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Medicine 2019 abstracts

We were pleased to receive over 150 abstract submissions to be considered for presentation at the conference, all of which were of very high quality. This following abstracts have been approved to be presented as posters at the conference.
Patients’ understanding on the aim and duration of treatment during the consent process

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Background

Patients starting chemotherapy have to process a significant amount of information about their diagnosis and treatment. In this audit, patients were interrogated regarding the value of information they received before consenting for their treatment, and how this information contributed in their actual understanding of treatment purpose and duration.

Materials

A standardised questionnaire was used to obtain patients’ feedback about the quality of information they had during the consent process, with specific questions about the aim and duration of treatment. The feedback from the questionnaire was compared independently by two clinicians to the information on case notes.

Results

Sixty-five patients (42 males) with a mean age of 65 years were assessed, 32 (49%) with lower- and 33 (51%) with upper-gastrointestinal (GI) malignancies. Of them, 36 (55%) had palliative, 22 (34%) adjuvant and 7 (11%) neoadjuvant chemotherapy.

More than 90% of patients stated that the quality of information about their cancer (name, location and spread in the body; medications; side effects and goals of treatment) was excellent, good or satisfactory. Less than 7% rated the quality as poor. Also, 51 (79%) patients stated that they had appropriate information according to their expectations, while 91% had the opportunity to ask questions. Nevertheless, one in five patients found it difficult to understand the information.

Based on physicians’ assessment, 19% of the patients did not understand the aim and 29% did not appreciate the duration of the treatment. Only one-third of the patients on adjuvant treatment understood both the aim and the duration of the treatment. Males compared with females (81% vs 52%, respectively; p=0.018 in multivariate analysis) and those on palliative or neoadjuvant compared with those on adjuvant treatment (80.6% or 85.7% vs 50%, respectively; p=0.03 in univariate analysis) seemed to better understand the duration of treatment.

Conclusion

Patients consenting for chemotherapy are overwhelmed with a plethora of information. Patient understanding and choice is important especially in the adjuvant setting as a significant proportion would not benefit from the treatment with high likelihood of side effects during the treatment and up to 20% chance of long-term and disabling toxicity.

Conflict of interest statement

None declared.
A carotid web as a rare cause of ischaemic stroke: a case report

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Background

A carotid web is a shelf-like filling defect projecting from the lumen of the carotid artery.¹ An internal carotid artery carotid web was first described as a cause of ischaemic stroke in 1967 by Ehrenfield et al.² Carotid webs are particularly associated with recurrent ipsilateral strokes as it is a location for turbulent flow leading to stasis and thrombus formation.³,⁴

Case report

We present the case of a 49-year-old gentleman who was admitted with sudden onset left-sided weakness and speech difficulties. On examination this gentleman had left-sided hemiplegia, left-sided hemispatial neglect, dysarthria and left-sided hemianopia.

The computed tomography (CT) scan of the head described the presence of a hyperdensity in the branches of the middle cerebral artery (MCA), one of the earliest signs of a thrombus in the cerebral vasculature.⁵ The patient subsequently had a CT angiogram (CTA) which showed an occlusion of the right MCA. The CTA also revealed the presence of an intraluminal, shelf-like projection arising from the posterior wall of the right internal carotid artery, located just above the carotid bifurcation, causing 65% stenosis. This finding was diagnostic of a carotid web.

The patient was subsequently thrombolysed and was transferred to a tertiary centre for thrombectomy. The patient then had a carotid stent inserted – one of the many interventions for a carotid web for secondary prevention. Following the treatment, our patient made a complete recovery and had a good 3-month follow up.

Discussion

A carotid web is a relatively rare and often under-diagnosed cause of embolic stroke.⁶ This case report describes the importance of diagnosing a carotid web as the cause of ischaemic stroke as management for this varies to other more common causes of ischaemic stroke. Investigating for carotid web remains difficult as the differential diagnosis of a carotid web on imaging include vascular dissection, focal atherosclerotic plaque and post-traumatic aneurysm.⁶ Diagnosis using carotid ultrasound scan has been shown to be difficult with previous cases reporting poor differentiation between plaques and carotid webs.³,⁴ The best non-invasive imaging modality to date is a CTA.¹

Treatment for carotid web remains a dilemma – many cases have reported recurrent embolic events while on antiplatelet therapy,¹,⁷,⁸ while some cases have been reported to have been medically managed with dual antiplatelet therapy with good 6-month follow up.⁶ The placement of a carotid stent has been proposed as a good alternative therapeutic option, with previous literature documenting good 4-year follow up.⁹ A high index of suspicion for a carotid web is required especially for patients with minimal risk factors who develop a stroke, as managing the condition can potentially prevent fatal complications.

Conflict of interest statement

None declared.
References


A multicentre review of acute upper gastrointestinal bleeding; a raised creatinine urea ratio aids diagnosis

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Introduction

Risk scoring for acute upper gastrointestinal bleeding (AUGIB) is key when assessing patients for requiring oesophagogastroduodenoscopy (OGD). The Rockall score utilises age, comorbidities and shock. The Glasgow-Blatchford score (GBS), in addition, utilises haemoglobin, melaena and blood urea levels.

Raised blood urea levels can represent digestion of blood from the upper gastrointestinal tract giving rise to melaena; the presence of both gives a high GBS. However, inexperienced healthcare professionals can misinterpret the absence/presence of melaena, raised urea levels may be due to kidney injury. Nevertheless, gastroenterologists may use urea to diagnose AUGIB if patients haven’t had overt / witnessed / reliably reported haematemesis or melaena.

