Insight
The Clinical Journal of the
Mid Yorkshire Hospitals NHS Trust

Issue 1
Spring 2017

News, education and advice for all clinical staff in the Mid Yorkshire Hospitals NHS Trust and the surrounding region.

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Disclaimer: Any views or opinions that may be expressed in articles appearing in the Mid Yorks Medical Journal (MMJ) are those of the contributor(s) and are not to be construed as an expression of opinion on behalf of the Editorial Team of the MMJ.
INFORMATION FOR AUTHORS

Submitting a manuscript
The Mid Yorks Medical Journal accepts manuscripts sent to myclinicaljournal@midyorks.nhs.uk

Submissions can include research articles, case reports, conference posters or reflections, experiences of job roles or working within a particular department or service, careers advice.

We also accept newsworthy items that contain information or updates relating to a hospital department or service or educational institution with links to the local healthcare provider.

If you are unsure whether your piece is suitable for the journal or if you have an idea you wish to discuss, please contact the editorial team at mymedicaljournal@midyorks.nhs.uk

Patient consent
Should a manuscript contain personal medical information about an individual which could lead to them being identifiable (in text or photographic form), then written and signed consent must be obtained from them. When submitting a piece to the journal, a copy of this consent must be sent along with your manuscript.

Images, such as x-rays, ultrasound, laparoscopic and pathologic images can be used without consent, so long as they are made anonymous by removing any identifying marks and text. Whereby a disease is rare or particularly remarkable that it could lead to the patient being identified in the listed image types, consent would be required.

Peer review
All manuscripts sent to the above email address will be acknowledged by a member of the editorial team. They will then be considered for publication where once approved, will be sent for peer review. Delays may be encountered if additional advice or clarification is required during this process.

Acknowledgements
These should be in a paragraph at the end of the text and before the references.

References
All references must be in the Vancouver style. References should be numbered in the order they appear in the text. These numbers should be inserted as superscript each time the paper is referred to e.g. Trials elsewhere support this view.⁴⁶ or if the author is cited e.g. Hill⁵ found the results to show…

At the end of the article the full list of references should give the names and initials of all authors. If there are six or more authors, the first three authors should be listed followed by “et al”. This is followed by the title of the article, title of the journal, the publication year, volume number and first and last page numbers. Books should be followed by the place of publication, publisher and year. The author is responsible for the accuracy of the lists of references at the end of their article

Example of referencing an article:

Example of referencing a book:

Example of referencing a website:
Welcome to the first edition of Insight, the new Clinical Journal of the Mid Yorkshire Hospitals NHS Trust. This replaces the well-established medical journal which has been published for a number of years, and reflects a more multi-professional readership.

We hope the journal will provide ALL staff with a vehicle to share good practice and interesting information relevant to healthcare. We have selected a diverse range of articles for this first edition to try to reflect the different groups of staff who make up the Trust. It is our intention to publish Insight quarterly, and therefore we need as many articles as possible to be sent in from you all. This is YOUR journal, regardless of your staff group or job title, and we want to hear from you. If you have any audits or case studies, reviews, quality improvements, send them in. If you want to tell us about your job, let us know. If you are involved in research projects or have ideas to share, this is your journal. If you are a student or trainee, this publication can be added to your cv, as the majority of articles will be internally peer-reviewed.

Our editorial team will prepare your work for publication and we will always respond to your contribution. The journal is predominantly electronic although we will be printing a few paper copies to put in the library and the education centres. As well as on the intranet, Insight will also be present on the internet, so you should be able to find it wherever you are.

So please send us your articles, everything will be considered: Get your name in lights; share the good practice; send to myclinicaljournal@midyorks.nhs.uk
This year has seen the introduction of our new Mid Yorkshire Undergraduate Teaching Excellence Awards.

Our trust has an excellent reputation for the provision of varied and innovative teaching to medical students from both Leeds and Sheffield medical Schools. Over the last five years we have won numerous clinical teaching excellence awards from Leeds medical School and are frequently cited as the most popular placement by students.

This depends entirely on the hardworking and focussed clinicians, nurse educators, non-clinical staff and allied healthcare professionals who have provided such a successful and popular teaching programme.

It is in recognition of this work that the Medical Education Department has now introduced their own awards scheme to recognise and reward excellence in teaching by individuals and teams within the trust.

The awards this year have been awarded as follows:

1. Most innovative medical undergraduate project teaching awards
   Dr Patrick Tung, Emergency department, Dewsbury and District hospital.

2. Best 'non-med' medical undergraduate teacher award
   Sister Veronica Wagstaff and Sister Claire Swales, Burns Unit, Pinderfields Hospital.

3. The best undergraduate team teaching award:
   The Medical Student Ultrasound Training (MUST) Team:
   Mr Asoka Weerasinghe
   Dr Patrick Tung
   Mr Dean Okereke
   Dr Nikesh Menon
   Ms Ann-Marie Kemp
   Mr Adam Smith
   Mr Zakir Chopdat
   Mr Stephen Grundy

4. Individual excellence in teaching medical students by a junior doctor award:
   Dr Lewis Bates
   Dr Michael Kitchen
   Dr Grace McKay

Chief Executive Martin Barkley was there to meet the winners and present their certificates.

Well done everyone and thank you for your hard work!
Update from the Professional Development & Education Unit (PDEU)
The PDEU team develop and educate non-medical disciplines within the Trust. They consist of Clinical Educators, who create and deliver bespoke training within our Trust, and Practice Learning Facilitators (PLFs) who work closely with non-medical students and their mentors.

Skills in Practice Programme (SIPP)
Band 2 SIPP is for experienced HCA’s with great reviews. Topics include: end of life care, last offices, observation training, falls prevention, nutrition and the deteriorating patient, along with other key skills. Training will run for three 8 hour days.

The Band 5 SIPP is now delivered over five 8 hour days and is for all new to the Trust Band 5 RN’s from adult inpatient wards. The course includes: medicines management, falls and malnutrition prevention, an interactive day of simulation to help improve skills in caring for deteriorating patients and much more.

The Band 6 Skills in Practice Programme is now up and running; this includes a ‘Managerial Skills Session’ and a ‘Clinical Skills Session’

If you are a newly appointed Band 6 or would like refreshing on the topics covered in either of the days, please contact Organisational Development and they can book you a place.

