Standards
1. 100% of labels for intravenous insulin infusions visibly and consistently state that they contain Human Insulin (Actrapid®) 50 units in 50ml sodium chloride 0.9%. The word ‘units’ should not be abbreviated.
2. 100% of labels visibly show all the relevant patient details (name and hospital number).
3. 100% of labels visibly state the date and time they were prepared and the initials of who prepared and checked the infusion.

Method
The study took place between March and May 2017. Patients were identified via a daily email alert generated by the electronic prescribing system. Patients on adult wards with insulin infusions in progress were visited to assess labels for completion with all required information. Results were documented on a data collection form and a sample size of 80 was calculated1. Nursing staff were not informed of the audit to remove bias. The study did not require ethics approval.

Results
Eighty insulin syringes were audited - 47 from intensive care units (ICUs), 26 from medical wards and 7 from surgical wards. 0% (0/80) of labels audited met the criteria for standard 1, 76% (61/80) for standard 2 and 66% (53/80) for standard 3.
There were 24 different variations of ‘medication name’ found across the audit. Variations in ‘dose’ and ‘volume’ documentation were also seen. The word ‘units’ was abbreviated in 19% (15/80) of labels and it was not always possible to see if the patient details and signatures of staff were recorded.

Conclusions
It was shown that there is inconsistency in the labelling of intravenous insulin infusions completed by staff in clinical areas. This results in variable and potentially ambiguous labelling which could predispose to medication error.
Many of the patients were found in intensive care settings, where they often use intravenous insulin infusions, possibly causing bias in the results, however inter-patient variability was still seen on these wards.
Use of prefilled syringes for intravenous insulin infusions has been recommended by the NPSA2. Ready-to-administer infusions have the advantage of standardised printed labels. However, only unlicensed products are currently available, which are expensive and would generate a significant cost pressure, especially to ICUs.
A standardised pre-populated insulin infusion label for Trust-wide use is currently an appropriate alternative to promote safe use of intravenous insulin infusions.

References

26. An evaluation of carbapenem use at a district general hospital
Fletcher, W. & Newman, P., Pharmacy Department, Countess of Chester Hospital NHS FT

Background
Appropriate prescribing of antibiotics plays an integral role in reducing problems associated with antibiotic resistance and in the UK there is a programme which aims to reduce antibiotic prescribing by 1% and the prescribing of broad-spectrum antibiotics by 10%. Locally, we have seen a rise in the use of carbapenems despite their limited formulary status and this audit took place to evaluate the appropriateness of the use of these drugs.

Objectives
- The aim of the audit was to evaluate carbapenem prescribing across the trust and to reassess the place of carbapenems in the context of our antibiotic formulary and stewardship programme.
- The objectives were to whether prescriptions were appropriate in terms of the formulary, whether other antibiotics had been tried previously and microbiology recommendations.

Abstract previously published elsewhere. Please refer to poster on display.
Method
Data collection took place over a four-week period in March (6th-31st) between Monday and Friday each week. Ward based pharmacists gathered the data using bespoke, pre-piloted data collection sheets. Data collected included: demographics, which carbapenem was prescribed, the clinical indication for the prescription, microbiology input, previous antibiotic use and sensitivities. Carbapenem prescriptions were identified using a bespoke report, which pulled data from the hospital’s electronic prescribing system (Meditech) including the indication for use, which was held in a mandatory field. Data were collated, analysed and presented in graphical format using Microsoft Excel. This study did not require ethics approval.

Results
A total of 54 prescriptions were reviewed throughout the four-week period, of which 45 (83.3%) were for meropenem and 9 (16.7%) for ertapenem. Forty-five (64.5%) of the total prescriptions were prescribed as a result of advice from the microbiologists, 9 (16.7%) were prescribed due to a failed response to an initial antibiotic without microbiology advice. Of the remaining prescriptions, 4 (7.4%) prescriptions were prescribed because the patient was sensitive to the formulary choice, 3 (5.6%) prescriptions were as per the hospital antibiotic formulary whilst the final 3 (5.6%) prescriptions had no clear reason for choice. Of the 35 patients that were prescribed carbapenem on microbiology advice, 34 (97.1%) had been tried on alternative antibiotic therapy before referral. ‘Respiratory’ (33%), ‘Abdominal’ (22%) and ‘Sepsis, unknown source’ infections (20%) made up 75% of the indications being treated. Other indications included ‘Urology infections’ (8%) and ‘Neutropenic sepsis’ (6%).

Conclusions
Carbapenem antibiotics provide a key role in treating severe infections, which have not responded to initial antibiotic therapy. This audit has identified that meropenem has a potentially important and valid role in our antibiotic formulary. As result, it is now being considered for addition to the hospital antibiotic formulary, with clear restrictions being placed on its use in terms of its indication, place in therapy and approval from the microbiology team prior to its use.

References

27. Staff engagement is essential when implementing Hospital Pharmacy Transformation Programmes
Debra Fowler, Sheffield Teaching Hospitals NHS Foundation Trust (STHFT), Sheffield

This study did not require ethics approval.

Context
Developing an action plan for transformation of clinical pharmacy services at STHFT through undertaking a staff engagement programme with the pharmacy department.

Problem
The Carter report identifies £5bn of savings in the NHS if productivity and efficiency is improved. For the clinical pharmacy service this involves transformational changes to the way the service is organised and delivered, requiring effective employee engagement.

Assessment of the problem
A questionnaire (October 2016) showed 67% of staff had heard of the local Hospital Pharmacy Transformation Programme (HPTP) and 29% felt well informed about it. There was also worry and uncertainty about what changes will occur within the clinical pharmacy team. Staff engagement in the NHS is measured annually through the NHS Staff Survey. Three dimensions are assessed; ‘Advocacy’, ‘Involvement’ and ‘Motivation’. This project aims to improve staff engagement through increasing the level of staff involvement in service transformation.

Intervention
A mixed methods approach to evaluate staff engagement was conducted, including a self-administered anonymous online questionnaire and leadership fellow facilitated focus groups. The key themes generated were used to develop an action plan for development of the clinical pharmacy services.

Strategy for change
The project ran for 6 months; three months conducting and evaluating the survey and focus groups, two months analysing the data and producing an action plan which was agreed at Pharmacy Management Board, the trust HPTP board and fed back to staff. In the final month, a post evaluation survey was conducted.

Measurement for improvement
Staff engagement scores for ‘involvement’ from the 2016 NHS Staff Survey were taken as a baseline measure for staff engagement. The same three statements were asked at the end of the staff engagement programme and the scores were compared to evaluate whether staff engagement has improved for this dimension.

Effects of changes
146 people completed the survey. 106 people attended focus groups, generating 353 comments. Post intervention, 81% staff had heard of the local HPTP and 51% staff said that they felt well informed. There was a positive response to the staff engagement programme, scoring 8.2/10 on feedback and 97% people said they were ‘extremely likely’ or ‘very likely’ to attend a similar event again. The staff engagement score for ‘involvement’ increased from 3.80 (Nov 16) to 3.90 (May 17). An action plan was developed based on the key themes from the project. As part of the action plan a change forum was set up with representation from all staff groups to improve two-way communication within the department.

Conclusions
A listening culture that engages staff at all levels and acts on feedback has been developed through the generation of the clinical pharmacy services action plan based on the key themes generated from the staff engagement project. Further staff engagement initiatives should be developed for innovative service redesign as part of HPTP.

References

25
Context
Pre-registration pharmacists tested interventions with the multidisciplinary team (MDT) to improve the prescribing and monitoring of gentamicin in three wards (admissions unit, medicine and surgery) within one NHS Board. Gentamicin is documented on the prescription and administration chart (kardex) and a dosage calculator used to print a worksheet for prescribing dose, administration and monitoring. This study did not require ethics approval.

Problem
Non-adherence to gentamicin prescribing guideline could lead to deterioration of sepsis and adverse events.

Assessment of problem and analysis of causes
Local audit reported all patients prescribed gentamicin (n=17) had at least one non-adherence to the guideline. Interviews with the MDT identified lack of knowledge of the process, poor communication and lack of defined roles and responsibilities for monitoring and follow up. The antimicrobial management team (AMT), senior medical/nursing staff, and pharmacists participated in discussion.

Intervention
Interventions tested: sampling 12 hours post dose rather than 6-14 hours, using whiteboard for handover, nurses responsible for sampling (admissions unit); daily creatinine highlighted during nurse-led safety brief (medicine); tool to help determine sampling time (surgery); modification of dosage calculator to include sample time (all wards).

Strategy for change
The interventions were developed by the MDT and supported by the AMT. Baseline data was collected for 4-8 weeks before testing interventions. Progress was discussed during team meetings and informally with the MDT.

Measurement for improvement
Data was collected for all patients prescribed gentamicin (Nov 2016-Feb 2017, n=219 doses). Run charts were generated for the following process measures: sample taken at correct time; daily creatinine documented; next dose prescribed at correct interval; gentamicin prescribed correctly. Results are reported as the median at baseline and after testing the changes.

Effects of changes
Admissions unit: sample taken at correct time improved from 38% to 67%, daily creatinine documented improved from 17% to 40%. Medicine: daily creatinine documented improved from 0% to 33%. Surgery: sample taken at correct time improved from 63% to 95%, daily creatinine documented improved from 33% to 50%.

None of the run charts indicated the presence of a special cause and outcome measures to demonstrate clinical significance were not measured. The tests of change have not led to improvement with all measures. The dose of gentamicin should be documented on the kardex 'As per chart' and the administration time is recorded on the worksheet. Despite an improvement in gentamicin levels sampled at the correct time, there was no improvement in patients with gentamicin documented correctly on the kardex or prescribed their next dose at the correct interval. Continued non-adherence in all wards to both of these aspects results from medical and nursing prescribing/administration processes for gentamicin being different to all other medication.

Conclusion
The prescribing and monitoring of gentamicin is complex and processes vary across wards. The changes were tested in the whole ward and it would have been preferable to test in a smaller sample initially. We involved a Foundation Year Doctor in the latter stages of the project but would include from the start in future work.

29. Changing Direction - Redesign of the clinical pharmacy service to improve pharmaceutical care
Holdsworth H and Woodcock S. Scarborough Hospital. York Teaching Hospitals NHS Foundation Trust

This study did not require ethics committee approval

Background
This paper describes the redesign of the clinical pharmacy service at a 300 bed General Hospital

The traditional ward pharmacy service where one pharmacist was responsible for one to two wards with technicians based on admission wards was no longer felt to be effective. Increasing turnover of patients and staff shortages meant wards did not always receive a daily visit leading to drug charts being sent to pharmacy, missed doses and delays in pharmacist reviews. One discharge team was responsible for validating discharge prescriptions for the entire hospital leading to delays, partly due to the location of the wards. Pharmacists felt pressurized to complete clinical work and there was little support for junior pharmacists.

Objective
To improve the rate of medicines reconciliation and clinical pharmacy reviews and reduce the time patients wait for discharge medication within the existing resource.

Method
A multidisciplinary focus group identified issues including increased workload, ward location and inefficient skill mix. A team based approach was proposed, based on 3 geographical locations within the hospital and maximising the contribution of all grades of staff. Teams consisted of pharmacists, technicians and assistants with tasks being assigned to the most appropriate person within the team. Senior pharmacists focus on more complex patients and support junior colleagues.

The proposed change was discussed within pharmacy meetings and shared with ward staff via newsletters and ward meetings. In view of the wholesale change it was not felt practical to pilot this in one area so the change occurred on a single day. The hospital patient database was used to identify patients requiring medicines reconciliation and patients with a length of stay greater than 4 days who required a follow up review. Staff feedback was obtained by a questionnaire.
Results
The number of drug charts coming to pharmacy has reduced to zero, drug charts now remain on the wards, enabling doctor review and preventing missed doses. Monthly audit data obtained from the Trust patient database has shown the percentage of patients who have medicines reconciliation before discharge has increased from 88% to 96% and the percentage of these within one day of admission has increased from 44% to 74%. The percentage of patients who have a twice weekly pharmacist review has increased from 61% to 87%. The number of discharge prescriptions validated within one hour has increased from 67% to 77%, increasing patient flow and reducing pressure on beds. Pharmacy staff feedback shows a greater level of satisfaction with the service provided and nursing staff appreciate a more responsive service delivered by familiar faces. Dispensary staff note fewer interruptions and appreciate closing on time.

Conclusion
This service redesign has shown that a more flexible, team based approach can improve patient flow and maximise the pharmacy department’s contribution to patient care. On-going monitoring of data from the Trust IT system has demonstrated sustained improvement. This approach could be adapted by other organisations to manage their challenges and priorities.

30. Assessment of patient feedback and disease control following switch to an etanercept biosimilar
Rebecca Houston, Pharmacy Department, Countess of Chester NHSFT, Chester

Context
The rheumatology team at the Countess of Chester cares for almost 9000 patients, mainly on an outpatient basis. Approximately 650 rheumatology patients receive biologic medication via homecare, with circa 200 patients prescribed etanercept.

Problem
In February 2016 the first etanercept biosimilar Benepali® was launched in the UK. The initial cost of Benepali® was 33% less than the originator product Enbrel® and offered an opportunity of significant cost savings to the NHS. A business case was approved to fund a biosimilar switching programme with reinvestment of cost savings to improve the rheumatology biologic service. Guidance on introducing biosimilar agents recommends including patients in the decision making process and avoiding automatic substitution. This was reflected in the switch process.

Intervention
A 9 month switch programme began in September 2016 with the aim of switching 90% of patients from Enbrel® to Benepali®. Patients were excluded if they were treated for Juvenile Idiopathic Arthritis (for which Benepali® was not licensed), were planning pregnancy or their disease or blood monitoring was not stable. This work did not require ethics approval.