It has been shown that a raised urea:creatinine ratio (URCR) can be associated with AUGIB and may be superior to urea alone as it mitigates for kidney injury. However, URCR is not widely used in the UK in the assessment of AUGIB. We aim to assess the association of urea and URCR levels with AUGIB.

Methods

A retrospective review at three UK centres (Kettering General Hospital, Queen Elizabeth Hospital Birmingham and University Hospital Coventry & Warwickshire) was undertaken. Endoscopy reports and blood tests were reviewed of patients undergoing inpatient OGD for suspected AUGIB within 2017/8; data were recorded in an Excel spreadsheet. URCR was calculated by dividing urea by creatinine, and multiplying by 1,000 (abnormal ≥100). Statistics were analysed using SPSS.

Results and discussion

Three-hundred and fifty-seven patient records were reviewed (median age, 68); 179 had a plausible AUGIB (50.1%). Receiver operator characteristic (ROC) curves for urea gave an area under the curve (AUC) of 0.733. For URCR, AUC was 0.789 (Fig 1).
Fig 1. ROC curve

ROC = receiver operator characteristics

Binary logistic regression modelling was performed using age, urea and URCR. $\chi^2 (3, n = 357) = 102.92$, $p<0.001$. 25–34% of the variance in AUGIB is explained by the model.

The model URCR value of 97.7 can be used to predict AUGIB, applying this to our data set correctly identifies 124/179 patients with AUGIB (69.3%), and is predicted to correctly identify 74.5%.

Conclusion

This pilot study has limitations as bleeding lesions may have not been identified at OGD. Urea and URCR have AUCs of 0.733 and 0.789. Logistic regression modelling suggests a URCR level of 100 would correctly identify ~70% of AUGIB in patients with suggestive symptoms. Outside of firm indications for OGD in suspected AUGIB (shock, previous / suspected variceal bleed), a raised URCR appears to be a useful marker to predict AUGIB: a larger study would be able to test this robustly.

Conflict of interest statement

None declared.

Reference

A rare case of oesophageal variceal bleed secondary to dialysis catheter-induced superior vena cava stenosis and thrombosis

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Introduction

We are presenting a case of bleeding oesophageal varices secondary to superior vena cava stenosis caused by a permanent dialysis line.

Case report

A 67-year-old female with chronic kidney disease (CKD) stage V on haemodialysis, secondary to chronic pyelonephritis and secondary focal segmental glomerulosclerosis (FSGS). She started haemodialysis via a permanent internal jugular line in September 2013, which was removed in August 2014 following creating a left brachiocephalic fistula. This fistula was used until it was painful to needle due to hitting a nerve; therefore, a right brachiocephalic arteriovenous fistula (AVF) was fashioned on the right arm in April 2017. The left-sided fistula was left patent.

In May 2018, she complained of progressive worsening purple-coloured lumps over her trunks which were actually extensive varicose veins. For this she was referred to vascular surgical team to rule out central venous thrombosis.

In June 2018, she was admitted with large-volume haematemesis and hypovolemic shock. After volume replacement with blood, an emergency endoscopy showed four columns of Grade II–III varices at the gastro-oesophageal junction. This was banded and the bleeding stopped. She then required another endoscopy due to a further drop in her haemoglobin, which showed further varices that were also banded. A computed tomography (CT) scan showed a superior vena cava stenosis and a superadded thrombus extending into the azygos vein and down into the left brachiocephalic fistula, together with extensive collateral formation. Both CT and fibroscan didn’t demonstrate liver cirrhosis. The working diagnosis was that her oesophageal varices were secondary to superior vena cava stenosis which was believed to be caused by her previous internal jugular permanent dialysis catheter which stayed in situ for around 12 months. Attempts to intervene with this stenosis were deemed unsafe because of the proximity of the stenosis to the right atrium and the risk of fatal bleeding it might carry. She was anticoagulated with low-molecular-weight heparin with regular endoscopic surveillance of her varices. Following this event, her right brachiocephalic fistula clotted as well, leaving her without a dialysis access. Therefore, we have resorted to a femoral permanent dialysis catheter. She had no further episodes of oesophageal variceal bleed since the initial episode.

Discussion

Central venous thrombosis and stenosis is not uncommon among the haemodialysis population given the need, in some patients, to start dialysis via permanent haemodialysis catheters. However, it is very rarely reported to cause bleeding oesophageal varices. In the case we are presenting, the presence of two functioning fistulae had led to progression into oesophageal bleeding given the extensive venous drainage into a blocked superior vena cava that encouraged the formation of extensive collaterals; the oesophageal varices are one of them. In this lady’s case, it was technically difficult to treat the superior vena cava stenosis but the fact that her fistulae clotted relieved some of the back pressure on the varices and reduced future bleeding risk.
Conflict of interest statement

None declared.