You can attend one or both sessions dependent on what is relevant to you. If you would like more information on the programme, please contact PDEUteam@midyorks.nhs.uk

Falls Prevention In-situ Simulation Training
The Falls Practitioner for the Trust Catherine Bramwell-Walsh along with Clinical Educator Kelly Jackson are developing Falls training across the Trust with the aim to reduce preventable falls over the coming months. This training involves ‘In-situ simulation’ training which has been trialed at the Wakefield Intermediate Care Unit (WICU) and was a great success at identifying areas for improvement. The next phase of the role out of this simulation training is to bring it to the acute beds starting with Gate 42. If you are interested in this type of training for your area please contact kelly.jackson@midyorks.nhs.uk

RCN Clinical Leadership Programme
Cohort 1 which consists of 10 candidates started on 11th April 2017. This prestigious programme will develop candidates leadership skills over a 12 month period using a bespoke coaching framework. Candidates will lead a service improvement project in their workplace and learn effective ways to manage change in the clinical environment. The programme will also allow candidates to experience coaching as a supportive development tool and understand how to coach colleagues. Due to the high volume of interest in this programme, the PDEU are pleased to announce a second cohort of the programme which aims to start in June 2017. Interested candidates should complete an electronic application form which is available to download now via the PDEU intranet page.

Final Year Student Support and Development
The PDEU team have been working with Recruitment, NMC Revalidation and Staff Support Lead Nurse and Medicines Optimisation to facilitate a programme of events for final year pre-registration nursing students. This includes sessions of post-registration support, application writing and interview skills, taking the step from...
student to staff nurse as well as two open days where 57 candidates were offered conditional positions with our Trust. More work is planned with successful candidates in the coming months.

**1st year MSc Student Nurses**
In March we welcomed our next cohort of MSc adult nursing students from the University of Huddersfield who will be on placement with us until May. During our student nurse induction day we learned more about our Trust, discussed their fears and what they are looking forward to on their first placements and had a chat with Director of Nursing David Melia.

**AHP and Allied Health Sciences**
Educational leads meet with the PLF team on a six weekly basis. The group are currently looking at how we can link with patients as patient feedback is required for students. Loot out for AHPs and Allied Health Science staff in MY News talking about the benefits of having students.

**Bespoke Training**
We offer bespoke training when needed such as:

- Falls training
- Neuro observation training
- CVC/ PICC line training
- Blood culture sampling
- Continuing health checklist and nursing needs assessment training

Below is a graph representing the improvements made on Gate 43 with the assistance of the Clinical Educators, providing a bespoke training day. To help ensure high standards of care are been delivered in this area. If your department requires bespoke training, please contact the PDEU team.
Mid Yorkshire Hospitals NHS Trust Library Service

The library service at Pinderfields provides, facilitates and supports:

- 24/7 access to PCs and a quiet study space
- Online catalogue via our website
- Inter-library lending
- Document supply (journal articles)
- Electronic books and journals
- Healthcare databases (including training)
- Current awareness services
- Literature services
- Critical appraisal (understanding research article)
- Clinical and non-clinical professional development
- Revalidation
- Research projects and finding evidence to enable decision making to inform best patient care.

[www.midyorks.nhs.uk/library](http://www.midyorks.nhs.uk/library)

**Find us in the Trust HQ and Education Centre**

**Staffed hours**
Monday - Thursday
08:30 - 17:00
Friday
08:30 - 16:30

24/7 access is available
please ask a member of library staff for details.

**Contact us**
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Ext. 53899
library.pgh@midyorks.nhs.uk

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With NHS Athens you can access:

1. **Online Resources** such as Anatomy TV, BMJ Best Practice & Royal Marsden Online

2. **Oxford Medicine Online Ebooks**

3. **Online Journals** - NEJM

4. **Apps for Your Tablet or Smartphone** - BNF, NICE, BMJ Best Practice

[Website: www.midyorks.nhs.uk/nhs-athens]
Event taking place 31st May 2017

'Many ways to learn'

The library will be offering:

Activity sessions taking place from 12pm to 8pm to help you get started with:

Facebook  Canva  Twitter

and...

Refreshments  Goodie Bags
Bookable sessions:
12:00-13:00 How to use Canva
(Canva is a free graphic design tool website on which you can create leaflets, posters etc)
13:30-14:00 Setting up a Twitter account
14:30-15:00 Getting started with Facebook
15:00-15:30 Setting up a Twitter account
15:30-16:30 How to use Canva
(Canva is a free graphic design tool website on which you can create leaflets, posters etc)

Each activity session will be limited to a maximum of 3 people. All sessions will take place in the NHS Staff library (based in Trust HQ)

We will also be holding drop in activity sessions taking place from 12pm to 8pm.
Improving Medicines Management in Pinderfields General Surgery Wards: a quality improvement project
Dade, F¹, Scott, E²

Abstract

Background: Medicines management enables people to make the best use of medicines. Since 2001 there have been great efforts to improve medicines management which reduces harm to patients and costs to the NHS. Quality improvement is also a new focus especially at the ward level, where people are well placed to see problems and devise solutions.

Aims: This project attempts to improve medicines management in surgical patients.

Method: We identified problems on the Pinderfields Surgical wards. They were gentamicin prescribing, recording of patient weight, regular medication prescribing, prescription errors, VTE assessments and identifiable prescriptions. The main intervention ‘The Huddle’ was a short informal weekly meeting aiming to educate staff about these problems. Its benefit was two fold however as it encouraged staff to generate ideas of how to improve on these areas. The other interventions tested were name stamps and posters.

Discussion: The interventions were a success resulting in an increase in the quality of gentamicin prescribing and an increase in the number of patients prescribed regular medications within 24 hours of admission. The most important result was a 50% reduction of base line prescription errors.

Conclusion: The Huddle should be piloted on other hospital wards and its effect audited.