Strategy for change
Patients were contacted in writing to inform them of the intention to switch their treatment. This was followed up with a telephone consultation with the pharmacist to provide additional information and gain verbal consent to switch. The pharmacist was available as a point of contact throughout the switch process to minimise the impact on other members of the team. Patients were reviewed by the pharmacist at an outpatient appointment three months following treatment switch (or sooner if necessary) to assess treatment response.

Measurement for improvement
Patients were reviewed in clinic and their disease activity scores compared to pre-switch scores. At the time of writing 120 (75%) patients who switched to Benepali® have been reviewed in clinic. All patients invited to switch were given the opportunity to complete a feedback questionnaire.

Effects of changes
Of the 120 patients reviewed in clinic to date, 85 (71%) have maintained disease control following switch to Benepali®. 9 patients have switched back to Enbrel®, 5 following a flare in disease symptoms and 4 due to adverse drug reactions. The remaining 26 patients had a slight decline in their disease control and have had their next clinic appointment brought forward to further assess response to Benepali®.

Of the 112 patients who provided feedback on the switch process, 108 (96%) felt they received enough information, 104 (93%) received enough support and 90 (80%) felt satisfied overall. Over the last 12 months there has been a reduction of £700,000 in the spend on etanercept compared to the previous year.

Conclusions
A switch rate of 76% patients is anticipated at the end of the project. The majority of patients that have switched have maintained disease control and felt informed and supported through the process. Savings generated are being reinvested in the rheumatology service, allowing additional clinical posts and provision of ultrasound services to allow biologic dose reduction.

References
[Accessed 07/06/17]
31. An Evaluation of the Pharmacy Safety Culture in Wales
K Lynette James, Cardiff and Vale University Health Board, Cardiff; Mark Ireland & Phillip Parry, Community Pharmacy Wales; Suzanne Scott-Thomas, Cwm Taf University Health Board, Merthyr; Andrew Evans, Welsh Government, Cardiff

Background
Safety culture is defined as individual and group values, attitudes, perceptions and behaviours towards organisational safety systems. It consists of reporting (preparedness to report errors), just (atmosphere of trust that engenders accountability for errors without fear of repercussions), flexible (reconfiguring teams and responding to advice from staff), informed (knowledge of human, technical, organisational and environmental factors influencing safety) and learning cultures (willingness to learn from error). Little is known about the safety culture of pharmacy teams.

Objective
To investigate the safety culture of the pharmacy team in Wales specifically the existence of a reporting, just, flexible, informed and learning culture.

Method
A cross-sectional, anonymous, piloted, e-mail questionnaire was distributed to all pharmacy staff (pharmacists, technicians and support staff) registered with the Welsh Centre for Pharmacy Professional Education as working in Wales (20th June – 25th July 2016). Closed and open questions were used to determine organisational safety systems and individual behaviours. Attitudinal items on reporting, learning, just and flexible culture were taken from the Pharmacy Safety Climate Questionnaire and measured on a 5-point Likert scale from strongly disagree (1) to strongly agree (5). Data were entered into SPSS for analysis. Questions relating to each aspect of culture were combined and the mean and standard deviations (S.D) determined to provide an overall indication of respondent attitudes. Ethics approval was received.

Results
129 questionnaires (111 pharmacists (community: 67; managed sector:36; other:8); 11 technicians (community:7; managed sector:4; 4 others) were returned from the 3,506 distributed (response rate=4%). Overall, safety culture within the pharmacy team was positive. The majority of respondents (98%, n=107) reported that their organisation had a system for reporting medication errors, 84% (n=90) had an organisational policy on managing medication errors and 98% of respondents (n=106) indicated that they reported medication errors. Attitudes to reporting culture were positive (mean=4.19, S.D=±0.87) with 82% of respondents agreeing with items relating to willingness to report medication errors and raise patient safety concerns. Respondents reported positive attitudes towards a just culture (mean=4.19, S.D=±0.90) with 83% agreeing that staff involved in a medication error were treated fairly. Survey responses suggested the existence of a positive learning culture (mean=3.96, S.D=±0.9) with 72% of respondents agreeing that error reports were used to improve patient safety. Although respondents demonstrated a positive attitude towards the existence of flexible culture (mean=3.83, S.D=±1.14), only 65% of respondents reported that management considered suggestions for improving patient safety.

Conclusion
Safety culture within the pharmacy profession across Wales is positive. Respondents reported the existence of a reporting, just, flexible and learning culture. Safety culture can be improved by encouraging management to involve and consider staff suggestions for improving safety. The response rate was low because of inaccuracies in the e-mail list used to distribute questionnaires and firewalls. Respondents were self-selecting and attitudes may not reflect those of non-responders.

References

32. Rituximab Rapid Infusions in Rheumatoid Arthritis: A Retrospective Clinical Audit
Elliot Werner-de-Sondberg, Claire Jones, Wye Valley NHS Trust

This study did not require ethics approval.

Background
Rituximab rapid infusions can reduce patient clinic time by 39%, from 195 minutes with the standard protocol to 118 minutes[1]. This has clear benefits for patients as well as implications for reducing burden on nursing staff and clinic time.
Rituximab rapid infusions have been widely adopted for oncology indications, and the prospective multicentre RATE-RA trial (n=351) showed that rapid infusions in rheumatoid arthritis (RA) were not associated with significantly higher infusion related reactions (IRRs)[2]. The audit was initiated to establish baseline performance given the March 2016 introduction of a Wye Valley NHS Trust (WVT) rituximab rapid infusion policy[3].

Objectives
The audit aimed to determine if IRRs associated with rituximab rapid infusions administered at WVT for RA are in line with published values, and prescribed, dosed, and administered in accordance with the Trust policy. The standards evaluated were:
1. 100% of rituximab rapid infusions must be prescribed under the supervision of a Rheumatology specialist
2. 100% of rapid infusions must be dosed according to the Trust policy
3. 100% of patients must be given appropriate pre-medications and infused at the rate recommended by the Trust policy
4. The incidence of IRRs must not be significantly higher than the standard regimen.

Method
A retrospective audit methodology was adopted given low patient numbers and a six-month dosing interval. Biologics coordinators identified 118 rituximab patients at WVT, of which 37 (31.4%) were prescribed rapid infusions between 1/4/16 and 9/2/17 (10 months). 30 patients (49 administrations; x=1.6 infusions/patient) were carried forward to data collection. Available medical notes were evaluated from 14/2/17 to 15/2/17 using a data collection tool.

Results
All audit standards were achieved with 100% compliance. The audit identified one non-serious IRR across 49 administrations (2.0%). In this case, the patient informed nurses of an ‘itchy throat’, and was administered 100mg IV hydrocortisone without further complication.
Conclusions
An IRR incidence of 2.0% is in line with the RATE-RA trial, which observed IRRs ranging from 0.7% to 16.2%, dependent on infusion number. It was not possible to determine the cost-savings associated with rapid infusions at WVT, however the 49 administrations allow for an estimated 62 hours' saved clinic time.

Limitations to the study included: low patient numbers; difficulty acquiring medical notes; inability to reliably identify previous IRRs; and inability to quantify IRRs with the standard infusion regimen at WVT. The following recommendations were made:

- A protocol is required to increase prescribing of rapid infusions for eligible patients
- A protocol is required for de-escalating to the standard regimen if an IRR occurs
- Clearer documentation is required for recording IRRs to biologics.

References
3. Holloway, C. Policy for the administration of intravenous rituximab in patients with inflammatory arthritis and vasculitis or other rheumatological conditions, without concomitant cyclophosphamide. 2016. WVT.

33. Use of electronic dashboards for patient level prioritisation for clinical pharmacy service
Rick Cooper, University Hospitals Bristol NHS Foundation Trust, Bristol; Nicholas Jones, University Hospitals Bristol NHS Foundation Trust, Bristol

Context
Pharmacy services are under increasing pressure to deliver a more efficient service. The BRI clinical pharmacy service (CPS) is delivered by 25+ Pharmacists and 15+ Technicians to 26 inpatient wards (600+ beds). Priority activities include: facilitation of discharge medication, medicines reconciliation and medicines optimisation. This study did not require ethics approval.

Problem
These activities were previously carried out on paper, as a result the CPS was unable to predict workload, and therefore could not effectively allocate appropriate resource in line with patients’ clinical needs.

The paper based medicines reconciliation process created duplication of work, patient to patient inconsistencies and a lack of standardisation. Information recorded was uncontrolled, and was often supplemented with incorrect information by other staff groups.

Clinical pharmacy staff also relied on paper handovers to guide prioritisation, often unknowingly containing out of date information. The handover process demanded 20-30 minutes (per handover). Once the CPS had a 'view' of the inpatient population.

Assessment of problem
We consulted with lead Pharmacists and Technicians for clinical areas, Clinical Pharmacy Management and representatives from the Multi-Disciplinary Team (MDT). Key problems (above) were identified and prioritised for intervention. It was clear that the underlying cause was use of a paper-based system and corresponding lack of overall ‘status-view’ of the inpatient population.

Intervention
Our problem warranted a multifaceted solution: 1. Digitise and standardise medicines reconciliation. 2. Use data to drive prioritisation via a suite of real time dashboards. 3. Embed dashboard use into clinical practice.

We aimed to: replace the need for a paper handover process, report up to date statuses for each ‘pharmacy task’ per patient, provide an overview of the state and severity of wards and divisions in terms of CPS need.

Strategy for change
Following a launch event: users were provided one-to-one and group training as the new system was rolled out to one ward per day over 6 weeks. Staff needs were documented and assessed, and feedback recorded for future requirements gathering, and to inform the training approach. Rollout was undertaken in line with PDSA cycles to ensure maximum potential for success.

Measurement of improvement
Improvement is continuously measured, and regularly presented with use of run charts for averages of task completion times per day, ward and user, and proportion of patients seen. The handover process has been eliminated and so a time saving has been observed. Continual user feedback and regular discussion with the CPS has clarified improvement.

Effects of changes
Improved:
- oversight of patient status
- time to complete medicines reconciliation
- time for handover
- reduction in missed doses
- greater proportion of clinical pharmacy time being spent with patients
- staff moral and satisfaction
- assurance that patients are prioritised according to clinical need.

Conclusions
The project has provided many lessons in implementing change in our department and has highlighted key strategies for future digital transformation including upcoming EPMA. These include emphasising the need for general IT training.
Background
Annually, two million adults visit their GP due to osteoarthritis (OA).1 Once thought to be a degenerative condition, evidence now suggests that inflammation is a key component of OA pathophysiology. Inflammation accelerates joint damage, worsening pain and function.2,3. Currently, there is no licensed intervention to slow OA progression. Early studies have shown promise for DMARD activity against joint destruction in OA models.4,5. This research aims to establish healthcare professionals' (HCPs) opinions towards this potential treatment strategy and whether current therapies are adequate.

Objectives
To gain insight into HCP's satisfaction with current options for managing pain associated with osteoarthritis.
To obtain HCP's views on a future role for off-label DMARDs to treat OA.

Method
The study was conducted in February-March 2017 in North-East England. An exploratory focus group with hospital and primary care pharmacists determined key themes on this topic (n=4). Thematic analysis was performed to formulate a questionnaire incorporating key elements identified. 52 questionnaires were distributed by email, post and in person to local GP surgeries, hospitals and to pharmacists from all sectors. This study did not require ethics approval.

Results
- Emergent focus group themes: toxicity and limitations of analgesics, lack of disease-modifying treatment, minimal role of steroid injections and cost of arthroplasty.
- Questionnaire: 5 GPs, 3 nurses, 2 pharmacists and 1 hospital doctor responded (response rate: 21.2%, n=11). 2 were specialists in musculoskeletal disease, the rest were generalists.
- 82% (n=9) believed more treatment options are needed for OA.
- 64% (n=7) felt current options were insufficient in managing disease progression.
- 82% (n=9) believed NSAIDs to be "sometimes effective" in controlling pain, but cited toxicity as a concern.
- 36% (n=4) believed in a future OA role for DMARDS.
- HCPs were most concerned with DMARD toxicity (55%, n=6).
- (36%, n=4) would consider prescribing off-label DMARDs if clinical trial evidence demonstrated safety and efficacy.
- Study limitations: Focus group sample size and low response rate may have influenced results. Uneven distribution of responders from different professions could affect generalisability.

Conclusions
Perceptions of practicing clinicians suggest that OA treatment choices are limited, especially regarding disease progression. Confidence in the effects of DMARDs for OA was restricted by a lack of phase 2/3 trial data. Clinicians’ greatest concern was drug toxicity. As an inflammatory model of joint destruction in osteoarthritis is now evident, there was support for more clinical studies.

References
Results
Data were recorded from 139 patients from 47 wards; overall there were 170 completed VTE risk-assessment forms for 111 patients. Of 114 inpatients admitted for over 24 hours, 69 (61%) had a form completed within 24 hours. Of 170 forms, only 19 (11%) were congruent with medical notes. Overall there were 158 prescriptions for thromboprophylaxis, of which 40 (25%) had a corresponding VTE form. Seven (5%) of 139 patients were prescribed inappropriate thromboprophylaxis. Risk factors documented in medical notes but not on corresponding forms included impaired renal function, concurrent use of anticoagulants, reduced mobility and medical comorbidities.

Conclusions
While there was robust examination of medical notes, information attainable through remote access was limited by potentially incomplete documentation. Encouragingly, prescribed thromboprophylaxis was largely appropriate, suggesting completion of VTE forms does not necessarily influence VTE management within our Trust. Nevertheless, to ensure the forms can be utilised as a meaningful secondary data source for audit purposes, accuracy must be improved. Recommendations include: improve workflow by electronically linking VTE forms with prescribing so clinicians can access relevant patient details before completion; and raise awareness amongst clinicians that forms are a secondary data source and can be used to improve prescribing practices.