References

A rare cause of haematemesis – ‘downhill varices’

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Introduction

Oesophageal varices are a well-known cause of upper gastrointestinal (GI) bleed. However, proximal oesophageal varices, also known as ‘downhill varices’, account for about 0.1% of all cases of variceal haemorrhage.1

Case report

A 57-year-old male, a known case of chronic kidney disease, post-renal transplant (which was done 3 months ago), presented with significant haematemesis. He was hypotensive and had a tachycardia of 140 beats per minute on presentation. He was immediately started on intravenous fluids while his relevant blood tests were sent. On detailed history, it was revealed that prior to the transplant he was on haemodialysis via an internal jugular vein dialysis catheter which was removed in the preoperative period. One month post-surgery he had developed facial swelling and was found to have thrombi in his bilateral jugular veins and superior vena cava (SVC). He was started on anticoagulants (low-molecular-weight heparin and warfarin) and was monitored regularly. In view of raised international normalised ratios (INRs) and his history, it was initially suspected that the bleeding was secondary to anticoagulants. In view of low haemoglobin, and an episode of melena in the emergency room (ER) itself, the patient was transfused two units of packed red blood cells. The gastroenterology team was consulted in view of ongoing haematemesis and advised for an urgent upper GI endoscopy (UGIE). Meanwhile the patient was shifted to the intensive care unit (ICU) for further monitoring.

Results and discussion

An urgent UGIE was done which showed multiple large varices in the proximal oesophagus. It was seen that there was an active bleed from one of the varices at 30 cm from the incisors for which endoscopic band ligation was done to control the bleeding.

Over the next 24 hours the patient gradually started improving and there were no further episodes of haematemesis or melena.

Any obstruction in SVC or the jugular veins will interfere with drainage of the upper and middle oesophagus. Thus, eventually leading to formation of collaterals which may extend even distally depending on the level and duration of obstruction.2,3

SVC obstruction is most commonly caused by compression from mediastinal malignancy, which accounts for 60% of cases as reported in literature.4 However, in our case, the cause turned out to be completely benign which was not associated with any external compression.

Conclusion

Interestingly, as per literature, in 30% of patients with SVC obstruction downhill varices are seen on screening UGIE.1

Screening UGIE should be considered in patients who are on anticoagulants for SVC thrombus as there is additional risk of bleeding. Not much is known regarding pharmacological management of downhill varices unlike varices in the distal part of the oesophagus. Hence recanalising SVC wherever possible must be carried out as a priority. This case report also testifies the usefulness of UGIE in not only diagnosis but also in management of variceal bleed in the upper oesophagus.
Conflict of interest statement

None declared.

References

4  Rice TW, Rodriguez RM, Light RW. The superior vena cava syndrome: clinical characteristics and evolving etiology Medicine (Baltimore);85(1):37–42.
An unusual presentation of pancreatic neuroendocrine tumour (PNET)

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Insulinoma is a rare pancreatic endocrine tumour derived from \(\beta\) cells that secrete insulin, which results in recurrent hypoglycaemia. Most are benign and solitary. The age range for peak incidence is between 30 and 60 years (median 47 years) and it is more prevalent in women. Diagnosis relies on clinical features along with laboratory tests and imaging. However, non-specific symptoms and the small size of the tumour can lead to misdiagnosis and difficult localisation. Clinical presentation is due to hypoglycaemia secondary to excessive and uncontrolled secretion of insulin and involves neuroglycopenic (neuronal glucose deprivation, can cause death) and neurogenic (autonomic nervous system discharge) symptoms.

Case report

A 64-year-old woman was admitted to the emergency department (ED) with history of abnormal behaviour (facial grimacing, bouts of crying/shouting, bizarre uncoordinated limb movements) over the past 6 years. She was previously misdiagnosed as dissociative disorder and treated with antipsychotics and electroconvulsive therapy (ECT).

During initial evaluation at ED, random blood glucose was documented to be 27 mg/dL which reversed with intravenous (IV) 25\% dextrose bolus. Screening for sulfonylureas was negative. Further evaluation revealed increased levels of fasting serum insulin 28.60 \(\mu\)U/mL (normal, 2.0–25.0) and serum C-peptide 6.08 ng/mL (normal, 0.81–3.85). Triple-phase computed tomography (CT) scan showed a 15 mm discrete lesion projecting superiorly from the proximal body of the pancreas (Fig 1). However, a \(^{68}\)Ga DOTA-TATE scan revealed no focal lesion with octreotide receptor expression within the pancreas. She was managed with IV 10\% dextrose infusion and taken up for surgical excision of the exophytic pancreatic mass. Following surgery, the patient has been euglycaemic and is off dextrose infusion presently, with no neuroglycopenic or autonomic symptoms.
Fig 1. CT scan shows discrete lesion projecting superiorly from the proximal body of the pancreas
Conclusion

Insulinoma remains a diagnostic challenge since symptoms are non-specific and may lead to incorrect diagnosis. As in this case, a psychiatric illness might be wrongly considered as the culprit. Neuropsychiatric symptoms are a common clinical presentation of an insulinoma. A high level of clinical expertise is crucial to avoid misdiagnoses with psychiatric illnesses before insulinoma is recognised. It can be easily confirmed if it fulfils Whipple’s triad, standard endocrine tests and is curable by surgery. On the other hand, severe and sustained hypoglycaemia due to misdiagnosis can lead to disability/death.

Conflict of interest statement

None declared.

References

Assessing the accuracy and confidence of healthcare professionals in recognising that a patient is so unwell they might die during a hospital admission

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Background

Acting upon the early recognition of dying facilitates advanced care planning, allowing better end-of-life (EOL) care to be delivered in more appropriate settings. Commonly cited barriers to discussing EOL care with patients include fear of causing distress, lack of confidence and limited time in an increasingly stretched healthcare system. These barriers are evident locally: late transition to EOL care was a theme highlighted by a recent mortality review at Bristol Royal Infirmary, UK.