Background

Prescribing of medication is the most common intervention in the NHS, with over one billion prescriptions made in the community and over 200 million made in NHS hospitals each year¹. Prescribing is not without risk. In 2001 a report by the Audit Commission found 1,100 people died following medication errors or adverse reactions to drugs². In the USA adverse drug reactions may be the fourth leading cause of death². Other negative effects from prescribing medications are common. Approximately £250 million is wasted on 500,000 extra bed days required due to adverse medication events³ with some figures putting the cost of preventable errors at one billion pounds of which a significant amount relate to medication⁴. Since this report there has been a big drive across the NHS to improve how medication is managed to reduce the harm to patients⁴.

Medicines management is defined as “enabling people to make the best use of medicines” and can be split into the following components to ensure safe and effective treatment⁵.

Choice – the correct medication must be chosen for the correct pathology

Prescribing – the medication must be prescribed on a chart accurately as directed
Delivery – the medication must be ordered and supplied to the ward.

Administration – the medication must be administered to the correct patient, correct dose, route and time.

Review – medication should undergo regular review and unnecessary prescriptions stopped.

Reducing errors in any of these components will lead to improved patient care. Poor prescribing is an issue which needs addressing. A systematic review in a GMC paper of 124,000 prescriptions in NHS hospitals in the north west found an error rate of 8.9% across all grades of doctors, with FY2 doctors having the worst record (10.3%) and consultants the least (5.9%)\(^6\). As junior doctors have the highest error rates, interventions are required to improve prescribing at this level. The Effective Prescribing Insight for the Future (EPIFFany) project in Leicester was successful in improving competence, performance and safety of prescribing for junior doctors, attaining results equivalent to an extra year of experience\(^7\). It did so using an education programme involving simulated ward rounds, e-learning and face to face feedback\(^7\). The project cost nearly £80,000 to implement, which means a significant amount of planning, external expertise and grants were required\(^7\). Hospitals need to find methods which result in a similar degree of improvement without the cost.

Quality improvement projects are a focus for the NHS, driven by the need to improve standards of care whilst minimising costs\(^8\). GMC guidance states that doctors have a responsibility to contribute to improving quality of services\(^8\). Front line hospital staff such as junior doctors and nurses are well placed to identify problems with systems in which they work, as well as identify solutions to these issues. These staff are more likely to pick up problems/inefficiencies with pathways which would be missed by senior clinicians or hospital management\(^8\). They are also able to implement small projects effectively shown by the success of junior doctor quality improvement schemes run in the Severn deanery\(^8\).

Pinderfields Hospital general surgery department performed worse on the yearly prescribing audit performed conducted by the pharmacy team. The majority of the prescribing is performed by junior doctors and nursing staff are most responsible for administration so there is a clear indication for a project to improve medicines management in this group which will help the Trust meet one of the aims of its medicines management strategy of ‘promoting safe systems in the use of medicine’. This quality improvement project was devised and implemented from a junior level to attempt to make small changes to contribute to the wider efforts being made to improve medicines management within the hospital.

Method

Quality improvement project outline

The outline of the project is displayed in Figure 1. The cycle allows one group of doctors to audit, run the interventions and re-audit to close the loop before changing jobs, then handing it over to the next group who can reassess, change the
interventions if necessary and keep the aims relevant.

**Issues identified**
The project was constructed by identifying a series of problems related to medicines management which are faced by junior doctors on the ward in a group discussion with all FY1s working on general surgery between August and December 2014. They were then formulated into aims for the project.

**Improving adherence to Gentamicin prescribing regimes**
Gentamicin is a macrolide antibiotic often used to cover for gram-negative bacterial infections. The levels in the body must remain between specific boundaries. Low levels will not treat the infection resulting in increased length of stay or more morbidity. High levels increase the risk of toxic side effects including ototoxicity and renal impairment. Managing patients taking Gentamicin is difficult because the choice of dose is calculated by actual body weight, trough levels must be taken within specific time frames and it must be administered without delay or subsequent trough levels or dosing frequency may be inaccurate. The Hartford Regime is used to standardise Gentamicin prescription. The group identified communication regarding trough level times as an issue, incomplete documentation on charts and dosing errors. These things were all audited.

**Weight related drug doses**
Many patients with GI pathology lose weight or are already under weight on arrival at surgical wards. This affects dosing of very important drugs.
such as IV Paracetamol and LMWH, which if inaccurate can lead to life threatening side effects including liver failure, a VTE or haemorrhage. An accurate weight must be recorded on admission and rechecked to ensure dosing remains appropriate. Weight being written on the drug chart was recorded as well as whether the patient had been reweighed and whether this change had been recorded.

**Regular medications prescribing**

Patients are often admitted acutely unwell to the surgical assessment unit (SAU), and their regular medications are sometimes not prescribed at the clerking. This can have negative impacts on patient care, for example hypertensive crises or thrombotic events. Patients on SAU were reviewed 24 hours from admission, and those patients who had been in longer than this had their charts checked to observe the date regular medications were prescribed.

**Venous thromboembolism**

VTE is a simply avoided problem and surgical patients are particularly high risk. There is a national CQUIN target to achieve and the group discussion raised issues with whether VTE was being documented on drug charts as well as on the green forms. Adherence was audited as part of this project.

**Team working and feedback**

Medicines management is a multidisciplinary entity. There is no forum to discuss issues with prescribing or problems which have occurred on the ward, unless an event happens which is serious enough to warrant a Trustwide email. This means less serious issues are not brought to the attention of ward staff. Areas of focus are often dictated by management however they should also come from the ground level as these staff have a unique insight. It is daunting to start a project solo but it is easy for people to give their opinion or an idea regarding a topic of discussion. By improving team work and communication it should allow others to understand the pressures faced by other team members who can work around them or find solutions. The other issue is there is no way of getting up to date feedback on prescribing on the ward, unless one makes a serious error that the ward pharmacist needs to raise. If team work was improved then it would lead to a smoother transition between prescription, administration and review, therefore improving medicines management.

**Identifiable prescriptions**

The doctor who writes a prescription should be able to be identified. Signature and either legible name or GMC number should be visible. If there is a signature only, the prescription is hard to link to a particular doctor. This means that any errors found will not be fed back to the doctor who made them losing a good opportunity to continue to educate staff and improve patient safety.