References

36. Care of patients with medication allergy at Monklands District General Hospital, Lanarkshire
Karen Lai, Frances Kerr, Anthony Carson, Alexa Wall, Steve McCormick, NHS Lanarkshire

Background
NICE guidelines\(^1\) state minimum documentation requirements for patients with allergy, including drug name/nature of allergy. Locally patients identified with allergies are required to wear red wristbands. The results of an audit at a neighbouring acute hospital\(^2\) and reports of increased clinical incidents locally prompted this audit. The audit aimed to assess compliance with national standards and identify areas to improve patient safety, clinical practice and support development of local guidelines.

Objectives
Standards assessed were: 100% patients have allergy status & nature of allergy documented on cardex and medical notes; 100% patients have allergy status documented on discharge prescriptions; 100% patients wear red wristbands if they have medication allergies and no patients are prescribed/administered medication they are allergic to.

Method
Data collection forms were developed using ‘Plan Do Study Act’ improvement methodology\(^3\). Pharmacists audited documentation of allergy status (medical notes & cardex) and wristband compliance (new patients) after admission and before intervention on 15 wards (6-10\(^{th}\) June 2016). A one day audit was conducted on 4 wards without pharmacists (6\(^{th}\) June). Allergy status on prescriptions was audited (6-10\(^{th}\) June). Clinical incidents were identified from 6-24\(^{th}\) June. This study did not require ethics approval.

Results
242 inpatients were audited, 96 had an allergy. Of patients with allergies, 9% (n=9) had fully documented allergy status. 25% (n=24) had no allergy status documented – 1 patient had previous anaphylaxis reaction to penicillin. 9 patients with ‘no allergies’ documented were identified as having allergies. 66% (n=63) had partial documentation of allergy status e.g. documentation on cardex or medical notes, allergy but no nature of allergy.

106 prescriptions were audited. 85% (n=23) screened on the ward and 82% (n=65) screened in dispensary had allergy status documented. 71% (n=68) of patients with allergies had correct red wristbands. Of the patients with no red wrist band, 3 had true allergies and 3 intolerances (22 unknown). 5 clinical incidents were reported. 3 patients with documented penicillin allergy had penicillins prescribed and 2 were administered penicillin. 1 patient was prescribed and administered metronidazole with a documented allergy and 1 was prescribed but not administered a COX 2 inhibitor despite anaphylaxis to NSAIDs. No patient harm was identified.

Conclusion
Documentation of allergy and use of red wristbands did not meet standards. This highlighted a major patient safety issue. An improvement project was initiated to investigate this. A limitation was that data collection was carried out differently in wards with and without pharmacist cover producing less data in wards without pharmacists. It was out with the scope of the project to check all inpatients’ allergy status. Incident reporting was used to capture patients not audited.

References
1. NICE Clinical guideline, Sept 2014, Diagnosis and management of drug allergies in adults, children and young people. [Accessed 15/6/17]
2. Smith, M et al. 2015 (unpublished), An audit to illustrate current practice relating to the documentation of drug allergies and subsequent prescribing and administration processes with a focus on penicillin antibiotics to minimise patient harm within Wishaw General Hospital, NHS Lanarkshire.
Background

Unintentional medication discrepancies can lead to medication errors, which threaten patient safety and cost the NHS at least £1.1 billion a year. One study found a 4.4% increase in adverse drug event risk associated with each drug alteration. Medication reconciliation (MR) has been shown to be capable of resolving unintentional discrepancies in up to 98% of patients.

Objectives

To identify and quantify discrepancies in MR and discharge summaries across a patient’s journey from admission through to transfer back into primary care; to determine the drug class most commonly involved and to classify unintentional medication discrepancies according to clinical severity.

Method

A two-week prospective, observational study was conducted at a large academic tertiary care hospital in London, UK. Cohort comprised of patients admitted over a two-week period (12-16th December 2016 and 9-13th January 2017). Information was extracted from the ‘Electronic Prescribing and Medicines Administration’ system and integration back into primary care data was gathered from patients’ summary care records. Clinical severity of unintentional discrepancies was assessed by a multidisciplinary panel and drug class most commonly involved in unintentional discrepancies was determined. Descriptive statistics were used to analyse the findings of this study in Excel. This study did not require ethics approval as it was a service evaluation.

Results & discussion

36 patients (19 female and 17 male, mean age of 75.4 ± 15.9 years) were included. S95 medication discrepancies were identified, affecting 89.5% of patients. 195 discrepancies (32.8%) were classed as unintentional with 107 occurring at admission (54.9%), 41 (21.0%) at discharge and 47 (24.1%) at integration back into primary care. Omission or stopped medication was the most common reason of unintentional discrepancies (51.3%). The most common drug class involved was ‘alimentary tract and metabolism’, followed by ‘cardiovascular system’ drugs. Most unintentional discrepancies were found to be beneficial or unlikely to cause patient discomfort or deterioration. This study had two main limitations: small cohort size and low generalisability of results, likely due to low diversity of patients on the selected ward. Future studies could improve upon this by increasing the cohort size and number and variety of wards investigated. Unintentional discrepancies were defined as changes with no documented reason, which may have overestimated the proportion of discrepancies identified, and may explain why a large number were considered beneficial or no harm discrepancies.

Conclusions

Approximately 9 in 10 patients experienced a medication discrepancy, emphasising the need for further research on MR at all transitions of care, and not just on admission to hospital as has been the focus thus far.

References


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38. Key Performance Indicators for Clinical Pharmacy: establishing consensus through a regional questionnaire

Duncan Macdonald, University Hospitals of Leicester NHS Trust, Leicester

Background

The Francis report challenged the NHS to move from a target-driven approach to one centred upon patient experience and care quality. Lord Carter’s report asserted the primacy of clinical, patient-facing pharmacy over infrastructure functions. This requires development of Key Performance Indicators (KPIs) for clinical hospital pharmacy services for use alongside existing operational metrics.

Objectives

To review regional practice regarding clinical pharmacy KPIs.

Method

In February 2017, an online questionnaire was circulated to clinical pharmacy leads across a regional network of eight acute Trusts. Participants reviewed 13 proposed KPIs derived from national and international examples, scoring perceived importance using a five-point Likert-type scale and expressing current frequency of use against five percentage bandings. The questionnaire also explored drivers, implementation, dissemination, benefits and potential barriers. This study did not require ethics approval.

Results

Questionnaire response rate was 100%. KPIs with high perceived importance and high current use included medicines reconciliation within 24 hours and discharge medication turnaround time. KPIs with perceived low value and rarely utilised included use of pharmaceutical care plans and pharmacist ward round attendance. KPIs perceived as moderately or very important but with low current use included review of critical medicines, pharmacist prescribing input, and discharge medication counselling. These areas of opportunity potentially warrant adoption as KPIs. Respondents lacked consensus regarding total completion of medicines reconciliation, number of ward/patient contacts, and number of pharmacy ‘interventions’. Most organisations (6/8) collected KPIs through both automated and manual means. KPIs were chosen by pharmacy management in all Trusts with 50% or less stating they had also been determined by national requirements, Trust management, or in consultation with staff or patients. A majority reported KPIs to Trust and pharmacy management (6/8) and pharmacy staff (5/8); fewer shared the information with other stakeholders. Respondent-described benefits included demonstrating existing performance and supporting cases for expansion. Identified barriers included staff time, IT/infrastructure, staff engagement, and lack of national comparators.

Conclusions

The above results were subsequently used as the basis for a series of focus groups discussions within the author’s own organisation, with the aim of defining a set of KPIs which adequately reflect local priorities. Whilst some variation in perceived importance and local practice regarding clinical pharmacy KPIs was expected, the occasional lack of consensus emphasises the need for further regional and national collaboration on priorities for clinical pharmacy services and their measurement.
Background

The Francis report challenged the NHS to move from a target-driven approach to one centred upon patient experience and care quality. Lord Carter’s report asserted the primacy of clinical, patient-facing pharmacy over infrastructure functions. This requires development of Key Performance Indicators (KPIs) for clinical pharmacy services for use alongside existing operational metrics.

Objectives

To use a previous literature review and questionnaire of regional peer organisations to inform local clinical pharmacy KPI development.

Method

In March 2017, two focus groups lasting 90-120 minutes were held within a large teaching Trust. They comprised presentation of previous literature review and questionnaire findings followed by three questions to guide discussion. These explored the merit of 13 proposed KPIs, barriers to implementation, and how barriers could be overcome. Questions are considered in groups of 3 followed by whole group discussion. There were 17 participants in total comprising pharmacy and other staff stakeholders representing a range of job roles, pay grades and clinical specialities. Themes from the discussion were synthesised from participant annotation on flipcharts and the author’s own contemporaneous notes. This study did not require ethics approval.

Results

Both groups were characterised by lively discussion and active participation. A minority of participants advocated daily completion of manual ‘scorecards’ but most felt KPIs should be naturally occurring and automatically collected. Any manual collection should be via a simple interface, e.g. through addition of fields to the existing e-handover. There was strong consensus about ensuring data already collected (e.g. via the Electronic Prescribing and Medicines Administration, electronic discharge, and pharmacy dispensing systems) was routinely presented to staff in an accessible format. There was suggestion to focus first on ‘basic’ KPIs (e.g. medicines reconciliation within 24 hours, discharge medication turnaround) before including ‘enhanced’ activities (e.g. medicines optimisation, independent prescribing). There was extensive discussion about medicines optimisation being a more meaningful, outcome-focused measure than medicines reconciliation; i.e. does pharmacy input actually result in medicines being started, stopped or optimised.

Both participants concurred with those from the regional questionnaire, i.e. time, technology and engagement. It was asserted that improved technological solutions would largely circumvent staff engagement issues.

Conclusions

A set of KPIs was proposed, their value assessed and implementation considered. This resulted in plans to collate currently available performance data and exploration of minimally-intensive means of collecting novel metrics. Use of qualitative focus group methodology complemented earlier quantitative work, allowing fuller exploration of the issues. Ultimately, KPIs must measure ‘real’ impact on care; they should be outcome rather than process focused, e.g. not measuring patient contacts but instead the outcomes in terms of medicines optimisation.

References

Results
Eighteen (13%) of the 139 patients did not receive the first post-operative dose of LMWH within the recommended time frame. LMWH was not prescribed in 2 of these cases, a prescribing error occurred in 1 case and one patient refused the dose. In the remaining 14 cases LMWH was prescribed, however there was no documented reason for non-administration. Of the 18 patients who did not receive the dose, 13(73%) were trauma surgery cases.

When surgery finished after 1700 hours 40% of patients did not receive the dose, compared to 11% for surgery finishing between 1200-1700hrs (P<0.05) and 5% for surgery finishing before 1200hrs (P<0.05). Deviation from the standard dose time of 6pm occurred in 88(66%) patients. In 6 instances a one-off dose was prescribed at an alternative time and for the majority (93%), nursing staff deviated from the prescribed dose time to administer LMWH within the recommended time frame.

Conclusions
Not all patients receive LMWH thromboprophylaxis within the recommended time frame, highlighting a patient safety issue. This is more likely to occur when surgery finishes after 1700 hours or in a trauma environment, possibly explained by the busy, unpredictable nature. Current practice is reliant on nursing staff deviating from the prescribed time, therefore solutions to increase one-off prescribing of this dose by the consultant or anaesthetist in theatre is required. Further work will be to provide education to nursing staff on thromboprophylaxis and to re-audit.

References

41. Impact of pharmacist involvement in a community based chronic pain clinic
Nasira Makan, Elizabeth Slee, Barts Health NHS Trust on behalf of Locomotor Pain service, Homerton Hospital NHS Trust, London

Context
It is estimated that approximately one million people in the UK could benefit from significantly better pain treatment1. The British Pain Society recommends that an outpatient pain management service should have access to dedicated pharmacist support.2

Problem
The Locomotor pain service based in Hackney, whilst having access to a wide multidisciplinary team (MDT) did not include access to a pharmacist in the past. The average referral to appointment time for the pain consultant was 9 weeks. In 2013/2014 a gap analysis was undertaken and patient feedback collected of the service which highlighted areas for improvement.

Intervention
In 2015 the service was redesigned to improve access for patients to the full pain team, which included the incorporation of a pharmacist. This aimed to reduce the number of patients referred to pain consultants regarding medication queries which could be undertaken by a suitably trained pharmacist.

Strategy for change
The pharmacist undertook medication reviews for patients who were referred via the MDT. Medicines reconciliation was undertaken, and recommendations regarding pain management were fed back to the GP to implement. Patients were followed up for ongoing management as required. The service was assessed using data from medication reviews within a 5 month period. This study did not require ethics approval.

Measurements of improvement
60 patients were reviewed. The referral to appointment time for the pharmacist was an average of 4 weeks. Changes to pain medication were made to 88% (n=53) of patients; this included a reduction in opioid consumption with no adverse effect on pain for 22% (n=13) of patients. 75% (n=45) were followed up with the GP to manage side effects including gastric symptoms and constipation related to pain medication. 8% (n=5) were identified as taking medication above the maximum doses; this included excessive doses of opioids and anti-inflammatories. 3% (n=2) were referred onward to pain consultants.

Effects of change
88% of patients had changes made to their treatment; of these 42% did not require/request further appointments. The remaining 58% required a follow-up with the pharmacist and following a maximum of 4 further appointments did not require/request further input. Many patients were unaware of the common side-effects, maximum licensed doses, or risks associated with exceeding these. Inclusion of the pharmacist enabled this discussion and improved patient safety. 3% of patients were further referred to the pain consultants by the pharmacist, and the pharmacist achieved a low referral to appointment time, enhancing the patient experience.

Conclusion
This data shows the benefit of including a pharmacist within a multi-disciplinary chronic pain clinic. As this is a relatively new initiative, baseline figures of the pharmacy service were unavailable. Further work could be done to assess the impact and cost implications/benefits that the pharmacist-led clinics have on patient improvement outcomes through direct patient feedback.