Therefore, we aimed to:
1. evaluate healthcare professionals’ accuracy in recognising a patient is so unwell they might die that admission
2. collect information about staff perceptions of healthcare professionals’ ability to recognise dying
3. develop a teaching intervention to address identified needs.

Methods

We asked nurses and doctors, ‘Is this patient so unwell they might die on this admission?’ on an acute medical ward, geriatric ward and oncology ward, and correlated their answers with the patient’s survival to discharge. A subgroup of staff provided their opinion on how accurate and confident they felt they and their colleagues are in recognising dying, and subsequently small group teaching for nursing staff was held to increase knowledge and skills in caring for dying patients.

Results and discussion

Combining all available responses for all staff members and 149 patients, the overall sensitivity and specificity of our question was 56% and 95%, respectively, with a positive predictive value of 68%. Qualitative data suggested staff felt they and their colleagues were confident recognising dying, but there were barriers in acting upon this. At time of abstract submission results for the oncology ward were still pending.

Conclusion

Healthcare professionals were reasonably accurate in predicting whether patients would die during an admission. Despite confidence in this area there were barriers preventing staff acting upon their concerns. We feel our results could be used to empower healthcare professionals to act upon their instincts, a valuable step in improving the provision of EOL care to dying patients.

Conflict of interest statement

None declared.

References

Atypical presentation of ventricular tachycardia

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Introduction

Convulsions and loss of consciousness can be caused by a variety of medical conditions, among which conduction disorders, arrhythmias and epilepsy are the most considered diagnoses. Transient loss of consciousness is defined as an abrupt, self-limiting complete loss of consciousness. Seizure is the result of an abnormal, excessive and hypersynchronous neuronal discharge in the brain which can be caused by either a primary neurological condition or cerebral hypoperfusion resulting from cardiac arrhythmia. Due to similarity in the clinical presentation, inadequate history and limited investigations, it is very difficult to differentiate between the two. The timely and meticulous diagnosis is very important as it will prevent the patient from delay in the proper treatment, unnecessary procedures, and unexpected complications and death.

Case report

We present the case of an 87-year-old gentleman who was admitted with unwitnessed collapse at home while in bed and was found shaking by the son. He had a history of memory problems, hypertension and hypothyroidism. He was on amlodipine, doxazosin, aspirin, simvastatin, bisoprolol, ramipril and levothyroxine. He was otherwise fit and well and independent with self-care. He was likely to be diagnosed as having epilepsy at first and was about to be started on anti-epileptic treatment. In the meanwhile as a part of workup he was put on 24-hour telemetry that showed he had a run of ventricular tachycardia (VT) that was concluded as the cause of seizure.

Conclusion

It is important to consider VT as a cause of first seizure in elderly patients, especially with cardiovascular risk. So in case of first seizure in elderly patients in addition to careful history, thorough physical examination and epileptic workup cardiac workup including 24-hour telemetry is vital as in our patient the cause of seizure was pinned down to having VT.

References

Benign metastasising leiomyoma of lung – two interesting cases

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Introduction

A leiomyoma, also known as a fibroid, is a benign smooth muscle tumour that very rarely becomes malignant (0.1%). They can occur in any organ, but the most common forms occur in the uterus, small bowel and the oesophagus.

Benign metastasising leiomyoma (BML) is a rare condition that occurs in all age groups, mostly between age 30 and 74, and is particularly prevalent among women of late childbearing age. The most frequent sites of occurrence are the lungs and pelvis. The lesions are hormonally responsive. All BML patients usually have a history of uterine leiomyoma and/or myomectomy.

Steiner was the first to describe this disease in detail in 1939. He published a report of a patient who died from the effects of extensive pulmonary metastases of benign-appearing leiomyomas, which were histologically identical to the multiple leiomyomas in the uterus.

Some patients have symptoms such as a cough, dyspnoea or chest pain. BML is quite difficult to diagnose by simple medical imaging or physical examination and is often misdiagnosed as pneumonia, bronchitis or metastasising lung cancer. Most cases have been discovered by chest X-ray or computed tomography (CT) scan during routine examinations. Lung biopsy is the standard diagnostic procedure for BML.

We would like to report two interesting cases of BML. Our first case challenges the hypothesis of the haematogenous spread of leiomyoma after surgical intervention. In this case, BML in the lung developed simultaneously with uterine fibroid without having previous myomectomy/hysterectomy. The second case represents a rare case of recurrent leiomyoma.

Case 1

A 47-year-old nurse was being seen by her gynaecologist with a history of significant uterine leiomyomas and infertility. She presented acutely to the emergency department complaining of a few days’ history of a productive cough, loss of appetite, fevers and night sweats. She is a non-smoker and does not drink alcohol, and was previously well and on no regular medication.

Initial investigations including a chest X-ray were performed which demonstrated left-sided opacification suggestive of community-acquired pneumonia or possible tuberculosis (TB). Three sputum samples were sent off for acid-fast bacilli (AFB) smear analysis which came back negative. She was treated with antibiotics for pneumonia, which she reported improved her symptoms significantly. She had further investigations as an outpatient. Thorax CT demonstrated a 2 cm lobulated mass within the left main bronchus causing almost complete occlusion, associated pleural effusion and significant left-sided volume loss.

She had a fibre optic bronchoscopy which showed a near occluded left bronchus by an endobronchial tumour, with histology suggestive of being a leiomyoma. Histology from core biopsies undertaken at rigid bronchoscopy by thoracic surgeons confirmed diagnosis of leiomyoma, in keeping with a diagnosis of BML.