**Prescription errors**

Reducing prescription errors to zero should be an aim for the surgical department for the reasons outlined above. An error was counted if the drug was spelt wrong, if the prescription was illegible, if the timings were not recorded, if it was not signed
Figure 2: Poster campaign
for, if the dose was incorrect, if it had been changed by the pharmacist due to an error or if the route was wrong. Other things included were a lack of review date for antibiotics or temporary medications such as potassium replacement. Any incomplete documentation on the chart was counted including allergy but not weight. If a prescription was signed but not identifiable it was not counted as an error.

**Interventions**

Three interventions were devised to improve medicines management in the department.

**‘The Huddle’**

A weekly meeting chaired by an FY1 and the ward pharmacist involving all ward staff able to attend. There were three foci to the meeting. It serves as an opportunity to educate staff about the issues outlined above and any new ones which are identified. It provides the pharmacist with an opportunity to feedback all the medication errors that week, and other events related to medication safety which had occurred in the Trust. It encouraged dialogue about medicines management to get ideas from staff as to what we need to address next and how. A by product of this is getting more staff to be involved with quality improvement.

**Poster campaign**

Three posters were made for this cycle. One to highlight issues with gentamicin prescribing and how they can be solved. There were also posters made to explain the importance of weight being recorded on charts. The final poster was to try and improve regular medication prescribing. See Figure 2 posters. They were put up after the audit on wards 32, 33 and 34.

<table>
<thead>
<tr>
<th>Table 1: Gentamicin prescribing</th>
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<tr>
<td>Prescriptions (n)</td>
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<tr>
<td>--------------------</td>
</tr>
<tr>
<td>Dose error</td>
</tr>
<tr>
<td>Time Level due recorded</td>
</tr>
<tr>
<td>Subsequent record keeping</td>
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<tr>
<td>Delays</td>
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</table>

**Stamps**

To try to reduce the number of unidentifiable prescriptions a stamp was purchased for each general surgery FY1 which bore their name and GMC number. The aim was to get the doctors using these stamps when writing prescriptions or in notes, so they can be identified easily if required.

**Audit**

A proforma was designed to audit the problems above and quantify the problem providing a baseline set of standards which can be audited against in future.

<table>
<thead>
<tr>
<th>Table 2: Weight recording</th>
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<tr>
<td>Weight on chart</td>
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<tr>
<td>------------------</td>
</tr>
<tr>
<td>Re-checked at 1 week</td>
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<tr>
<td>Re-recorded</td>
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</table>
The audit took place over seven consecutive days beginning the 13th October including all admissions and existing general surgery or urology patients on ward 32, 33 and 34. ENT, gynaecology and any other surgical outliers were excluded.

The interventions were given 5 weeks before re-auditing took place, over the same amount of time with the same inclusion and exclusion criteria.

**Results**

The initial audit included 77 patients and 67 for the re-audit, one was later excluded due to duplicate data leaving 66 patients.

**Gentamicin prescribing**

Gentamicin was prescribed seven times in each cohort. The dose error reduced from 28% to 0% (p = 0.461). Record keeping of gentamicin levels and subsequent dose times improved (p = 0.10, p = 0.02 respectively). The number of delays over one hour insignificantly increased from 10% to 23.8% see Table 1. There was one gentamicin level missed in the first cohort and none missed in the second.

**Weight**

Weight was recorded on 25 charts in the initial audit and did not increase significantly in the re-audit. Eight percent of patients were re-weighed at one week rising to 10% in the close loop. Every patient who had a reweigh had changes recorded on the chart which dropped to 60% in the re-audit, see Table 2.

**Regular medications**

86% of patients had their regular medications prescribed within 24 hours of admission which increased to 96% of patients after closing the loop (p=0.04).

**VTE adherence**

VTE form adherence improved from 55 out of 78 (85.9%) to 57 out of 66 (86%) after the intervention. The VTE assessment result was documented on the chart less often and the level of adherence dropped from from 61 (78%) to 49 (74%).

**Prescribing**

727 individual prescriptions were audited in the first audit, with 729 in the re-audit. See Table 3. The error rate halved between the two periods, a difference which was significant (p=0.0002). Five errors were dalteparin dose errors due to weight estimated incorrectly equating to 6% of patients. The number of prescriptions that could be identified improved significantly (p <0.0001).

**Discussion**

In between the two audits the number of surgical beds in Pinderfields Hospital were reduced which...
explains the decreased number of patients audited in the closing the loop audit.

**Gentamicin**

There were a small number of gentamicin prescriptions in both audits which contributed to the lack of significant data in this section, however the complete absence of dosing errors after the interventions was a positive. This could be attributed to the constant reminders in ‘the huddle’ to prescribe it according to actual body weight unless the patient had a low BMI. One study found 24% of patients taking gentamicin experienced renal impairment\(^9\) with over dosing making this more likely. The Huddle has therefore shown to cause a trend towards safer prescribing. The increased experience of junior doctors between these periods may also have affected results. The interventions have improved the understanding of ward staff that good record keeping is vital to reduce error with the Hartford Regime. It was encouraging no gentamicin levels were missed after the interventions had taken place. The increase in delays was addressed at the following Huddle and reduced nursing staff levels on that particular week may have explained this result. One weakness of the audit design was that it could not differentiate between which intervention was most successful in this area. The posters complemented information delivered in the weekly meeting however, and it makes logical sense that delivering information simultaneously across multiple mediums should have a beneficial effect. More gentamicin prescriptions should be audited in future to better evaluate progress in this area.