References
42. Perceptions of non-medical prescribers regarding teaching and understanding of antimicrobial resistance and stewardship
Negin Sardashti, David Allison, Sandra Martin, The University of Manchester, Manchester

Background
Antimicrobial resistance (AMR) has become a major global issue and is threatening the future of healthcare. A contribution to this problem is the unnecessary prescribing and inappropriate use of antimicrobials. Antimicrobial stewardship (AMS) programs, including the development of antimicrobial prescribing and stewardship competencies1, have been implemented to slow the emergence of AMR. The General Pharmaceutical Council’s Prescriber’s survey report2 showed that one of the most commonly prescribed areas is for infections.

Objectives
The aim of this research was to determine the extent to which non-medical prescribers (NMPs) felt that their Independent Prescribing (IP) Course prepared them for prescribing antimicrobials, objectives being determining methods by which NMPs maintain AMS prescribing competency and overall level of understanding for pharmacist and nurse NMPs of AMR and AMS issues.

Method
This study did not require ethics approval. In December 2016, questionnaires were sent to 21 University of Manchester students who had undertaken the IP course in 2014 and 2015 and to 2 pharmacist NMPs who taught on the IP course. The questionnaire evaluated NMPs’ perceptions of the extent to which their IP course had prepared them in terms of knowledge of AMR and AMS along with the means by which they keep up to date. The questionnaire also assessed participants understanding of AMR and AMS by including a series of true and false statements.

Results
Overall, 21 responses (84% response rate) were received (18 pharmacists and 3 nurses). 33% described that their IP course did not prepare them well in terms of their knowledge of AMR and AMS. 57% of respondents prescribed antimicrobials as part of their scope of practice, with 56% of these individuals undertaking additional courses such as in-house training and distance learning courses on AMR and AMS to stay updated with their knowledge of antimicrobials. Assessment of prescribers’ understanding showed that all respondents correctly believed that the widespread and inappropriate use of antimicrobials was an important cause of AMR and that the use of a broad-spectrum antibiotic is not appropriate for treating a common cold. However 24% incorrectly believed that antibiotic resistance is the body adapting to antibiotics.

Conclusions
Although this study had small numbers and didn’t assess baseline understanding of AMR and AMS prior to starting the IP Course, the results of this research allowed us to obtain valuable data regarding NMP perceptions about the training they received from their IP course in terms of their knowledge of AMR and AMS. In addition useful data was captured which showed the methods by which NMPs keep up to date with issues around AMR and AMS, which can be used to shape future CPD Courses. The results suggest that the teaching guidelines and frameworks for Independent Prescribing courses need to embed more enhanced AMS training in order to ensure NMPs are equipped with the necessary knowledge of AMR and AMS.

References

43. Exploring the Received Curriculum through the use of Concept Mapping
Christine McCartney Pharmacy Department County Durham & Darlington NHS Foundation Trust

This study received ethics approval

Background
The pre-registration year provides a situated learning experience in which to hone the skills, knowledge and professional traits required for pharmacy practice. However, on qualifying there remains a practice gap, particularly in ‘soft skills’ (professional attributes).1 We reconsidered our teaching methods with the aim of better developing professional attributes. Evidence-based changes were introduced; specifically pre- and post-rotation formative assessments, trainee-led gap analysis and objective setting.2 Rotations were re-modelled on constructivist teaching principles with pre-registration trainees sharing a case load. Concept maps have many validated uses in education and research including exploring lecturers perceptions of the taught curriculum. I wished to explore whether concept maps could provide insights into the trainee experience.3

Objectives
To explore whether pre-registration trainee generated concept maps provide an insight into the received curriculum particularly areas concerned with the development of professional attributes.

Method
All pre-registration trainees in our Trust were invited to compile an individual concept map of what they thought they had done during the pre-registration year. To better explore individual perspectives no further guidance was given. Maps were created in July 2015 (3 trainees), 2016 (2 trainees) and 2017 (2 trainees). Curriculum changes were introduced in August 2015, allowing comparison of the trainee experience on the old (Group 1), and revised (Group 2) programme. To identify patterns and commonality between maps, words and phrases were entered into WordClouds (www.wordclouds.com), categorised and compared with the Pre-registration Pharmacist Professional Attribute Framework (PPPAF).

Results
Maps for the 3 pre-registration trainees in Group 1 generated a total of 223 words (88 different terms) whilst the 4 trainees in Group 2 generated a total of 494 words (179 terms).
Group 1: Three clusters of the PPPAF were represented. The most frequent term (18 occurrences) was assessment. Sixteen of the 20 most frequent terms were categorised as knowledge and testing suggesting a performative approach based on fact acquisition. Concept maps were limited in scope with few connections between concepts.
Group 2: Eight clusters of the PPPAF were represented. The most frequent terms included patients (19 occurrences), clinical pharmacy review (17), communication (13) and responsibility (12). Maps were detailed with greater connectivity. Themes suggested development of professional attributes, willingness to take responsibility and engagement with the multi-professional team.

Limitations
Numbers are small. Further work is required to test validity and demonstrate effects are not due to differences in trainee cohorts.

Conclusions
Pre-registration trainee generated concept maps do provide a rich source of data on the trainee experience giving insights into skills developed beyond explicit knowledge. Data suggests that programme changes have facilitated the development of professional attributes.

References
2. Petty G Evidence Based Teaching A practical Approach 2nd ed Cheltenham: Nelson-Thornes; 2009

Abstract previously published elsewhere. Please refer to poster on display.

44. Medicines Optimisation in Intermediate Care: Reproducing an Innovative Model of Older People Care
Ruth Miller1, Anne Friell1, Carmel Darcy1, Nuala McGeough1, Helen Graham2, Hilary McKee2, Maureen Hetherington2, Mike Scott3. 1Western Health and Social Care Trust, Londonderry, 2Northern Health and Social Care Trust, Antrim

45. Audit of gentamicin dosing and monitoring in Welsh hospitals
Gabriella Booth, Daniel Phillips, Julie Davies & David McRae,
Medicines Management Directorate, Cwm Taf University Health Board, Merthyr Tydfil

Background
The use of extended interval gentamicin (EIG) is increasing as hospitals switch to narrow spectrum antibiotics to reduce the emergence of healthcare associated infections. However, errors in the prescribing and monitoring of EIG resulting in toxicity have been widely reported.1 To mitigate the risk posed by inappropriate EIG use, ‘gentamicin guidelines’ describing how the drug should be prescribed and monitored are produced. While the content of these guidelines differ between hospitals and health authorities, with different dosing regimens/nomograms and monitoring protocols, establishing levels of guideline adherence will provide an understanding of the scale of inappropriate EIG use in the region. The aim of the audit was to determine the level of adherence to EIG dosing and monitoring recommendations.

Objective
To determine the level of adherence to EIG guideline dosing and monitoring recommendations in Welsh hospitals.

Method
This study did not require ethics approval. All health authorities in Wales were invited to participate in the audit. All adult inpatients (>18 years) initiated on EIG over a continuous four week period in October 2016 were included at participating sites. Critical care wards were excluded. Patients receiving EIG were indentified by ward pharmacists and pathology results systems. Data were collected retrospectively by pre-registration trainee pharmacists as part of an all Wales project using a standardised data collection form. Agreement of first, second and third doses (+/-20%), timing of first specified gentamicin levels and subsequent gentamicin dose, were assessed according to local guidelines. Data were analysed using Microsoft Excel®.

Results
A total of 234 EIG courses were included from 11 (n=17) hospitals. Fifty three percent (n=234) of first gentamicin doses were incorrect according to local guidelines. Fifty two percent (n=225, n=181) of second and third gentamicin doses were also incorrect. Forty three percent (n=223) of initial gentamicin levels were taken within the timeframe specified by local guidelines. The timing of 30% (n=223) of initial gentamicin levels could not be assessed due to incomplete documentation. Thirty nine percent (n=213) of gentamicin doses following the first mandated gentamicin level were prescribed to be given at the correct interval.

Conclusion
Adherence to EIG guideline dosing and monitoring in Welsh hospitals is concerning, with more than half of prescribed doses not corresponding with guideline recommendations. Troublingly, the timing of a significant number of gentamicin levels and subsequent doses could not be assessed because of deficiencies in the recording of this information in some hospitals. While the study objective was met, the number of recommendations for improvement is limited due to the differing guidelines used in participating hospitals. The magnitude of inappropriate EIG dosing and monitoring identified warrants further investigation with a view to increasing appropriate use. As resource for improvement initiatives is limited, a co-ordinated national effort to improve EIG use through standardisation may be effective.

References
Background
Drug therapeutic assessment is a process for ensuring the effectiveness, rationality and safety of medications. Each patient has a risk of getting Drug Related Problems (DRPs), not only because of complexity of disease but also because of patient’s specific response for the treatment. Some studies show a great value of clinical pharmacist activities in identifying DRPs\(^1\,^2\). Little is known about evidenced based research conducted in Pekanbaru that answer a question of the impact of drug therapeutic assessment performed by pharmacists in a hospital in Pekanbaru, Indonesia.

Objectives
The purposes of this study were to identify DRPs, provide recommendations, and evaluate the acceptance of the given recommendation.

Methods
This study was a prospective observational study carried out between 1 February 2017 and 16 February 2017 in four different wards, which were critical care unit, surgical ward, paediatric ward and maternity ward. Patients were chosen based on criteria: patients with hepatic or renal impairment; and paediatric patients who were newly admitted with three diagnoses. Since this study is a service evaluation, this study did not require ethics approval. However, an approval from the hospital director was obtained. The results were analysed descriptively.

Results
33 out of 240 patients were selected to be assessed. Six patients were averagely assessed each day. The average medicines assessed were 11.73±4.263. There were 47 DRPs found. The most common DRPs were unnecessary drug (25.5%) and inappropriate drug selection (23.4%). There were 81 recommendations given, with 22.2% was to further be examined in laboratory tests and 21% was to stop medicines. 80.2% of recommendation was accepted and 58% of the recommendation was leading to change in therapy.

Conclusion
The results highlight an importance of pharmacist’s role in identifying DRPs as the first step in drug therapeutic assessment. However, not all DRPs were captured in this study since there were no ward pharmacists in the weekend. Another finding from this study is more than half of the given recommendation were accepted showing that pharmacists’ role were considered by other healthcare professionals. Although this study has a small sample size and was conducted in a limited period of time, this study was a significant step to show recognition to hospital and other health care professionals. A further study about patient’s and other health care professionals’ perception regarding the impact of pharmacist’s role, is an important step forward.

References

Background
At hospital discharge, the patient’s general practitioner (GP) should be advised of the discharge medication and given reasons for medication changes occurring during the inpatient stay.\(^1\) Incomplete and incorrect medication-related information may result in discontinuity of care and patient harm. An initiative on acute kidney injury (AKI) required evidence of medicines review undertaken to be included in the discharge summary.\(^2\) In our Trust, pharmacists record AKI medication changes on our electronic prescribing system (EPS), with this AKI note then extracted into the discharge letter. This process was then broadened out to cover other medication change not specific to AKI patients.

Objectives
The objectives were to assess the accuracy of the pharmacist-inputted notes appearing in the electronic discharge letter against the list of medicines prescribed at discharge, and to consider actions to improve the service. The standard was that 100% patients sampled would have medication lists that accurately match the pharmacists’ notes (AKI or other) in the discharge letters.

Method
Notes made by the pharmacist during the inpatient stay – typically describing medication changes - are recorded on our EPS, and are incorporated into the discharge letter. Though approximately 2,000 patients are discharged each month, only about 20% attract such a note. It was decided to identify the first 125 patients discharged in July 2016 with a note. The details of the notes were reconciled and compared to the discharge medication list. This study did not require ethics approval.

Results
Prescriptions and notes for 125 patients (60 male) were reviewed. Average age was 75.6 years (range 23-95 years). For 43 (34.4%) patients, the notes described medication changes due to AKI. Overall there were 1201 medicines prescribed (mean 9.6 per patient, range 2-20). Potential discrepancies were identified for 20 (1.6%) medicines affecting 15 (12%) patients. For 10 patients the notes reflected an AKI review when medicines were initially described as held or stopped, but were later restarted during the inpatient stay. For 5 patients the medication list contained errors such as omitted medicine, different medicine or different dose compared to the pharmacists’ notes.

Conclusions
Our standard was not met in that 12% patients had a medication list that did not reconcile with the notes. Investigation revealed that the main problem was the note being made early in the patient stay and subsequent medication changes not captured. Limitations of this study include a small sample in one hospital, and no attempt to ascertain if discrepancies caused difficulties for the GP.
Results have been shared with pharmacists who now know to update these notes throughout the patient journey, and to be consistent with terminology used to describe medicines temporarily withheld. We also provide details of the medication list and notes to the patient’s community pharmacy (with patient consent) as part of transfer of care service - discrepancies could potentially impact on both the GP and the community pharmacist. A repeat audit is planned for later this year.

References
1. NICE NG5. Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes. 2015.

48. Do hospital staff perceive a penicillin allergy label to be a concern?
Miles S, Powell N, Wilcock M, Pharmacy Department, Royal Cornwall Hospitals NHS Trust, Truro, Cornwall

Background
Antibiotic resistance is a global challenge limiting treatment choices. Choices are further limited in penicillin allergic patients, as penicillin-based antibiotics are often first-line treatment for common infections. Approximately 10% of the general population claim to have a penicillin allergy. Compared to patients without an allergy label, patients with penicillin allergy are exposed to a greater number of antibiotics, experience increased length of hospital stay and higher readmission rates. 90% individuals with a label of penicillin allergy are no longer allergic or may not have been allergic in the first place. De-labelling penicillin allergy status in those found not to be allergic to penicillin has potential to reduce reliance on second line, potentially less desirable antibiotics.

Objectives
The objectives were to ascertain hospital staff views on the subject of penicillin allergy and patients having potentially incorrect allergy status.

Method
A questionnaire (mixture of closed questions with pre-determined answers and opportunity for free text) was delivered electronically by SurveyMonkey® twice over a two-week period via the hospital bulletin, and was also cascaded out to medical, nursing and pharmacy staff via email groups. This study did not require ethics approval.