She underwent a rigid bronchoscopy and endobronchial debulking therapy by thoracic surgeons to relieve the obstruction at the left bronchus. She subsequently underwent a myomectomy by gynaecologists for definitive treatment of her uterine leiomyoma. She was seen in the respiratory clinic for follow up where she reported no further respiratory symptoms. Follow-up chest X-ray showed chronic volume loss.
Case 2

A 52-year-old female and ex-smoker for over 10 years was referred under the 2-week wait following an incidental finding of a lung mass on routine chest X-ray following an acute presentation with chest pain. She had a background of ischaemic heart disease with previous myocardial infarction in 2014, type 2 diabetes, mild asthma and a hysterectomy in 2005 secondary to menorrhagia and fibroids.

Initial chest X-ray showed an ill-defined opacity in the right upper lobe which was initially presumed to be inflammatory but a neoplastic cause could not be excluded. During her assessment in clinic, she had no alarming symptoms and her clinical examination was unremarkable.

Chest CT showed a 3.7 cm spiculated area of consolidation in the right upper lobe and further smaller sub-centimetre nodules. She was discussed by the lung multidisciplinary team (MDT) and a CT-guided lung biopsy of the lung mass was performed. This found histology in keeping with pneumocyte hyperplasia. On positron emission tomography (PET) the lesion showed low-grade uptake with a standardised uptake value (SUV) max of 1.9. The other smaller sub-centimetre nodules in the right lung were non-fluorodeoxyglucose (FDG) avid. Given the ongoing concern for a potential malignant lesion, a repeat CT-guided lung biopsy was performed and showed histology of bronchoalveolar cell carcinoma.

She was then referred to the cardiothoracic surgeons and underwent a curative right upper lobectomy for a bronchoalveolar cell lung cancer (pathological staging T1 N0 M0). In the pathology report it was noted that in the resected lobe in and around the tumour, there were tiny nodules of smooth muscle proliferation (smooth muscle actin (SMA), CD56 and CD10 positive), suggestive of a possible benign metastasising leiomyoma.

Following the curative resection, the patient was followed up with serial chest X-rays. At 2-year follow up chest X-ray showed possible new right apical changes. Chest CT and PET-CT scan were performed, and showed an increase in the number and size of the multiple pulmonary nodules ranging from 7 mm to 12 mm. They remained non-avid on PET. The imaging findings were concerning for malignancy, either for recurrence or progression of the residual disease. Following discussion at the MDT she was referred to the thoracic surgeons and underwent a left video-assisted thoracic surgery (VATS) wedge resection of the largest nodule in the left lower lobe. The histology was of benign smooth muscle proliferation (SMA, CD10 and CD56 positive) in keeping with a possible diagnosis of BML.

A referral was made to the gynaecologists to ascertain whether any hormonal therapy was indicated and/or surveillance screening.

Discussion

Pulmonary smooth muscle proliferation can either be primary, including hamartomas, lymphangioleiomyomatosis, leiomyoma and leiomyosarcoma, or metastatic, including metastatic leiomyosarcoma and BML. The low mitotic index (<5 mitoses per 10 high power fields), lack of nuclear pleomorphism, lack of local invasion and distinctive karyotypic profile helps differentiate BML from other possible diagnoses.

The majority of women with BML report having had a hysterectomy or myomectomy in the past due to leiomyomas. However, the changes in lungs may also occur before uterine surgery. The condition is usually characterised by a benign course. Cough, dyspnoea and chest pain are rarely present. The most common presentation is solitary or multiple pulmonary nodules. The average size of the pulmonary nodules ranges from 0.5 to 10 cm. Most frequently, in 70% of the patients, the lesions in the lungs occur bilaterally and multiple unilateral lesions are seen in 17% of cases.

The hypotheses explaining the histogenesis and metaplastic mechanisms are subject to some controversy. In the past, they were described as multiple fibroleiomyomatous hamartomas, assuming they developed de novo in the lungs. Currently, the majority of authors regard them as haematogenous metastases originating from benign leiomyomas with likely increased mitotic activity. Our first case report challenges this
hypothesis. In the first case, the patient had simultaneous pulmonary fibroid along with leiomyoma of the uterus.

According to some, primary uterine tumours in these cases should be classified as low-grade leiomyosarcoma, due to their ability to metastasise. On the other hand, their benign microscopic appearance and clinical course contradict such a hypothesis. It has also been suggested that smooth muscle proliferation occurring in various organs might result from the improper hormonal status.

BML should not be mistaken for lymphangioleiomyomatosis which is a disease caused by the proliferation of smooth muscle cells in the lymphatic vessels of the lungs and lymph nodes.

Due to the rarity of the disease, currently, there are no treatment guidelines for BML. Multiple treatment options have been reported in the literature, including close observation, surgical resection or antioestrogen therapy (eg selective oestrogen receptor modulator, progesterone, aromatase inhibitors, oophorectomy and gonadotropin-releasing hormone analogues). The preferred treatment is surgical resection if possible, with hormonal therapy as an alternate. Our first case had curative treatment for an endobronchial tumour and myomectomy. The second case had curative upper lobe resection and was referred to gynaecology to be considered for hormonal treatment.

BML tends to typically have an indolent course and a favourable outcome, although pulmonary lesions may continue to progress, resulting in pulmonary insufficiency and even death.