**Weight**

This project confirmed that weight is recorded poorly on drug charts. This could lead to errors in prescribing Dalteparin or IV paracetamol because doctors tend to estimate patient weight, 5% of the time incorrectly. If a patient weighs less than 50kg the correct dose of IV paracetamol is 15mg/kg. There is little evidence regarding iatrogenic paracetamol overdose in the UK, but one study found 25% of patients were dosed inappropriately and there are increasing reports of paracetamol toxicity related to this\(^10\). Only 37% of patients in the study had weight recorded on admission, which is comparable to figures from this hospital\(^10\). There was little improvement between audits which resulted in the Huddle functioning as expected. This was raised prompting staff to put their opinions forward as to why there had been no improvement. It was difficult for doctors to find the recorded weight in the nursing notes as it is on a single sheet of paper that is easily lost, or not kept in the same place for each patient. Time pressures affected the ability for doctors to add it to the chart on the ward round. Some nursing staff were not aware they were able to write this information on the script. From this discussion the following cohort of doctors have attempted to address this by changing the colour of the sheet on which weight is recorded on admission, making it easy to find and record. The ward pharmacist recorded the weight on the chart or circled the box to highlight it is missing. This could explain the increase in adherence.
Regular medications

Regular medication prescribing within 24 hours of admission improved significantly following the interventions. This will reduce the likelihood of patients suffering from worsening symptoms of existing disease, or being prescribed medications which may interact with their regular ones. The EQUIP study by the GMC found one in three prescriptions of regular medication were left out compared to one in 25 in Pinderfields. This shows we appreciate the importance of regular medication prescribing. The attendance of FY2s and Core trainees at The Huddle delivered this message effectively to the people who clerk the majority of patients on SAU. It was noted that patients who had their medications omitted had been clerked by registrars whose attendance at meetings was less frequent due to other commitments. More patients were audited on SAU in the re-audit increasing the importance of this result as they have been in hospital for less time in general than the other ward patients. A weakness in audit design was that it failed to check all patients at the 24 hour mark. This was due to limited man power in data collection. The dates regular medications were prescribed was checked against their admission date in this set of patients which was less accurate.

VTE

The interventions tested had no significant effect on VTE risk assessment and prescription in the department. The adherence to this mandatory assessment was approximately 10% below the national CQUIN goal of 95% therefore improvement is required. This data also shows that VTE assessment is sometimes not transcribed onto the drug chart, though this is not mandatory. Reasons for this may be the unwillingness to duplicate data when the assessment document is easily identified in the notes. Since this project the hospital has implemented Vital Pac VTE which gives staff the ability to electronically record all VTE assessments and flags up any patients on the ward who have not been assessed. Efficacy of this system in Pinderfields is yet to be published to the authors’ knowledge but should mean this project can focus on other areas.

Prescription errors

The number of prescriptions containing an error halved between the two audits, a result that was significant and sends a strong message that interventions at the ground level can have an important effect on medicines management in hospital. A large amount of errors in the first audit were related to Dalteparin dosing and antibiotic choice, dose or review dates. During the Huddle the importance of getting these things correct was focussed upon. Prolonged antibiotic use can contribute to resistance, renal impairment and increased risk of clostridium difficile infection. The team were encouraged to inform the relevant doctor if they noticed something incorrect or ask if they had a query. Fostering an atmosphere where people are confident to speak out could lead to less errors. This result shows that a regular meeting to discuss education related issues leads to increased awareness of prescribing accurately and tailors feedback to the weaker areas of peoples prescribing. It will lead to increased
patient safety and reduction in costs to the Trust from extra patient bed days or litigation. Other things which may have contributed to this include increased experience of junior doctors as time passed. It will be interesting to observe and compare error rates when a new cohort of FY1s begin working in Pinderfields. This study also shows the cost effectiveness of an intervention such as the Huddle. It was free to the hospital but had a comparable effect to the EPIFFany project which achieved a 50% reduction from baseline error rates which cost nearly £80,000. One weakness of this study was that it could not measure a real cost benefit or adverse effect avoiding, but it has the advantage of being able to be easily reproduced in the majority of departments in the hospital.

**Identifiable prescriptions**

Identifiable prescriptions increased significantly in the department due to the interventions. It was noted that the majority of FY1 prescriptions were signed with the stamp and other doctors were making more effort to ensure they could be identified. This allows the ward pharmacist to identify prescriptions which are incorrect and provide feedback almost immediately to that doctor. The rest of the group are informed of errors so they can learn from others, although the doctor’s identity is kept confidential. Use of the stamps would improve if all doctors had to use them on prescriptions as there is a cultural resistance to their use, as well as a practical one. Feedback from stamp recipients highlighted they sometimes felt silly using them and that whilst it is convenient, having to find it, open it then stamp took more time than signing. The style of stamp was carefully chosen to be able to attach to an extendable badge string which many doctors use for their ID badges. This made the stamps more user friendly however for an intervention to work at this level it must be supported by those using them.

**Conclusions**

This quality improvement project aimed to improve medicines management of Pinderfields General Surgery and Urology patients. It can be defined as enabling people to make the best use of medicines. Medication errors cost the NHS a billion pounds a year and negatively impact on patient health. Many projects require funding from large organisations or help from managerial staff to get off the ground. This project is run by FY1 doctors and is a constantly changing cycle of interventions and audits, aiming to keep the finger on the pulse of relevant topics and devise simple ways of improving them which can be achieved on a ward level to reduce patient harm and cost to the Trust. The issues identified were improving gentamicin prescribing, VTE adherence, weight recorded on drug charts, prescription errors, identifiable prescriptions and regular medication prescribing. The main interventions were a poster campaign, a weekly meeting regarding medicines management labelled ‘The Huddle’ and a set of stamps with the doctors name and GMC number on it. The Huddle was informal, had junior doctors, middle grade doctors and nursing staff in attendance. It set aside time to facilitate a multidisciplinary approach to tackling medication problems and tapped into the power of many
minds who encounter these problems at the front line every day. The main achievements were a 50% reduction in prescription errors, an increase in prescribing of regular medications, identifiable prescriptions and quality of prescribing gentamicin. The intervention failed to improve recording weight on the drug chart. This failure turned into a success because the Huddle generated a new solution to the problem which will be audited presently. VTE assessment adherence was improved but this should be solved by a different hospital wide initiative. Feedback from staff was very positive regarding ‘The Huddle’ and from these results it would be beneficial to attempt to try it in other departments to see if this can have a similar effect, particularly on prescription error rates which evidence shows cuts costs to the trust. 7.

Acknowledgements
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Ultrasound guided procedures for junior doctors
McKay, G

It’s 3.00am on a Saturday morning when the nurse informs you that Mr Jones needs a new cannula; his last line ‘tissued’ when flushed and he is now overdue for his antibiotic dose. Mr Jones is renowned for his ‘poor veins’, his whole surface anatomy is maroon with haematoma from previous venepuncture efforts; even the ‘secret’ areas such as the foot and the forearm have been pierced in vain (but not in vein)!