Results
134 staff responded (58% medical, 31% nursing 11% pharmacy). All staff thought they had encountered a patient who mistakenly believed they were penicillin allergic (60% frequently, 40% occasionally). 69% staff had discussed with patients that they may not be allergic. 20% had not and 11% were not in a position to do so. Staff had not discussed a mistaken allergy belief due to not having time to explain about allergies (32%) or because they thought the patient would be unconvinced by any explanation (35%). 67% staff perceived an incorrect penicillin allergy status as a problem needing an easy to implement solution, and 32% perceived this to be a significant problem requiring lots of time and effort devoted to resolving. As regards implications of antibiotic choices in penicillin allergy, the proportion of staff answering correctly was - 56% recognised the increased risk of Clostridium difficile associated diarrhoea, 70% the higher incidence of treatment failure, 56% increased inpatient stay, and 77% increased rates of multi-drug resistance. Only 3% incorrectly answered that such patients receive less costly antibiotics, and only 5% incorrectly answered that patients experience less antibiotic side effects. 55% staff would feel very confident in using questions to determine if a patient with a claimed penicillin allergy could be prescribed a penicillin antibiotic if such a process had Trust approval, 37% would still feel apprehensive, 7% would feel very worried for the patient, and one respondent would not follow this process.

Conclusions
Respondents perceived having an incorrect penicillin allergy label to be a problem requiring a solution. The implications of having to use alternative non-penicillin antibiotics in such patients were know by most staff. We will undertake staff focus groups to develop a de-labelling initiative for patients reporting an obvious side effect to penicillin rather than an allergic reaction.

References

49. Improving insulin prescribing safety on admission with pharmacy intervention
Amie Bain, Nadine Moussallati, University of Huddersfield, Sallianne Kavanagh, Sheffield Teaching Hospitals NHS Foundation Trust

Background
Medication errors in hospital persist and are most common at the time of admission (1). Patients with insulin-treated diabetes may be particularly susceptible to harmful, avoidable prescription errors due to the relative complexities of insulin therapy and its associated risks (2). Prompt and complete medicines reconciliation aids the accuracy and appropriateness of prescribing and may help improve patient safety (3). This study aimed to establish the nature and prevalence of insulin prescribing errors, information discrepancies and pharmacy interventions at the point of hospital admission.

Objectives
• Assess the timeliness of medicines reconciliation for patients with insulin-treated diabetes.
• Identify and characterise insulin prescribing errors and pharmacy interventions documented on admission.
• Investigate discrepancies between insulin information recorded by doctors on clerking documentation and pharmacy medicines reconciliation charts.

Method
Medical admissions and surgical wards (n=3) within an 1100-bed teaching hospital were visited on 4 non-consecutive weekdays during 3 weeks in January 2017 to identify recently admitted patients with insulin-treated diabetes. A single reviewer examined all current medical records and prescription charts to identify insulin prescription errors, information discrepancies, and details of any pharmacy interventions. Data was collected in free-form and categorised during analysis. This study did not require ethics approval.
Results
Twenty-nine patients were included in the study, 25 (86%) of whom experienced at least one insulin prescription error or information discrepancy. A total of 69 insulin prescription errors or information discrepancies were identified during the study. Fifty insulin prescription errors were identified, mostly involving insulin device (n=26), dose (n=11), time (n=14) and frequency (n=3), with 47 (94%) being rectified by pharmacy intervention. Information discrepancies involved the complete omission of insulin from the clerking drug history (n=13) or insufficient information to prescribe insulin (n=6) documented during clerking. Medications reconciliation was completed by pharmacy within 24 hours of admission for 100% and 86% of patients on the admissions and surgical wards, respectively.

Conclusions
Insulin prescribing errors and information discrepancies are common at the point of hospital admission. Pharmacists play an active role in improving quality and safety through identifying and rectifying potentially harmful insulin errors and information discrepancies. Prompt and comprehensive documentation of insulin information is recommended on admission to improve communication and reduce the potential for insulin prescribing errors. Although this study was undertaken at a single trust, results align with national evidence regarding prescribing errors and the role of the pharmacist, supporting the positive impact pharmacists have on improving insulin safety in hospitals.

References

50. Costs and consequences analysis of a clinical pharmacy service to a surgical ward

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Background
Hospital clinical pharmacy (CP) services improve patient care and medication management and provide economic benefits1. Most Pharmacy departments strive to provide comprehensive clinical services during the week, but less so at weekends. However, Pharmacy departments are now required to work towards the provision of a 7–day service, an ambition which could have considerable resource implications. Cost-consequence analyses provide disaggregated costs and outcomes of a service. The aim of this study is to analyse the impact on a surgical ward, when a CP service is not provided on Sundays, compared to weekdays when a full CP service is provided.

Objectives
To compare the staff costs of pharmacy- and non-pharmacy provided medication-related activities. To determine any consequences to patient care when non-pharmacy staff carry out medication-related activities.

Methods
Prospective, observational study on a 26-bed surgical ward in a large London teaching hospital trust. During the week, CP staff spend most of their time on wards. There is no pharmacy presence on wards on Sundays - ward staff visit the dispensary to obtain medication and manage all medication-related activities themselves. Multiple data sources were utilised to measure and cost the time spent on medication-related activities and pharmacy-initiated interactions on weekdays and Sundays — staff were shadowed and timings documented. They also self-reported using a template. Sunday observations included dispensary and ward activities.

Semi-structured interviews of nurses and doctors were carried out to understand their experiences and the consequences of no CP service on Sundays; retrospective chart review to identify missed or delayed drug doses and analysis of prospectively recorded clinical pharmacy contributions. SPSS was used to analyse data. This study required and received ethics approval. All tools were piloted before use.

Results
Observational data were collected over 15 weekdays and 4 Sundays in May and June 2016. Five nurses and 2 junior doctors were interviewed. On a weekday, a pharmacist spent 243 mins on all medication-related activities, costing £69.08/day. On a Sunday, doctors spent 280 mins and nurses spent 141 mins (total cost of £106.70) on four main medication-related activities — ordering medication, organising discharge medication, taking drug histories and dealing with medication-related queries. If undertaken by a Band 6 pharmacist, these activities would take 70.53 minutes, costing £20.86, a fifth of the cost of nurses and doctors. There were 5.13 contributions/weekday and 1.75 contributions/Sunday (made on Monday). The mean delay before administration of the first dose of a new drug was significantly higher on Sundays (404 minutes cf 388 minutes, independent t-test p<0.05).

Conclusion
The clinical pharmacy inputs are similar to those previously reported2. Limitations include the short study time, and few interviewees; generalisability cannot be guaranteed. Consequences of not having a CP service on a ward included higher staffing costs, longer waits for patients to have their first dose and fewer CP opportunities to improve care.

References
Background
Secondary prevention medication following acute coronary syndrome (ACS), such as angiotensin converting enzyme inhibitors (ACEIs), beta-blockers and statins, have proven efficacy when used at high doses yet evidence suggests that there is scope for improvement in their prescribing.1,2

Objectives
To investigate current practice in a large UK teaching hospital with regard to the prescription and recommendation of high-dose ACEIs/ARBs, beta-blockers and statins. To explore patients’ perspectives of their medication and dosing to inform the design of future quality improvement interventions.

Method
The study was conducted at the hospital outpatient cardiac unit over a period of 7 weeks between June and July 2016. A total of 35 participants were recruited and interviewed to explore any barriers and facilitators to dose titration or high doses. The interviews were analysed by thematic content analysis. The participants’ medication regimen at discharge were compared to their regimen at follow-up and analysed with descriptive statistics. This study required and received ethics approval.

Results
Optimal dose titration of secondary prevention medication following ACS was achieved at 3 month follow-up in 18% of patients for ACEI/ARBs and 9% for beta-blockers. 83% of patients prescribed statins remained on high-dose at follow-up. Communication to the primary care physician of the rationale for high-dose statins was evident for 49% of patients and for titration of ACEI/ARBs and beta-blockers for 57% and 49%, respectively. The majority of patients were unaware and unconcerned about recommendations for high doses, relying on their healthcare professionals to ensure they are on the optimum treatment. Some participants described how they had not been able to relate their understanding of the medication to their symptoms and this had led to confusion or frustration that the medication did not appear to be individualised to their specific needs.

Conclusions
The study sample size was sufficient for a robust qualitative analysis of interview data but was insufficient to determine any statistical analyses of the descriptive data. Nonetheless, the rates of dose titration observed in this study were largely comparable with larger studies in the published literature. This research suggests that optimal doses of ACEI/ARBs and beta-blockers are not being achieved after discharge from hospital despite a sufficient time period for dose titration. Patients place their trust in their physicians to act in their best interests and are willing to adhere to prescribed regimens despite their lack of understanding. There is potential to further engage patients in shared decision-making which may facilitate dose titration to optimise the benefits of secondary prevention medication. An expansion of qualitative research in this setting to include primary care physicians is needed to fully understand the reasons for ongoing failure to achieve optimal doses of secondary prevention medication post-ACS.

References:

52. An evaluation of errors on discharge prescriptions and drug listing pharmacist scheme
Patel, S., Mathews, J. and Kelly, D., The Royal London Hospital, Barts Health NHS Trust, London

Background
A systematic review based on inpatient prescribing errors reported an average error rate for discharge prescriptions (TTAs) of 19.24%.1 To improve efficiency and safety, the drug listing pharmacist scheme was implemented at the Royal London Hospital. This involves pharmacists transcribing medications onto TTAs, attending multi-disciplinary team meetings to identify discharges, and initiating the TTA writing process.

Objectives
This study evaluates the scheme’s impact on error rates, by comparing locally to a previous audit completed prior to pharmacist drug listing (January 2016) and national error rates. This study did not require ethics approval.

Method
Errors on TTAs were recorded by pharmacists on one day in November 2016 on adult wards at the Royal London Hospital. Errors were classified according to the drug lister (doctor/pharmacist) and type of error; statistics were calculated using Microsoft Excel 2007 and compared to the previous audit and national error rates.

Results
During the data collection period, 65 TTAs were recorded. 468 items were prescribed, a mean of 7 medicines per TTA; 174 errors were found (38% error rate, 2.68 errors per TTA). 37% of TTAs contained no errors, whereas 48% contained 1-5 errors; 15% contained 6 or more errors. A weak positive correlation was found between the number of medicines listed and number of errors (SRCC = +0.37; n = 65, 99% confidence level). The doctor-listed error rate was 39.62%, and 16% for pharmacist-listed TTAs.

Error rates have increased by 7.93%; n errors were found (38% error rate). A weak positive correlation was found between the number of medicines listed and number of errors. The doctor-listed error rate was 39.62%, and 16% for pharmacist-listed TTAs. The majority of errors were due to changes being made to prescriptions prior to discharge which were not communicated to pharmacists, or updated on TTAs by prescribers. Though not considered prescribing errors, discrepancies between drug charts and TTAs were noted and corrected. Clearer communication between medical and pharmacy teams can prevent such errors.
Conclusion
With error rates on doctor-written TTAs increasing since the previous audit, the drug listing scheme should be continued to reduce errors. These recommendations can be validated by repeating the study to gain a larger dataset which includes more pharmacist-listed TTAs, and evaluate the impact of the scheme on the time taken to validate TTAs.

References

53. Increasing the number of Pharmacy Technicians increases clinical contributions made by Pharmacists
Patel, S. Mathews, J. and Kelly, D. (on behalf of the RLH pharmacy team), Barts Health NHS Trust, London

Abstract previously published elsewhere. Please refer to poster on display.

54. Integrating Specialist Case-Management Pharmacists into the Older People Assessment and Liaison (OPAL) team.
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2South West Acute Hospital, Western Health and Social Care Trust, Londonderry

Background
In August 2015, the Older People Assessment and Liaison (OPAL) model of care was introduced into two acute hospital sites across the Trust. The purpose of the model was to provide Comprehensive Geriatric Assessment (CGA) to frail elderly, admitted to the acute setting or referred directly from primary care. Medication review is one of the agreed items for assessment within the medical domain of CGA1. In February 2016, two specialist case-management (SCM) pharmacists were introduced into each OPAL team, presenting an opportunity to contribute to CGA with specialist in-depth pharmaceutical assessment and medicines optimisation.

Objectives
- Develop, implement and evaluate the role of the pharmacist within the OPAL model.
- Provide medication review to older patients with emphasis on medicines optimisation and adherence assessment.
- Determine the impact of this service on medication appropriateness and cost-effective prescribing.

Method
Following stakeholder engagement, three distinct pathways emerged for identification of suitable patients: attendance at the Older People Rapid Access Clinic (OPRAC); referral from an OPAL practitioner for patients admitted to A&E; and referral for input to patients admitted to the acute medical wards. Within each pathway, the pharmacist reconciled the patient’s medicines, provided comprehensive review, identified high-risk medications and implemented pharmaceutical care plans. Medicine adherence assessments were completed, with individual needs identified and reasonable adjustments made. Therapeutic recommendations were discussed within the multidisciplinary team with handover to intermediate and primary care. Telephone follow-up (7-10 days post-discharge) was offered to all patients with medication changes or significant pharmaceutical care needs. Data collected included: patient demographics; number and clinical significance of pharmacist interventions (graded using the Eadon criteria2); appropriateness of prescribed medicines using the Medication Appropriateness Index (MAI) and drug costs as per BNF 71. Data were entered into Microsoft Excel for analysis. This study did not require ethics approval.

Results
Over an eight-week period, 32 patients were seen with full data presented on 26 (average age 76 years; 16 female; 10 male); 45 clinical interventions were made with 95% being Eadon Graded ≥ 4 (indicating an improvement in standard of care). Fifty percent of patients where seen within the OPRAC setting with an average of 1.73 pharmacist interventions per patient. The most common intervention involved stopping potentially inappropriate medications. A reduction in total MAI scores from 10.2 to 0.96 was observed, demonstrating an improvement in overall appropriateness. A total of four telephone follow-ups were provided with no further intervention required. The estimated annual drug cost savings resulting from comprehensive review was £3809.94. Study limitations included challenges in staff recruitment and on-going funding.