Conclusion

1. Although rare, uterine leiomyomas can metastasise to the lung.
2. Despite BML being a rare condition, it should be considered as the differential diagnosis in women of reproductive age with a history of uterine leiomyoma presenting with pulmonary nodules, either solitary or multiple.
3. The diagnosis of BML should also be considered in cases of pulmonary nodules in young women with no previous history of uterine surgery.
4. BML can recur after curative treatment and it should be considered as differential diagnosis in case of recurrence of an endobronchial tumour.

Conflict of interest statement

None declared.
Carbamazepine toxicity – keep an eye on interaction with clarithromycin

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Introduction

Carbamazepine is licensed for treatment of convulsions, trigeminal neuralgia and diabetic neuropathy. It is used as an adjunct in alcohol withdrawal and prophylaxis for bipolar disorder. Its plasma concentration is influenced by enzyme CYP 3A4 inducers/inhibitors. Clarithromycin, which is a macrolide, inhibits this enzyme resulting in an increased plasma concentration of carbamazepine.

Methods

We conducted a clinical file consult and extensive literature review on ClinicalKey and Toxbase concerning this topic.

This is a case of a 64-year-old lady with a background history of epilepsy who presented with 3 days history of dizziness which had worsened in the last 24 hours (associated with confusion, slurred speech and unsteadiness on feet). She had recent flu-like symptoms and wheeze, and was started on clarithromycin and furosemide by her GP 3 days earlier for likely chest infection and bipedal oedema. She was also taking carbamazepine and levetiracetam for epilepsy.

On examination, she was confused, speech slurred, gait ataxic and Romberg’s positive. The rest of the neurological and other system examinations were unremarkable. Relevant investigations included full blood count (FBC), urea and electrolytes (U&E), blood glucose, serum and urinary osmolality and urinary sodium, thyroid-stimulating hormone (TSH), cortisol level (am), Synacthen test and serum carbamazepine level, electrocardiogram (ECG), computed tomography (CT) and head magnetic resonance imaging (MRI).

Results and discussion

Blood results showed a drop in the sodium levels to 124 mmol/L with a decrease in serum osmolality and increase in urinary sodium and osmolality. Brain imaging and other biochemical tests were unremarkable which ruled out other differential diagnoses like cerebellar stroke, Addison’s disease and other causes of hyponatraemia. Furosemide was held initially.

Carbamazepine levels came back very high at 17.6 mg/L (toxic level). Meanwhile sodium levels dropped further to 119 mmol/L. Carbamazepine and clarithromycin were held resulting in improvement in symptoms and sodium level over the next few days. The carbamazepine level also normalised.

Carbamazepine is a sodium channel blocker with a plasma half-life of 30–40 hours. It is extensively metabolised by cytochrome P450 enzymes, especially CYP3A4. Drugs which inhibit its metabolism resulting in increased levels include macrolides, isoniazid, metronidazole, acetazolamide, diltiazem, verapamil and certain antidepressants. Increased serum levels of carbamazepine can cause symptoms like ataxia, nystagmus, drowsiness, agitation, dilated pupil, respiratory depression, coma and electrolyte disturbances like hyponatraemia and hypokalaemia.

Conclusion

To conclude, we can say that carbamazepine toxicity can mimic neurological symptoms similar to stroke, so look for an interaction between carbamazepine and clarithromycin. Always use clarithromycin with caution in patients taking carbamazepine.
Conflict of interest statement

None declared.

References

Cerebellar cavernoma

Authors: Shanzay Bukhari, Asma Naeem and Rajeev Upreti
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Introduction

A cavernoma is a cluster of abnormal blood vessels, usually found in the brain and spinal cord. They’re sometimes known as cavernous angiomas, cavernous haemangiomas or cerebral cavernous malformation (CCM). A case report of a young male with cavernomas is reported.

Methods

A 37-year-old man was referred to the ambulatory care unit (ACU) from the accident and emergency department with a 2-day history of visual disturbance and dizziness. Clinical examinations of all systems were normal including neurologic examination which did not reveal any focal neurological signs. Routine haematology and biochemistry blood tests were all normal. Initially, a computed tomography (CT) scan of the brain was requested which showed no definite acute abnormality, but a small focus of high attenuation present within the left middle cerebellar peduncle may represent a small cavernoma. Further assessment with magnetic resonance imaging (MRI) was suggested. The patient was then admitted to the acute medical unit (AMU) for further investigations and workup.

Results and discussion

An MRI of the brain was performed and revealed multifocal cerebral microhaemorrhages of variable sizes spread randomly throughout the supra- and infra-tentorial compartments of the brain with no predilection for the deep structures (basal ganglia/thalami) to suggest chronic hypertensive encephalopathy. Cavernoma are less common in males at this age, which makes our case more unique.

Conclusion

A detailed history (personal and family) are key to detect such malformations in young patients, which also helps physicians be aware of its related complexities and further management.

Conflict of interest

None declared.
Computed tomography colonography in elderly patients, a safe and accurate colonic examination

Authors: Neel Raja, Michael Adeleye, Ajay Verma and Bhavini Billimoria
Kettering General Hospital NHS Foundation Trust

Introduction

In Kettering General Hospital (KGH) we perform almost 500 computed tomography (CT) colonograms (CTCs) annually for patients who do not want, are unable to tolerate, or have failed a colonoscopy (which is considered the ‘gold standard’ colonic examination). The most common reasons for CTC are iron-deficiency anaemia and change in bowel habit, often with the aim of detecting colorectal cancer (CRC).