You will, of course, attempt to secure access in this gentleman and maybe you will be lucky, however the odds are against you, and this procedure will probably require escalation to a senior clinician, maybe even an anaesthetist.

Does this sound like a familiar scenario? What if there was a way to avoid that defeated phone call to your seniors?

Help could be in your own hands! Ultrasound technology is becoming more widely applied across a broad range of specialities such as anaesthetics, emergency and acute medicine, haematology, respiratory, and gastroenterology. Despite this however, there seems to be a misconception amongst junior trainees that ultrasound imaging is only appropriate or available for senior clinicians.

During my foundation year 1, I attended a Junior Doctor Ultrasound Training (JUST) course at Dewsbury hospital, for basic procedural skills such as IV access and ABG sampling. The half day event is run by Dr Asoka Weerasinghe and trainees are provided with didactic teaching concerning the physics of ultrasound and practicalities of knobology (spoiler alert: this is not a subspecialty of urology). There are also small group tutorials which focus on operating the US consoles and probes, identifying anatomical structures, and practising obtaining access from ‘phantom’ blocks. The course encourages a hands-on practical approach and aims to provide delegates with a basic skill set that can be taken forward and developed in clinical practise with the ‘difficult cannulas’ and seemingly ‘non-existent’ veins that all trainees encounter.

There are several things to consider before converting to ultrasound technology; Clearly US is not an automatic guarantee for IV access, although visualising anatomical structures should certainly increase success rates whilst improving patient safety and quality of care. Logistically, locating an ultrasound machine can sometimes
be a task in itself and there are instances where US may not be helpful or appropriate.

An attractive benefit is the sense of clinical independence following the acquisition of a new skill and the potential to start developing your skills with ultrasound in preparation for more complex diagnostic and interventional procedures such as lumbar puncture and chest drain insertion.

JUST also provides peer to peer teaching opportunities as some of the facilitators have done the course in previous years.

You need not reach for an ultrasound probe after every failed cannulation attempt, but next time you meet Mr Jones, it may come in handy to have a trick or two up your sleeve (above your elbows obviously).

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Half of my elective was four weeks in Kampala, Uganda, where I was working with the palliative care team at Mulago Hospital. The team is led by Dr Mhoira Leng, a Scottish consultant who works closely with the charity Cairdeas. The workload was impressive since approximately 80% of all hospital patients were technically for palliative care. This resulted from; a lack of cancer awareness among patients; late presentation of patients in the end-stage of disease; the prevalence of HCC (hepatocellular carcinoma) due to the pervasiveness of hepatitis B and C; and the high incidence of cervical cancer (the 'Oncology Ward' was, in fact, exclusively for cervical cancer patients).

Each day started with a ward round where the palliative care patients with complex needs were discussed and the team organised to cover the patients that needed seeing that day. On average, I saw 10-15 patients each day and clerked 2-4. Each ward had around three times the number of patients in it that would have been expected of a similarly sized ward in the UK and, since many patients had come from far away, carers or relatives set up bed mats under the hospital beds, with further relatives and visitors lining the corridors and walkways. To say the hospital was very busy would be an understatement. The nurses were too busy treating and seeing patients to carry out many jobs that would be seen as ‘nursing duties’ in the UK, and so changing beds, washing and feeding patients fell to carers and relatives. The palliative care team was also fortunate to have several experienced volunteers who visited patients in the afternoons. These amazing volunteers (all unemployed, well-educated graduates) performed the combined roles of social workers, psychologists occupational therapists and chaplains. The clinical team worked closely alongside them so that patient care could be delivered as holistically as possible.

During my second week, the team was understaffed and, as such, there were only myself and an experienced palliative care nurse to lead the ward round with the help of two nurses studying palliative care. We split in two to cover the patients and I was slightly overwhelmed by having to accept and postpone referrals, explain prognoses to patients and their families (often via my excellent nurse/interpreter, Susan) and pressure ward teams to carry out investigations and treatments for our patients. In one day I ended up counselling two families on the fact that their unconscious loved one was about to pass away (one with respiratory failure due to sepsis of...
unknown cause, one due to kidney failure and HIV) and explaining to one young man that his hepatocellular carcinoma was untreatable and that he would die from it. It was a very uncomfortable sensation the next day to be relieved that I had done so since the young man with HCC and the gentleman with respiratory failure passed away during the night and the referrals I had postponed were still on the wards. I am not sure whether this was luck or good prioritising on my part.

Most days were not as hectic as the one aforementioned but there was little ‘downtime’ since, having attended teaching delivered by Dr Mhoria, it became apparent that the preparation afforded to me by medical education in the UK surpassed that of the Ugandan equivalent of a CT1. It was gratifying, after six years of desperately trying to not be in the way, to actually be useful. That said, not all of the medical tasks I performed were terribly standard: one of my proudest achievements was constructing an arm sling harness from a ceiling-tethered drip hanger for an elderly patient with metastatic breast cancer and bilateral humeral fractures.

I met many young and brave patients, fighting illnesses that would have been treated successfully under the NHS and in a more cancer-aware society. A patient I spent a lot of time with, MR, had metastatic breast cancer to her pelvis and spine and an aggressive cellulitis of her right leg. Her father was an excellent caregiver and ended up caring for other patients nearby when their relatives or carers were away or unsure of how to administer medicines.

Morphine came in plastic 500ml bottles and was coloured green for 1mg/ml and red for 10mg/ml. The availability of affordable morphine has been a big turning point in Ugandan palliative care, spearheaded by Anne Merriman and Hospice Africa Uganda.

The hardest thing about working in Uganda was the culture shock of a community 80% Christian, 20% Muslim/Moslem, 0% atheist. At times, I was quite embarrassed by my lack of faith, a notion completely alien to most Ugandans. However, providing this didn’t come up, I felt exceptionally at home. During my first few days, nearly everyone I was introduced to welcomed me to the country and staff, patients and everyone else were warm, friendly and kind. My accommodation was located above a small shopping mall and, during my stay in the country, I befriended several of the shop owners downstairs.