Conclusions
The SCM pharmacist has an important patient advocacy role within CGA through increased identification of medication error, improved medication appropriateness and reduction in overall treatment burden and drug costs. Future funding will be sought to extend this work.

References

55. Parkinson’s disease medication at North Tees NHS Foundation Trust, missed and delayed doses
Jess Purkiss1, Holly Thompson2, Cate Whittlesea1, 1North Tees NHS Foundation Trust,
2School of Medicine Pharmacy and Health, Durham University

Background
Approximately 5.2 million people worldwide suffer from Parkinson’s disease (PD)1. Prescribed medications for PD have a short half-life. Medication levels fall below therapeutic concentrations rapidly therefore have to be given frequently. If a delay or omission occurs then patients can suffer debilitating symptoms e.g. loss of movement, the ability to swallow and behavioural problems. Omission and delay of PD medications was shown to be a problem in UK hospitals by the National Patient Safety Agency alert2. Additionally, this has been highlighted as an issue in Australia3 and USA4. To reduce patient harm from uncontrolled symptoms and increase patient safety, omissions and delays of PD medication should be assessed for possible causes and interventions.

Conclusion
Determine the impact of this service on medication appropriateness and cost-effective prescribing.
Objectives
Assess the extent of missed and delayed doses of Parkinson’s disease medication on two elderly care wards

Method
A retrospective record review was conducted of two elderly care wards. The impact of a red star intervention, implemented to reduce omissions and delays was also assessed. Following this, two focus groups were held to explore nurses’ opinions around omitted and delayed doses, including possible interventions. Data was analysed by SPSS with the Fisher’s exact test used to test for association on the cross tabulations for the presence of the red star intervention and the dose given on time. Qualitative data was analysed using framework analysis. This study did not require ethics approval.

Results
Omission rates were 9.2% (control) and 2.5% (intervention ward). Delay rates were 0% (control) and 2.9% (intervention ward). A significant association (p=0.05) was found between dose administered on time and day of the week (p=0.03). Significant associations were identified between dose omitted or delayed and day of the week (p=0.02), medication type (p=0.03), ward (p=0.01) and the presence of a red star (p=0.03). The main recorded reason for omissions was drug unavailable. Views gained from nurse participants were linked to communication/supply, workload, equipment/medication, education/ability and barriers to avoid omissions and delays.

Conclusions
Most causes of omissions followed trends outlined in other literature although this is the first study to identify that omissions and delays are worse on weekdays compared to weekends. Further research should focus on collection of further objective data regarding education and workload of nurses. The effectiveness of interventions including timers and electronic systems should be assessed and healthcare staff should be made aware of the importance of individualising patient care in Parkinson’s disease.

References
2. NPSA. Rapid response report NPSA/2010/RRR009: Reducing harm from omitted and delayed medicines in hospital London; 2010

56. Implementation of biosimilar etanercept (Benepali): experience of North Bristol NHS Trust rheumatology team
Emily Rose, Rheumatology Specialist Pharmacist; Deirdre McKiernan-Hirst, NICE Implementation Pharmacist

Background
Implementation of biosimilars, medicines developed to be highly similar to an existing biological medicine, provides an opportunity to save NHS financial resources and drive competition in the biological market. The first etanercept biosimilar (Benepali) received its UK marketing authorisation in January 2016. North Bristol NHS Trust negotiated a gainshare agreement with the local clinical commissioning group to commence on 1st May 2016, for 18 months, incentivising early implementation of the biosimilar. Benepali was the first subcutaneous biosimilar TNFi licenced for use in inflammatory arthritis; previous biosimilar implementation experience was limited to intravenous therapies.

Method
The rheumatology specialist pharmacist educated the team of 8 Consultants and sought their agreement for use of the biosimilar in new patients requiring treatment with etanercept and to switch patients already being treated with the etanercept originator to the biosimilar at their next consultation (either outpatient or telephone clinic). The rheumatology specialist pharmacist produced a counselling summary and patients were counselled and given written information explaining the switch. Computer systems were updated to include the biosimilar. The specialist pharmacist and procurement lead set up a service level agreement with the homecare company (including homecare nurse supervision for first dose) and negotiated research nurse support to recruit switching patients to the National biologics register. GPs were notified when their patients switched to the biosimilar. Biologic pathways and a cost comparator tool were developed, to guide clinicians to consider cost at the point of prescribing. The NICE implementation pharmacist produced financial reports to send to commissioners.

Results
In the first 12 months of implementation (May 16 – April 17), 97/139 (70%) of eligible patients on etanercept have switched from the originator Enbrel to biosimilar Benepali. 11 patients refused to switch, 4 patients switched at their second consultation after initially refusing and 1 patient switched and flared at 3 months so requested to switch back to Enbrel. 31 patients are yet to be switched (time pressures prevented switching in previous consultations). Benepali has been used instead of originator Enbrel, in 48 new patients requiring treatment with etanercept for inflammatory arthritis. Use of biosimilar etanercept has saved a total of £286,341 in the first 12 months of implementation: £209,514 from the switching program and £76,827 from use in new patients (gainshared between the Trust and commissioners).

Conclusion
NBT Rheumatology team have demonstrated local experience of using a biosimilar in new and existing patients. Patients were mostly willing to switch from originator to biosimilar following an honest discussion about biosimilars and their financial implications. A lesson learnt from this switch program is to counsel patients on switching from an originator to biosimilar, rather than specifying a brand. This experience will be paramount when other subcutaneous TNFi biosimilars gain approval by the European Medicines Agency. Use of biosimilars is a national priority, highlighted on the NHSE England medicines optimisation agenda and local sustainability and transformation plans.
Background
The National Patient Safety Agency (NPSA, 2007) released an alert to reduce the risk of administering medication via the wrong route\(^1\). This referred to the ‘British Association for Parenteral and Enteral Nutrition’ (BAPEN) guidance which recommends best practice for administering medication via enteral feeding tubes (EFTs)\(^2\). In 2016, new ENFit feeding systems for enteral administration were introduced to UK hospitals to further reduce the risk of misconnections and improve safety.

Objectives
To audit nurse practice in administering medication via EFTs against BAPEN recommendations. To record routes prescribed for medications administered via EFTs.

Standards
EFT observations:
1. 100% of nurses administering medications and flushes use a 60mL enteral syringe.
2. 100% of nurses flush with minimum 30mL sterile water before and after administering medication.
3. 100% of medications due at the same time are given separately and not mixed.
4. 100% of nurses administering multiple EFT medications at the same time flush between medications with minimum 10mL sterile water.
5. 100% of EFT administered medications have the correct route prescribed on the drug chart.

Method
Ethics approval was not required. Dietetics data identified six wards with the most EFT patients. Data were collected 5th December 2016 to 12th January 2017. EFT drug administrations were observed between 9-6pm in a 15 weekday period per ward. The same nurse was only observed once in one day. Data collected included EFT and syringe details, flushing behaviours, drugs administered and their prescriptions.

Results
60mL enteral syringes were used in 93% of observations. Flushing before, between and after medication administration were observed in 36/40 (90%), (13/26) 50% and 40/40 (100%) of cases, respectively. Where nurses flushed before administration, 31/36 (86%) used at least 30mL sterile water. Of the 50% of nurses that did not flush between drugs, 10/13 (77%) were because drugs were mixed prior to administration. When intervening flushes were used, 13/13 (100%) used at least 10mL sterile water. At the end of administration, 36/40 (90%) nurses flushed with at least 30mL sterile water. Of 102 drug prescriptions audited, only 19% recorded the EFT route of administration.

Conclusion
Mixing of EFT medications were frequently observed, negating flushes between doses. This risks residue build-up in the EFT lumen\(^2\) and is not recognised by the Trust Policy; a nurse education campaign is needed to reduce risk. Furthermore, the Trust Policy needs updating to include flushing volumes and timings. Eighty-one percent of drug prescriptions had an oral route prescribed on the chart. Prescribers must update prescriptions when routes change to EFTs. A timely pharmacist review of new EFT patients may help standardise safe practice. Auditing of night staff administration is recommended. A limitation of the audit included observing the same nurse on a different day.

References
4. 46% (23/50) of antibiotic prescriptions had an intended duration, stop or review date written on the drug chart.
5. 82% (41/50) of antibiotic prescriptions reviewed within 72-hours had an antimicrobial prescribing decision documented in the medical notes.
6. Microbiology samples were required in 25 cases.
7. 100% (25/25) of microbiology samples were sent where recommended in guidelines.

Conclusions
It is important to make prescribers aware of the mandate to specify intended duration, stop or review date of antibiotics and document antimicrobial prescribing decisions as part of the 72-hour review. This will be added to the new doctors’ induction and made a compulsory field for electronic prescribing systems. To enhance the study’s validity a longer duration of follow-up and larger dataset is required. This preliminary audit provides a baseline of antimicrobial stewardship in paediatrics and highlights where the Trust should focus further to ensure compliance. This audit will be included in paediatric quality improvement day to raise awareness of ASP. The audit results are encouraging and improve the culture around antibiotic stewardship in paediatrics.

References
3. Public Health England Antimicrobial Stewardship Start Smart - Then Focus Toolkit. 2015

59. The impact of a Clinical Pharmacist in the Inflammatory Bowel Disease (IBD) clinic
Frances Shaw, Clinical Pharmacist, Anjan Dhar, Consultant Gastroenterologist & Reader in Medicine, David Gibson, Senior Clinical Pharmacist, Linda Crissop, Lead Specialist Nurse for IBD, Darlington Memorial & Bishop Auckland Hospitals, County Durham & Darlington NHS Foundation Trust, Co. Durham

This study did not require ethics approval

Context and Problem
The National IBD standards 1 states that patients with IBD should be managed by an IBD team which includes a named pharmacist with specialist interest in gastroenterology. In order to expand the role of the pharmacist within the team, a pilot project was conducted in South Durham to study the impact of a Clinical Pharmacist attending the Inflammatory Bowel Disease Outpatient clinic between November 2016 and March 2017. The Audit results 1 showed that patients on biologics at the hospital were being followed up on average after 281 days, so were not getting a timely review. Decision was made to include conventional immunosuppressant (IMM) in pharmacist reviews also at the request of the consultants.

The role of the Clinical Pharmacist was to review patients who were being treated with either IMM and/or biologics, with the specific aims of ensuring appropriateness of treatments and monitor clinical, biochemical and therapeutic drug levels. A secondary objective was to free up clinician time to see new patients.

Intervention
The pharmacist started a joint weekly clinic with the IBD Specialist nurse. During the pilot period (9 clinic sessions) the pharmacist reviewed 39 patients with IBD, all of whom were on either IMM or biologic treatments or mesalazine. This review consisted of optimising dosages of medications, in response to drug levels and/or clinical symptoms.

Effects of change
Across the pilot the pharmacist initiated and counselled 11 new patients on biologics or IMM (2 for Adalimumab, 2 for Vedolizumab, 6 Azathioprine and 1 Mercaptopurine) following the MDT decision, freeing up nurse/consultant time to review other patients. 6 existing patients on biologics were reviewed, and following therapeutic drug monitoring and clinical assessment, this resulted in stopping treatment for 2 patients and switching of a further patients therapy. Estimated cost savings arising from stopping treatment was £15000 for the year. 13 patients on IMM were reviewed, 4 of which had their doses optimised or changed to alternative IMM to avoid escalation to biologic therapy, thereby saving a significant cost to the health economy of around £24,000. A further 9 patients on mesalazine were reviewed; all of whose treatment was adjusted to optimise therapy. The advantage of having a pharmacist was timely management of patients with a focus on patients compliance and concerns.

Conclusions
The pilot was considered to be a success from both the clinical and economic perspective as well as good patient care. Clinician time was also freed up to review other patients. Based on this pilot, funding has been approved for weekly Pharmacist led IBD clinics across all three sites in the trust.

As part of the on-going project, therapeutic drug monitoring (TDM) for biological agents and IMM is being developed as part of the pharmacist’s role. We are also planning to hand out patient satisfaction questionnaires to establish the impact of the change on the patients themselves.

References

60. Evaluation of the implementation of medicine sick day rules cards in community pharmacy.
Dr Janine Cooper, Queen’s University, Belfast

Background
Medicine sick day rules (MSDR) cards, originating in NHS Highland, were rolled out across NHS Scotland in June 2015 as part of the Scottish Patient Safety Programme (SPSP) to compliment the national Polypharmacy Guidance1. The cards inform patients and carers of medicines that should be temporarily stopped during periods of illness (vomiting, diarrhoea and fever) with the aim of preventing acute kidney injury caused by dehydration.

Objective
To evaluate the dissemination and implementation of MSDR cards in community pharmacies across one NHS board, specifically to assess if they had received a supply of cards, the method of distribution to patients and the pharmacist’s awareness and purpose of the cards.
Method
The study did not require NHS ethics approval. An electronic survey, based on one used in NHS Highland, was designed to determine whether community pharmacies had received supplies of the cards and how they were providing these to patients. There were five multiple choice questions and two open questions for respondents to provide comments. Five community pharmacists participated in one-to-one interviews to provide feedback on the questionnaire and distribution method. Minor amendments were made prior to distribution by email to all 182 community pharmacies across one health board. Reminders were sent by email and telephone. Respondents were given 5 weeks to complete the survey.

Results
The response rate was 40% (73/182). The majority of respondents had heard of the cards (96%), received a supply (93%), were supplying them (80%), and understood the messages behind them (96%). The survey ended for those who reported not having heard of the cards. Pharmacists (98%) were the principal distributor. Methods for distribution differed from self selection to consultation with patients. A patient information leaflet was given to patients upon supply by 61% of responders and 63% agreed that using MSDR cards improved engagement with patients. Respondents commented the cards were a useful tool and there should be a stronger publicity campaign to promote them. There was some ambiguity in terms of which professional group has responsibility for providing the cards to patients. Comments included the need for staff training. Two respondents reported observing patients not restarting medicines having stopped them on the basis of the advice given in the cards, although no specific details were provided.