We have seen an increase over time in the use of CTC in elderly patients as a first-line investigation. With an ageing population, we explore the significance of performing this examination in an elderly population who may not be suitable for further investigation/intervention.

Methods

We reviewed 1,479 patients who had undergone a CTC between October 2015 and October 2018. Of these, we focused on patients aged ≥80 at the time of scanning. CTC reports were analysed and categorised into those with positive and indeterminate findings, and those with no significant findings. All patients ≥80 years old were followed up (via their electronic records) to observe their outcomes.

Results and discussions

During the 3-year period 1,479 patients underwent a CTC. Four-hundred and fifty-four patients were aged ≥80 years (30.7%) (mean and median age, 84 years, range 80–97). Sixty-nine patients had positive colonic findings (15.2%, Fig 1) of which, 31 had CRC reported (14 operated straight away, 5 had endoscopy then surgery, 1 had endoscopy only (no tumour seen), 11 were not operated on). Twenty-two had polyps reported (13 had endoscopy at which 12 had polypectomy, 9 did not have endoscopy). Sixteen had indeterminate findings (10 had endoscopy which nil significant found).

![Fig 1. Summary of results](image)

CRC = colorectal cancer; CTC = computed tomography colonograms

Of the 385 patients who had CTCs with nil significant colonic findings, 9 had extra colonic tumours. At follow up (105 patients in 12 months from October 2015, 137 patients in 2016–17, 143 patients in 2017–18, range 0–36 months), none of the patients have been diagnosed with CRC thus far.
Conclusion

In this study, CTC was used in elderly patients aged ≥80 years old as a first- or second-line colonic examination. The yield of diagnosing colorectal cancer was 6.9% (31/454). CTC that reported negatively for colonic findings seems to protect patients for 0–36 months.

While colonoscopy may be the preferred diagnostic test for colonic disease, it is an invasive test with a small risk of perforation. CTC is safer, and better tolerated. The reports are generally accurate with regards to significant colonic findings, especially when diagnosing CRC. This study does confirm the safety and efficacy of CTC and suggests that it is an appropriate colonic investigation for elderly patients (aged ≥80 years old) first- or second-line.

Conflict of interest statement

None declared.
Does measuring the bone mineral density of patients identified as having an osteopaenic X-ray appearance affect bone health treatment decisions? A real-world retrospective analysis

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Introduction

Osteoporosis is a disease characterised by low bone mass, defined by the World Health Organization as equalling or exceeding 2.5 standard deviations below the mean for healthy young adult women at any site, and is associated with increased susceptibility to fragility fractures. Osteoporotic fractures cause substantial morbidity, mortality and health economic cost, with hip fractures in particular resulting in a 1-year mortality of 20% and permanent disability in up to 50% of cases. Incidence of hip fracture is projected to exceed 100,000 UK cases per year by 2020 as the population ages, with direct health costs alone exceeding £2 billion per annum.

Given this context, identifying those at an increased risk of fracture and targeting effective interventions to the right individuals is a major public health concern. The National Institute for Health and Care Excellence (NICE) advises assessing fracture risk in all women over the age of 65 years and men over the age of 75 years, as well as younger individuals with other known bone health risk factors, using a fracture risk assessment tool, such as FRAX or QFracture, in the first instance. Dual energy X-ray absorptiometry (DEXA) scanning should then be considered for: those individuals whose fracture risk is close to a treatment intervention threshold, people over the age of 50 who have sustained a fragility fracture, those being commenced on treatments known to have rapid effects on bone density like aromatase inhibitors, or individuals under the age of 40 with a major bone health risk factor. The International Society for Clinical Densitometry (ISCD) recommends similar, though not identical, indications for DEXA scanning.

The Royal National Hospital for Rheumatic Diseases (RNHRD), Bath, offers a direct access requesting and reporting service for DEXA scans to local primary and secondary care clinicians, in order to facilitate identification of individuals at increased risk of future fragility fractures. The DEXA reports quote a post-DEXA FRAX risk score where possible and include an individualised treatment recommendation. The latter is based on locally agreed intervention thresholds, which differ from National Osteoporosis Guideline Group (NOGG) recommendations most significantly in that a fixed intervention threshold (treatment advised if 10-year major osteoporotic fracture risk exceeds 20% or hip fracture risk exceeds 5%) is used across all ages, rather than being age-dependent.

In addition to those indications for DEXA scanning recommended by NICE and ISCD, DEXA scans are also performed when requested due to an ‘osteopaenic appearance’ being reported on plain X-ray or other imaging modality. Our aim was to identify the extent to which performing a DEXA for this indication alone affected treatment recommendations.

Methods

A retrospective analysis was performed of DEXA reports issued by RNHRD between 1 October 2016 and 30 September 2018. Reporters included two consultant rheumatologists, with a specialist nurse and several rheumatology specialist registrars also reporting with consultant support.

An initial search was performed of the RNHRD clinical measurement department database in order to identify DEXA scans which were requested with ‘osteopaenic X-ray appearance’ being offered as the sole indication. A further review was then performed for each patient of their bone health risk factors in order to identify whether the DEXA could in any case have been justified according to current NICE or ISCD
guidelines. Patients were excluded from further analysis if an alternative DEXA indication to ‘osteopaenic X-ray appearance’ was identified at this review.