I hope to return to this wonderful country in the latter part of my F3 year and work again with Cairdeas and Dr Mhoira Leng. I find palliative care a very rewarding and much-needed specialty but think I will probably go down the psychiatry route. Both specialties involve an intensive MDT approach and holistic approach to management, which I think is what attracts me to them.
Above and below the Nile: an out of programme experience
M Winton

An experience you can't get in Yorkshire
Over the last 12 months I have been on an OOPE. This is not some kind of new herbal high, it stands for ‘Out Of Program Experience’ and allows trainees to develop their careers in ways they might not be able to do locally. I spent three months completing a diploma in tropical medicine and hygiene at the Liverpool school of tropical medicine, and then eight months working at Hoima regional referral hospital, Uganda, East Africa.

The tropical diploma was an excellent course, an interesting mixture of practical lab work, lectures and small group teaching sessions. I would recommend it to anyone going to work in a low resource setting. By the end of the course I was able to identify species of malaria on a blood film and identify various worm ova in stool samples. The Liverpool school of tropical medicine houses a ‘herpetarium’ were snake venom is extracted for the production of anti-venom for snake bites (image 1).

The Ugandan maternal newborn hub
Having spent three months living above ‘the Nile’ takeaway in Liverpool (image 2), I then moved to Uganda in East Africa and lived just below the Nile in a town called Hoima. My wife and I were volunteers for the Uganda Maternal Newborn Hub. This charity aims to improve the outcomes for mothers and babies in government hospitals by sending out health care workers to support Ugandan staff. We were part of a 30 strong team of midwives, nurses, obstetricians, paediatricians and anaesthetists working across 10 sites in Uganda (image 3).

The challenges of working in this setting are huge. Child birth in Uganda is an extremely dangerous business for mothers and babies. Table 1 compares some key Ugandan data with the UK.
Hospitals are massively understaffed, drug supplies intermittent and patients present late on in their illness. Hoima had one paediatric consultant, obstetric consultant and one medical consultant and a handful of FY1 equivalent doctors attempting to run a regional referral hospital providing care for two million people in the region. They were very pleased when my wife and I arrived.

I was mainly based in the neonatal unit, which had 150 admissions a month. Our mortality rate was between 8-18%. Breast feeding rates were over 95%. We had three incubators, two oxygen concentrators and one phototherapy unit. We had electricity 75% of the time.

I also worked on the 60 bedded paediatric ward, which was usually staffed by one nurse and a handful of students (image 4). Two-thirds of the admissions were related to malaria. I also looked after children with complications of HIV, tuberculosis, severe malnutrition, sickle cell disease, tetanus, measles and rabies encephalitis. There have been isolated outbreaks of Ebola over the last 30 years in Uganda. When I arrived in a Hoima an eight year old boy was thought to possibly have Marburg fever (a viral
haemorrhagic fever similar to Ebola) but his blood tests were negative.

**Teaching and tear gassing**

One very positive thing about Hoima was the hospitals approach to CME (Continuing Medical Education). Twice a week on paediatrics one hour teaching sessions took place led by the interns or by me.

Friday morning witnessed the hospital wide CME which is usually attended by 100+ staff from every department. How often in the UK does the medical consultant openly argue the toss with the head of the lab, or the blood transfusion service defend itself from open criticism from the junior doctors?

I ran neonatal resuscitation sessions for the nursing students (image 5). These student nurses were often literally left holding the baby on delivery suite and in maternity theatres. There seemed to be a culture of making do, and not saying if you do not know how to do something. I saw a variety of styles of neonatal resuscitation, from aggressive suctioning of the chest to the old Spartan classic of dangling the baby from its ankles and slapping the backside.

On Thursday mornings a maternal and perinatal death audit meeting reviewed recent deaths and tried to highlight changes to practice. I chaired my first perinatal mortality meeting to a full crowd, and reached the part of the case where the baby died and nobody had documented this in the notes. Suddenly people had tears in their eyes, people were choking. I knew it was a sad case, but I was surprised by this unusual outpouring of emotions from these stoical nurses and doctors. People started to walk out – had I offended them?
No. It turned out that there had been a fracas in the police station next door. Some motorbike thieves had tried to rescue their previously detained comrades and the liberal volleys of tear gas used by the police had wafted into our meeting room. Our Ugandan colleagues were surprised to hear that we had never been tear gassed before. We resumed the meeting 15 minutes later, all with slightly red eyes.

Medical staffing – Uganda style
Ask yourself this question; if you had not been paid for four months by the Trust would you a) turn up for work or b) do a good job if you did show up? Not only were the intern doctors running the hospital, the ministry of health had not paid them since October. They paid them in October because that’s when they went on strike, because they hadn’t been paid since the previous August. But then the ministry of health administration staff had also not been paid since August either, so they are probably not that motivated to settle the interns pay dispute

The interns work for three months in each department. They learn quickly, sadly all too often from their own mistakes. In maternity they arrive not be able to do caesarean sections, but are expected to run the service. By the end of the three months they are performing emergency hysterectomies without any senior support. The learning curve is sharp, bearing in mind these doctors were medical students the previous year.

Microbiologist weeping into their microscopes
The hospital and the general public were addicted to antibiotics. In some ways I am glad we didn’t have a microbiologist in Hoima, as they certainly would have spent their days weeping into their microscopes.

Ugandan patients often wanted ‘treatment’, i.e. they wanted some drugs for their problem. If you didn’t prescribe antibiotics you were not a good doctor. One of my interns used to start every patient she admitted to the paediatric ward on antibiotics, reasoning that it was a dirty place and being admitted to the ward was a risk factor for sepsis. Given the levels of hygiene this was hard to argue against.

The addiction was very real, I often saw people wondering around town with cannulas in, obviously just having had a bit of IV antibiotic pepping up. Ceftriaxone was a classic example. In Uganda it was as popular as Coca-Cola. One morning I found a nurse from the baby unit cannulating another nurse and giving her ‘a bit of cef’ because she had ear ache. Any cough, runny nose or sore throat – cef. Headache – cef. Urine infection – cef. Sore joints – cef. Cef, Cef, Cef.