Conclusion
The survey suggests that MSDR cards have been disseminated to community pharmacies and most respondents reported using them. Interpretation of this outcome may be limited by the low response rate of self selected respondents. Clarity of roles within the multidisciplinary team, messages behind the cards and the need for accompanying patient information could be the basis for staff training highlighted as a requirement to support improved implementation. Future work is required to assess how the MSDR cards are being implemented by GP surgeries and secondary care with a view to having a clear implementation strategy across the NHS Board.

References

61. A novel team approach to improve antimicrobial stewardship at a large teaching Trust.
Appleton J, Banavathi K, Yates J, Snape J; University Hospitals of North Midlands (UHN) NHS Trust, Staffordshire

This study did not require ethics approval.

Context
Historically the pharmacy department at the Trust has supported antimicrobial stewardship (AMS) by providing 0.5wte pharmacist input into the AMS group. Additional support (0.2wte) was provided by a pharmacy technician. In order to enhance this support a 1.0wte band 7 antimicrobial nurse was recruited. It was anticipated that this nurse would encourage greater Trust-wide nursing engagement in AMS activities and promotion of key prescribing messages.

Problem
Previous AMS audits had shown that there was room for improved antimicrobial stewardship in many clinical areas including compliance with antimicrobial guidelines, reducing antibiotic durations and reviewing duration of intravenous antibiotics. Nurses’ presence at the bedside provides numerous opportunities to inform and educate patients and others on antimicrobial stewardship. Recent publications have highlighted the unique position that nurses hold in contributing to improving AMS and addressing antibiotic resistance [1].

Intervention
A key objective for the AMS nurse was to improve engagement and awareness of stewardship across the Trust. Targeted antibiotic ward rounds were undertaken by the newly formed AMS team (microbiology consultant, antimicrobial pharmacists and nurse) on wards deemed high users of antibiotics (especially carbapenems and piperacillin-tazobactam). In a snapshot audit undertaken in March 2017 34 antibiotic prescriptions were reviewed on a targeted ward round on 4 admission wards and 2 ITU areas by a Microbiologist and the AMS nurse. AMS interventions were made on 24 prescriptions (70%). These interventions included documentation of review date (58%); de-escalation of antibiotics to narrower spectrum (21%); duration (13%); indication (4%) and IV to Oral switch (4%). Proposed amendments to therapy were discussed with clinicians, nurses and, where possible, patients. Preliminary findings indicated that targeted reviews and education sessions improved AMS engagement. These results should be confirmed by further audits.

Effect of changes
Since joining the team in October 2016 the AMS nurse has contributed to the education programs for newly qualified, overseas and quality nurses with a focus on positive contribution to AMS by promoting 24-72 hour and 5 day reviews and promoting IV to oral switch of antibiotics where clinically indicated. This has been demonstrated elsewhere to:
1. significantly reduce length of stay [2]
2. reduce the cost and time taken to prepare and administer intravenous medicines
3. reduce the costs and risk from device infection

Conclusions
The inclusion of a nurse within the AMS team has been demonstrated to be beneficial and has enabled AMS team engagement with the multidisciplinary teams at the patient’s bedside. Anecdotal evidence suggests that nurses lack confidence and are reluctant to challenge antibiotic prescriptions or management plans. This will require addressing if nurses are to fully contribute to AMS in the future. More work needs to be carried out to evaluate the benefits of the AMS nurse role and their contribution to AMS programmes.

References
1. Antimicrobial Resistance: Royal College of Nursing position on the nursing contribution, 2016.

45
The standards used were as follows:

Audit compliance with antimicrobial guidelines.

Objectives

Determine whether improved access and design of the antibiotic guidelines resulted in improved compliance.

Aim

Determine whether improved access and design of the antibiotic guidelines results in improved compliance.

Objectives

Audit compliance with antimicrobial guidelines.

The standards used were as follows:

1. 100% of prescriptions should state the intended course duration.
2. 100% of prescriptions should state the dose to be administered.
3. 100% of prescribed doses should have been administered.
4. 100% of patients should have an allergy status documented.
5. 100% of patients should have a diagnosis documented in the medical notes.
6. 100% of patients should have had appropriate specimens sent to the microbiology department for culture and sensitivity testing.
7. 100% of patients should be prescribed empirical treatment according to the guidelines.
8. 100% of charts should have all the above standards met.
Methods
An audit of prescriptions was completed as part of the National Antibiotic Audit in September 2016. An internal questionnaire was also completed in parallel to assess junior doctors’ knowledge of current antibiotic practice and the management of 6 common HPB infectious diseases, diverticulitis, sepsis, biliary sepsis, urosepsis, hospital acquired pneumonia, and intra-abdominal sepsis. An internal compact document was then created and distributed in collaboration with the microbiology team detailing management of these 6 common infections, along with suitable oral step down agents. A re-audit was completed in November 2016, and the same questionnaire was re-circulated to junior doctors. Data was analysed using Microsoft® Excel, and this study did not require ethics approval.

Results
A total of 70 prescription charts were audited for patients under the care of a HPB surgeon for the 1st audit and 69 charts for the 2nd. All 22 doctors asked completed the 1st questionnaire and 18 of the same 22 doctors completed the 2nd questionnaire. An overall improvement in the completion of an accurate prescription was seen after the completion of the first audit (40% to 80%). The most significant improvement in prescription writing was seen in the course length being indicated, with an improvement from 60% to 86%.

Discussion
Overall compliance with prescription writing was significantly improved, as was the selection of the correct agent for the indicated infection. Interestingly a reduction in the number of doses administered was seen. This audit was completed with the same junior doctors with a small sample size, so it is unclear whether results could be generalised. The very completion of the audit itself could have drawn attention to the guidelines and improved compliance rather than the introduction of the guidelines in a new format.

Conclusions
The provision of antimicrobial guidelines in an easy to access, table format demonstrates improvement and compliance with guidelines. We plan to introduce and measure the effects of an improved intranet guideline page and to update and improve knowledge of the antimicrobial guidelines.

64. An economic analysis of a ward based “dispensing for discharge” pharmacy technician service
Nick, Gunn, Jaimin, Thakrar, Paul, Reid, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield

Background
Most hospitals throughout the UK now use a “dispensing for discharge(DfD)” model for issuing medication to inpatients. This involves supplying packs of medication, labelled and suitable to use on discharge. Evidence of improvements in productivity and service delivery exist, but little evidence of financial savings does. Data presented aim to address this lack of financial evidence. The analysis was carried out in a large teaching hospital.

Objectives
1. To elucidate the cost benefit of introducing a technician led DfD service.
2. To prove the service was cost beneficial after accounting for associated staffing costs.

Methods
One Band 5 (NHS Agenda) medicines management technician (MMT) was introduced across 2 acute respiratory wards on a full-time basis, and provided a DfD supply model. The MMT’s time was split evenly across intervention wards. Two clinically similar wards’ drug expenditure data were analysed and used to further elucidate the financial impact. Data were reviewed for a period of 6 months from April 2015 to September 2015. The non-intervention wards were compared against intervention wards, and all 4 wards were compared against the same time period in the previous year. All wards included in the analysis had a similar number of admissions across the study period, but drug expenditure was adjusted for the number of patients treated using the admissions data from the Patient Administration System. Medications that were funded “out of tariff” and are “passed through” to other organisations were removed from the analysis. This study did not require ethics approval.

Results
The results showed that the 2 DfD intervention wards had lower drug expenditure compared with the same months from the previous financial year: ward 1 had spent £9,045 less and ward 2 had spent £12,743 less, for a combined total of £21,788 less. The non-intervention wards had higher drug expenditure compared with the same months from the previous financial year: the 1st non-intervention ward had spent £7,972 more and the 2nd had spent £2,225 more, for a combined total of £10,196 more. This resulted in a cumulative saving of £31,984 for the 6 months studied. This would equate to an estimated total year saving of £63,968. This was sufficient to offset all staffing costs associated with implementing the service and resulted in a small financial gain. This analysis does not take into account the wider financial impact, or quality improvements gained from increased patient service provision, safety, and efficiency delivered by the ward-based service.

Conclusions
This analysis shows that the drug cost savings associated with the DfD service was sufficient to fully fund all associated staffing and setup costs, resulting in significant patient service improvements’ with no financial burden to the organisation.

References
Background
Progressive deterioration of renal function gives rise to many complications. One affected organ can be the bones and these resulting problems can be encompassed by the collective term renal bone disease (RBD)\(^2\). Treatment aims in haemodialysis (HD) patients are to prevent hyperphosphataemia, maintain normocalcaemia and normal parathyroid hormone (PTH) levels to prevent secondary hyperparathyroidism. Currently, there is a national variation in how hyperphosphataemia is treated. UK Renal Registry data indicates that 61% of HD patients are achieving phosphate levels in range\(^1\). Cinacalcet is a calcimimetic which increases the sensitivity of calcium-sensing receptors to extracellular calcium levels and therefore inhibits the release of PTH. Patients on cinacalcet therapy have significant RBD and renal osteodystrophy.

Objectives
This objective of the audit was to evaluate the management of RBD and establish whether patients were prescribed phosphate binders\(^3\) and cinacalcet\(^4\) according to NICE guidelines. This service evaluation required no ethics approval.

Methods
All patients (n=25) prescribed cinacalcet therapy on the HD unit at the Royal Stoke University Hospital (RSUH) were included in the audit. A further 20 patients were randomly selected to make a total audit population of 45 patients (25% of HD population at RSUH). Patients who were unable to consent were not included in the audit. Patient electronic medical records, nursing records and blood results were scrutinised prior to assessment of their management of RBD.

Results
The audit established that the prescribing of phosphate binders and cinacalcet therapy complied with NICE guidelines.

Conclusions
The service evaluation gives reassurance to patients, clinicians and commissioners that treatments with high cost phosphate binders and cinacalcet adhere to NICE recommendations. Clinicians need to ensure that all patients on cinacalcet therapy document on every patient clinical letters that the patient is not eligible for a parathyroidectomy procedure. Future audits should include the whole HD population at RSUH and review the original patient medical file so that all audit parameters can be assessed.

References
3. NICE. Chronic kidney disease (stage 4 or 5): management of hyperphosphataemia NICE March 2013 \(www\).\(nice\).\(org\).\(uk\)/\(guidance\)/cg157 (accessed on 12th April 2017).

66. Surgical Antimicrobial Prophylaxis – Audit of Adherence to Formulary

Williams L\(^1\), Herring C\(^2\), Young T\(^3\), \(^1\)Senior Resident Pharmacist, \(^2\)Lead Divisional Pharmacist Surgery, Women’s & Children’s, \(^3\)Lead Microbiology Pharmacist, Wirral University Teaching Hospitals NHS Foundation Trust

This study did not require ethics approval.

Introduction
Post-operative infections account for 16% of all healthcare associated infections (HAIs) in England and are a major cause of morbidity and mortality\(^1\). They can be prevented by administering prophylactic antibiotics before, during, or after a diagnostic, therapeutic, or surgical procedure. The Department of Health’s Antimicrobial Stewardship toolkit “Start Smart - then Focus” \(^2\) provides an algorithm for surgical prophylaxis and recommends that a second dose is only needed if the procedure exceeds two half-lives of the antimicrobial or if blood loss exceeds1500ml\(^2\).

Objectives
To identify:
- The proportion of procedures that adhered to WUTH’s surgical antimicrobial prophylaxis, formulary guidance
- The reasons for non-adherence to the formulary
- Trends in Consultant deviations from the formulary
- Trends in deviations between procedures
- Patients that developed a post-operative infection as a result of inappropriate antibiotic prophylaxis prescribing

Method
Data were collected for each patient over the age of 16 on planned or emergency theatre lists in Clatterbridge Hospital and Arrowe Park Hospital over a two-day period in August 2016. Patients’ medical notes and the electronic prescribing system were scrutinised to identify: infection alerts; procedure performed; Consultant name; antibiotic, dose and time administered; additional antibiotics administered peri or post operatively and whether the antibiotic adhered to the formulary.

Results
- Of the total procedures 75% adhered to formulary
  - 40% antibiotics were given correctly
  - 33% did not require antibiotics
  - 2% appropriately deviated
- One patient required post-operative antibiotics
Reasons for non-adherence:
- Different antibiotics to formulary – 27%
- Missing antibiotics – 18%
- Incorrect dose given – 11%
- Antibiotics omitted but advised in formulary - 11%
- No formulary advice but antibiotics given – 33%

Discussion/Conclusion
The audit demonstrated 75% adherence to formulary; the 2% that appropriately deviated had already commenced antibiotics to treat an infection pre-operatively. This is a significant improvement compared to 2015 when formulary compliance was only 28%. Local guidance for ENT, breast, maxillofacial, ophthalmology and upper GI procedures is lacking. If antibiotics were given for these procedures with no documentation this was considered inappropriate deviation from the formulary.

One patient developed a post-operative infection, following an inappropriate deviation from the formulary. The blood and urine cultures sent at the time of the sepsis diagnosis did not grow any organisms, therefore it can’t be concluded that correct use of prophylactic antibiotics would have prevented it.

Forty six procedures (25%) did not adhere to the formulary; of these, 15 (equating to 8% of total procedures) received antibiotics that were not indicated. In 2016, £30,148 was spent on intravenous antibiotics in theatres at WUTH. Extrapolating these data suggest that WUTH could save £2,500 year by eliminating the inappropriate use of pre-operative antibiotics. These results will be shared with the surgical division and the formulary will be updated to address areas where guidance is lacking.