What is the answer? We constantly tried to reduce the usage of antibiotics in the hospital. Although there was nothing to stop patients popping to their local pharmacy and buying their ‘bit of cef’ and administering it themselves. The WHO is trying to raise awareness of what is an emerging global health emergency and there is a drive to rationalise how we use antimicrobials in general³.
Travel
We took advantage of the tropical location and when we weren’t slogging it out in the hospital we were on the road visiting Uganda’s beautiful 10 national parks (image 7). The most epic trip took us to the DRC (Democratic Republic of Congo), where we climbed an active volcano and slept overnight at the crater rim (image 6).

The volcano hike was superb. Six hours up with park guides we reached the five kilometre crater rim around 3pm. You could hear the churning waves of lava from way down below. As the light changed so did the volcano. As night fell you could see the red hot magma in the base of the crater. At night we could see lighting storms over Lake Kivu and shooting stars over Rwanda. At dawn the sulphur and smoke cleared away and the whole lava pit appeared.

There and back again
Life in Uganda is very different and it has been strange coming back to work in Yorkshire. I gained a lot of hard and soft skills from my OOPE, and gained a lot of clinical experience. Local staff were incredibly appreciative of the support and teaching we were attempting to offer. They taught me what can be achieved with limited
resources, and how wasteful care in the UK can be\textsuperscript{4}. Some days the hospital would feel like a relentless humanitarian disaster, especially if there was no blood in blood bank and the man from medical stores wasn’t around with the key to the drugs and oxygen (image 8). Other days it was an incredibly satisfying place to work, when against the odds a very sick child would get better and go home.

If anyone wants more information on the diploma in tropical medicine, the Uganda maternal and new-born hub or on working in a low resource setting please get in touch.

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Ode to The Spleen
New, E

1) Dr Emma New, FY2 at Pinderfields Hospital, Wakefield

Part I: Development
The spleen begins to develop
Alongside the enteric system,
Twixt pancreas tail and stomach
And developing greater omentum.

The spleen is condensed mesenchyme
Surrounded in mesothelium.
This primitive structure is found
In the dorsal mesogastrium.

This mesenchymal condensation
Becomes visible at week "IV,"
It's then infiltrated by lymphoid cells,
The purpose of which you will see

Is for haematopoiesis,
Which occurs from month three to month five,
As the splenic red pulp takes its shape
And makes the blood cells we need to survive.

This role of haematopoiesis
Is performed by both spleen and liver
And so these organs are found
In the foetus to be relatively bigger.

But from studying embryology,
You'll know how wrong things can go,
For example there's polysplenia
Where multiple spleens start to grow.

Although not immediately fatal,
Congenital heart disease
Afflicts 80% of patients
Who have these multiple spleens.

Part II: Anatomy
The spleen sits in the left hypochondrium
Between ribs eleven and nine.
Its shape, however, is variable
And so yours might not look like mine.

On its anteroposterior border
The spleen has a small indentation.
The spleen's convex outer surface
Abuts the main muscle of ventilation. (that's the diaphragm by the way)

The concave inner surface,
Which faces out from me,
Lies against the stomach,
Splenic flexure and left kidney.

On this concave inner surface,
The hilum is found too.
This is what the nerves,
Lymphatics and blood vessels go through.

The hilum is actually a fissure,
A sort of splenic crevice.
It's also not covered in peritoneum
Even though the rest is.

The spleen is still attached
To its neighbours from development
By the lienorenal
And the gastrosplenic ligaments.

The spleen has several layers,
From outermost here's what they are:
Peritoneum, thin fibrous capsule
And a pulp which is vascular.

The fibrous capsule folds inwards
To form trabeculae.
It is within these folds
That the pulp tends to stay.

The pulp has two components:
The red pulp and the white.
The red has Kupffer cells
Which engulf old erythrocytes.
The white pulp and the macrophages
Fight off pathogens
By producing antibodies
Which bind to antigens.

**Part III: Neurovasculature**
The coeliac nervous plexus
Gives off several bits
One is the splenic plexus
Which subsequently emits

Sympathetic nerves
Which then make their way
To innervate vessels and smooth muscle
Of the capsule and trabeculae.

The splenic artery
First supplies the pancreas
Then divides into branches
When it reaches the hilus.

Not all of the branches
Pass into the spleen.
Some go to the stomach
As different arteries.

This bit I tried my best to rhyme
But it was all in vain... which is quite fitting really.
The splenic artery gives rise to the short gastric arteries which supply the fundus of the stomach and the left gastroepiploic artery which supplies the greater curvature.

The splenic vein drains into
The hepatic portal system
Which means the spleen's affected
By portal hypertension.

Should a portal system
Pressure build-up arise
The spleen becomes engorged with blood
And increases in its size.

**Part IV: Pathology**
The spleen cannot be palpated
Unless it has doubled in size
I'll show you a picture of this
Which you can look at... with your eyes...

Leukaemia and malaria
Can cause this massive gain.
It's called splenomegaly
And it can present as abdominal pain.

Trauma to the ribs
Which overlie the spleen
Causes bleeding into the abdomen
And this rupture will mean

Hardening of the abdominal wall
Is initiated
As the peritoneum
By blood is irritated.

Should the bleed become
Exceptionally grave
Your spleen can be removed
And so your life is saved.

This is because
The lymphatics and the liver
Can take over the spleen's function
And still their own deliver.

So splenectomy will not kill you
But ought not be advised
Because your immune system
Will be severely compromised.
This reduction in immune response
Puts you at a high risk
Of contracting pneumonia,
Meningitis or sepsis.

In accessing the spleen
The ribs are rather in the way
So maybe use a laparoscope
And move the peritoneum out the way.

Lying the patient on their right
May help in this scheme,
As gravity will move the other organs
And so expose the spleen.

In order to remove this organ
The ligaments must be cut
The colic attachment severed
And the vessels must be shut.

But make the most of your spleen
As, with time, it atrophies.
It’ll be a third the size it is now
By the time you’re OAPs.

And thus ends this splenic ode,
But just before you go,
Here’s a spleen I made earlier
Out of some Play-Doh.

**Acknowledgements**

Thanks to Hellerhoff for the CT picture of splenomegaly
https://commons.wikimedia.org/wiki/
File:Splenomegalie_bei_CLL.jpg

Thanks to Miss Macharia of Oxford University for encouraging me to publish this at some point (though it has taken some time!)

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