References:

67. Examining the impact a prescribing pharmacist on deprescribing for elderly hospital inpatients
Alan Physick, Iqra Zafar, Darren M Ashcroft
Lancashire Teaching Hospitals Foundation Trust (LTHFT), Preston, University of Manchester, Manchester

This study did not require ethics approval

Background:
Medication errors are common, costing the NHS up to £2.5 billion per year. Patients with inappropriate polypharmacy have a greater chance of experiencing these medication errors resulting in a prolonged admission to hospital.

The Carter Review suggests that one of the ways this could be tackled is by a pharmacist through medicines optimisation. One specific activity to support this is deprescribing, which is a method of discontinuing medications to reduce inappropriate polypharmacy. Deprescribing by pharmacists has been studied in primary care settings but not extensively in secondary care.

Objective:
To establish if deprescribing is possible at LTHFT by an Independent Prescribing Pharmacist (IPP) in a secondary care setting

Method:
30 patients were selected from an elderly care ward in a teaching hospital. Screening for the potential for deprescribing focused on patients seen at the point of admission or discharge. The patients’ medical and prescribing records were reviewed by an independent prescribing pharmacist (IPP) using the STOPP-START toolkit, BNF 72, relevant NICE guidelines and the pharmacist’s own clinical knowledge to identify appropriate deprescribing.

Results:
A total of 42 medications were deprescribed for the 30 patients, representing a mean of 1.4 medications per patient. 70% (21/30) of the deprescribing occurred in patients aged ≥80, which was attributed to the increased polypharmacy seen in this age category. Deprescribing occurred for 87% (26/30) of patients at the point of admission; all of these patients had been previously reviewed by a consultant with subsequent review by the IPP; therefore the IPP identified additional appropriate deprescribing for these patients.

Opioids were most commonly deprescribed due to the increased risk of falls, which correlates with previous work on deprescribing. The most common reasons for deprescribing were confusion, duplication and not first line therapy, all occurring for 20% (6/30) of patients; there were a total of 21 different reasons for deprescribing demonstrating the complexity of the task. The most frequent source used to deprescribe was the pharmacist’s own clinical knowledge.

Conclusion:
Healthcare professionals who have prescribing responsibilities are often reluctant to deprescribe because of barriers such as discontinuing medication started by another consultant/specialty. Based on the findings of this audit, future research should explore the clinical and cost-effectiveness of a dedicated deprescribing service as part of the IPP role in hospital settings.

References:
1. Torjesen I. Medication errors cost the NHS up to £2.5bn a year, The Pharmaceutical Journal 2014; 293(7834) online.
Background
Studies have shown concerning use of non-steroidal anti-inflammatory drugs (NSAIDs) amongst elite athletes, but no research has examined the use in non-elite athletes1,2.

Objective
This study investigated the use of NSAIDs by recreational runners, alongside awareness of adverse effects, and their reasons for using the drugs.

Method
An online questionnaire regarding consumption of NSAIDs, reasons for use, and knowledge of adverse effects was distributed through parkrun and Marathon Talk to recreational runners. 107 out of 542 responses were disregarded due to completion of races over half marathon distance to ensure that data were that of recreational runners. Data were analysed through IBM SPSS Statistics Version 23 software.

Results
87.3% have taken NSAIDs within the past 12 months, with 56.9%, 6.2%, and 69.3% taking them before, during, or after a run/ race respectively; higher use compared to elite athlete studies. Main reasons for use, although dependent on time of consumption, are to decrease inflammation/ soreness, increase pain tolerance, and continue running through/ treat injuries. Except gastrointestinal risk (82.2%), knowledge of adverse effects was poor: 40.4% and 18.3% aware of renal and cardiovascular adverse effects respectively. Knowledge of adverse effects relating to exercise such as worsening of injuries was almost non-existent.

Conclusions
NSAID use amongst recreational runners is higher than elite athletes in previous studies. Reasons for use are varied, and awareness of adverse effects and risks of NSAIDs is poor. Further work should include the production and distribution (through parkrun/ event packs) of an information source to recreational runners. However, benefits of exercise outweighs risks of NSAID use in those who must take NSAIDs.

References

Regional Pre-Registration Pharmacists Project Winners 2017

A. Audit of co-prescribing rate of PPIs in patients initiated on dual-antiplatelets within cardiology
Ben Robinson & Dominic Moore; Derby Teaching Hospitals NHS Foundation Trust, Derby

Background
Major gastro-intestinal bleeding has a mortality rate approaching 10%, and can be caused by anti-platelet agents, secondary to peptic ulceration1. Dual antiplatelet therapy (DAPT) increases the absolute risk of major GI bleeding by 0.6-2% compared to low-dose aspirin alone2. Observational studies show association between proton-pump inhibitors (PPIs) and increased risk of major adverse cardiovascular events (MACE), independent of, and possibly linked to, theoretical pharmacokinetic interactions with dual-antiplatelets. However, randomised controlled trials show that PPIs significantly reduce the risk of bleeding whilst on DAPT, with no associated increase in the risk of MACE3. Therefore, the Joint Area Prescribing Committee (JAPC) now recommends that PPIs are prescribed in all appropriate patients started on DAPT4.

Objectives
To assess the co-prescribing rates of PPIs alongside DAPT, within cardiology as per the current JAPC guidance. An audit standard of 80% of patients on DAPT co-prescribed a PPI was chosen, as the guidance is advisory, and PPIs are not suitable in all patients, due to relevant adverse effects.

Method
Patients discharged from cardiology during November 2016, initiated on DAPT, were identified via an algorithm from the electronic prescribing system. Patients that died, or no longer prescribed DAPT at discharge were excluded. All relevant information was extracted from the prescribing system, and anonymously recorded and analysed using Microsoft Excel 2016. This audit did not require ethics approval.

Results
A total of 105 patients were initially identified. Seventeen were subsequently excluded, leaving 88 patients in the final analysis. Of these, 79.5% were discharged on PPIs, though 51.4% of these were admitted on one. In patients initiated on PPIs, pharmacist advice to prescribe PPIs was present in 54%. There was a statistically significant relationship between the TTO being screened by pharmacy prior to discharge, and PPIs being co-prescribed (χ² = 12.51, p=0.0005).

Conclusions
Though the audit standard was nearly met, over half of these patients were admitted on a PPI, meaning potentially more could be started on gastroprotection. It is encouraging that pharmacist advice was followed in each case it was given, and pharmacy screening was associated with higher prescribing rates of PPIs. Not using the medical notes may mean that potential reasons for not prescribing PPIs were missed.

References


B. Compliance with guidance on the prescribing of meropenem – an audit

Timothy Seeborne, Basildon and Thurrock University Hospitals NHS Foundation Trust, Basildon

Background
To tackle the threat of resistant bacteria, current national antimicrobial policy is focused on reducing the use of broad-spectrum agents such as meropenem. Whilst antibiotic prescribing remained stable from 2010-15, carbapenem use in England increased by 42%. During this time, the number of resistant, carbapenemase-producing Enterobacteriaceae isolated from cultures soared by a staggering 470%. Clearly, it must be established whether this increase in carbapenem consumption is justifiable given the rise in resistant bacteria.

Objectives and standards
- Assess compliance with the Trust guideline for meropenem prescribing
- Assess compliance with the "Start Smart - Then Focus" recommendations that concern prescribing
- Make recommendations for improvement, or continuance of good performance

100% compliance was expected for each standard:

1. Patients will have drug allergy histories taken
2. Patients will have an indication for meropenem on the drug chart or in the notes
3. Microbial samples are taken prior to commencing meropenem
4. Patients will have a documented stop/review date, or an intended duration recorded on the drug chart or in the notes
5. Meropenem is prescribed appropriately: in accordance with the guideline; under microbiology advice; in response to meropenem resistance from a microbial culture.

Method
This study did not require ethics approval. All data were gathered on 4th November 2016 using a dichotomous data collection form. Patients receiving meropenem were included. Paediatric, immunocompromised, and critical care patients were excluded. Patients were assigned an identification number to preserve confidentiality. A pilot was conducted with 5 patients, who were included in the final study.

Results
559 patients across 22 wards were considered. 10 patients (1.8%) were included – 7 (70%) females and 3 (30%) males. All patients (100%) had a drug history taken. 8 (80%) patients had a documented indication for meropenem. Cultures were taken from 7 (70%) patients. A duration or stop/review date was documented for 6 (60%) patients. Meropenem was prescribed appropriately for 9 (90%) patients.

Conclusions
There is evidence of inappropriate prescribing practices that may unnecessarily increase carbapenem use and resistance. This is consistent with national data, suggesting generalisability of results. Non-compliance is likely due to prescribers being unfamiliar with the Trust antimicrobial guideline. Greater antimicrobial education and training, coupled with introducing electronic prescribing that can restrict empirical antibiotic choice, could improve compliance. A re-audit with feedback to individual prescribers may also be beneficial. This study was limited by its sample size, convenience sampling, and the quality of documentation within the notes. This study focuses on meropenem; similar work should be undertaken at sites that use other carbapenems.

References


C. Are Tazocin prescriptions from the Emergency Department appropriate?

Greg Williams, Jacqueline Aberdeen, Delyth Morton, Gloucestershire Hospitals NHS Foundation Trust (GHNHSFT), Cheltenham General Hospital

This study did not require ethics approval.

Background
Tazocin is a penicillin antibiotic with an extended spectrum due to its beta lactamase inhibitor component. It’s broad spectrum of activity is invaluable in the treatment of a range of infections and in particular life threatening sepsis. In a time where antimicrobial resistance is a major issue in healthcare, Tazocin consumption has increased by 50% in the last 5 years which has been directly attributed to an increased number of serious resistant bloodstream infections. A ‘Commissioning for Quality and Innovation’ (CQUIN) framework has been established in order to decrease the use of Tazocin by 1% year on year, aiming to preserve efficacy and clinically manage its use.

Objectives and Standard
- Distinguish whether prescribing of Tazocin was appropriate according to the GHNHSFT antimicrobial guidelines in the Emergency Department (ED).
- Establish the reasons and trends where inappropriate prescribing was occurring.
- 100% of Tazocin prescriptions should be appropriate in accordance with guidelines.
Method
Patients were identified who had been initiated on Tazocin in the ED. Two factors were collected, the initial infection diagnosis and the infection severity. A number of physical and blood septic parameters were recorded to classify severity from A to C, from a minor infection (A) to serious sepsis (C). These were compared against the trusts antimicrobial guidelines for the infection diagnosis to establish whether Tazocin use was appropriate or inappropriate.

Results
Data was collected for 53 patients and inappropriate prescribing of Tazocin occurred in 31 (58.5%) patients. 13 patients had infections where Tazocin is not recommended, of which 9 were diagnosed with ‘unknown infection’. 18 patients were prescribed Tazocin when their infection severity did not warrant its use; 7 of these had severity ‘A’ infections and 11 had ‘B’ infections. In these infections a severity C (severe sepsis) is required to indicate Tazocin use.

Conclusion
Inappropriate prescribing was seen in nearly 60% of patients. Two major areas to target include severity A infections and unknown infections, accounting for 16 patients and over 50% of the inappropriate prescribing seen. Severity ‘B’ infections are harder to target; a clinical judgement may warrant Tazocin use if the patient is at risk of rapid deterioration. It is also reasonable to conclude that Sepsis Six CQUIN target pressure and lack of knowledge of its principles may be contributing to Tazocin overuse, especially in unknown infections where triple therapy is recommended. Small changes in Tazocin prescribing could have a colossal impact in antimicrobial stewardship and by first targeting the ED, it is likely to have a knock on effect across all medical wards in the hospital in decreasing inappropriate use of Tazocin.

References

D. Deprescribing bisphosphonates in patients who have been taking for more than 10 years
Elin Williams, Haxby Group Practice, York

This study did not require ethics approval.

Context
In January 2016 existing guidelines were updated by the National Osteoporosis Guideline Group (NOGG) stating that alendronic acid and risedronate should be reviewed after 5 years of continuous treatment due to the associated risks beginning to outweigh the benefits in long term use. [1] Following release of this guidance, Haxby Group Practice decided to complete a review of their York based patients who have been taking a bisphosphonate (alendronic acid and risedronate) for longer than 10 years in an attempt to follow the guidance more closely.

Problem
Patients of Haxby Group Practice had not been reviewed using the current guidelines. In order to follow recent national guidelines surrounding bisphosphonate use in osteoporosis, a deprescribing review process of appropriate patients on risedronate or alendronic acid for more than 10 years needed to be completed.

Intervention
1. Identify all patients who have been on alendronic acid or risedronate for more than 10 years.
2. Deprescribe any patients who don’t have a clinical need to continue their bisphosphonate for more than 10 years.
3. Put in place a programme to rerun annually to identify patients for clinical review who have been taking either alendronic acid or risedronate for more than 10 years on the system.

Strategy for change
Identify patients who have been on alendronic acid or risedronate for longer than 10 years at Haxby Group Practice’s York sites by running a search on SystemOne® (software containing patient records) at the beginning of December 2016. Patient data collection to be clinically screened identifying individual eligibility for a drug holiday and in turn deprescribing eligible patients to follow the recent guidelines more closely by the end of December 2016.

Effects of changes
77 patients out of the total 32742 patients (0.2%) were identified at the time of collection (December 2016) to have been taking either alendronic acid or risedronate for longer than 10 years. Of these 77 patients, 29 (37.7%) patients were stopped on their bisphosphonate treatment and 31 (40.3%) continued on their treatment. The remaining 17 (22.1%) patients were either no longer on the system or had already had treatment discontinued.

Conclusions
Long term bisphosphonate treatment is associated with unwanted side effects and complex associated counselling points. This intervention has the potential to have significant positive impacts on the 29 of the 77 identified patients that were deprescribed across the six York sites within Haxby Group Practice. The outcomes of this intervention will encourage all members of clinical staff at Haxby Group Practice to identify inappropriate bisphosphonate treatment duration during clinical reviews or consultations with patients on bisphosphonates. Further intervention surrounding bisphosphonate treatment duration needs to be completed in a clinical review on patients who have been taking a bisphosphonate for over 5 years to follow current guidance more closely.

References