For the remaining patients, a pre-DEXA FRAX risk score was calculated with the consequent NOGG recommendation recorded. The DEXA reports for these patients were then analysed with the following parameters recorded: age; site of reported osteopaenia (further categorised as axial if vertebral or pelvic, versus peripheral if elsewhere); bone mineral density (BMD) category (osteoporosis, osteopaenia or normal BMD); treatment and follow up recommended by the reporter; whether treatment recommendation strictly adhered to local guidelines; and whether treatment would be recommended according to NOGG. We then identified those cases where the treatment or follow-up recommendation changed as a result of the DEXA, for example where the DEXA report recommended bisphosphonate treatment whereas NOGG would have recommended reassurance and lifestyle measures based on the pre-DEXA FRAX score.

Results and discussion

Ninety-one patients were identified by the initial database search as having been referred for DEXA on the basis of ‘osteopaenic X-ray appearance’. Overall, bisphosphonate treatment was recommended in 20 of these patients (22%) and a follow-up DEXA was recommended in 22 patients (24%).

Following the subsequent review, we identified that 71 of these could have been justified by existing NICE and/or ISCD guidance, hence were excluded from further analysis (reasons for exclusion detailed in Table 1).

Table 1. Patients excluded from further analysis due to alternative indication for DEXA

<table>
<thead>
<tr>
<th>Alternative indication for DEXA</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-DEXA FRAX score results in NOGG recommendation for DEXA</td>
<td>36</td>
</tr>
<tr>
<td>History of fragility fracture</td>
<td>25</td>
</tr>
<tr>
<td>Secondary causes of osteoporosis, not adequately captured by FRAX</td>
<td>6</td>
</tr>
<tr>
<td>Follow up after a previous DEXA</td>
<td>2</td>
</tr>
<tr>
<td>Osteopaenic X-ray report couldn’t be identified</td>
<td>2</td>
</tr>
</tbody>
</table>

DEXA = dual energy X-ray absorptiometry; FRAX = a tool to evaluate fracture risk in patients; NOGG = National Osteoporosis Guideline Group.

Of the remaining 20 patients who underwent a DEXA scan in this time period (ie those performed for the sole indication of an osteopaenic X-ray appearance), three were found to have osteoporosis, 10 had osteopaenia and seven had normal bone mineral density. In one (5%) case a recommendation was made to treat with a bisphosphonate, on a patient where osteopenia was reported on an ankle X-ray, who was found to be osteoporotic by BMD. A follow-up DEXA was recommended for two patients in total (10%). All other patients in this cohort were recommended bone health lifestyle measures only. In this cohort of patients, there were no discrepancies between the actual treatment recommended in the report with both local and NOGG recommendations, based on the post-DEXA FRAX score.
Conclusion

This analysis demonstrates that offering DEXA scanning to patients with an osteoparenchymal X-ray appearance who would not otherwise meet NICE criteria for this test may allow identification of a small number of additional individuals who could benefit from antiresorptive treatment and/or monitoring of bone density. Whether this is sufficient to justify the additional resource utilised remains open for debate. The major limitations of this analysis are its retrospective nature, small cohort numbers and dependence on internal coding of the indication for a DEXA request to identify patients. Future work could include a prospective cohort analysis of the bone health of patients found to have an osteoparenchymal X-ray appearance.

Conflict of interest statement

None declared.

References

Dropsy and pyrexia of unknown origin: Tuberculosis myopericarditis, still the great pretender

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Tuberculosis is an infectious disease with a global presence. Primary myopericardial involvement presenting with congestive cardiac failure and pyrexia of unknown origin is extremely rare.

A 30-year-old, male Pakistani construction worker presented with a 2-month history of worsening shortness of breath and peripheral oedema. He had not undertaken any recent foreign travel and reported non-specific, self-limiting flu-like symptoms approximately 1-month prior to the onset of his presenting symptoms. He had no cardiovascular risk factors or any positive relevant family history. Initial examination showed features of congestive cardiac failure with no evidence of active infection.

Trans-thoracic echocardiogram demonstrated left ventricular (LV) ejection fraction (LVEF) <35% and a global pericardial effusion with no features of cardiac tamponade. He was treated for congestive cardiac failure.

Two weeks into the hospitalisation he became pyrexial. Extensive bacterial, fungal, viral and HIV screening, and screening for vasculitis and autoimmune serology (including rheumatoid factor and anti-neutrophil cytoplasm antibodies (ANCA) antibodies), were unremarkable. Multiple early morning sputum samples were negative for acid-fast bacillus (AFB) with no growth on cultures.

Ultrasound-guided diagnostic pleural tap revealed an exudative effusion, negative for infections including AFB and malignant cells. Computed tomography (CT) scan of thorax, abdomen and pelvis was undertaken to identify the primary source of occult infection. This demonstrated bilateral supraclavicular lymphadenopathy and massive right pleural effusion causing midline shift. Pleural drainage yielded over 3 litres of straw-coloured fluid. Analysis once again confirmed an exudative effusion with lymphocytes, no AFB or evidence of malignancy.

Repeat contrast CT scan showed significant mediastinal and hilar lymphadenopathy, moderate pericardial effusion, and a recurrence of the right pleural effusion with no abdominal or pelvic lymphadenopathy.

After 13 days of empirical antituberculosis treatment (ATT), endoscopic bronchial ultrasound (EBUS) with fine needle aspiration cytology (FNAC) from the lower paratracheal nodes confirmed granulomatous lymphadenitis with no malignant cells. Cultures for AFB remained negative.

He was treated with multiple courses of antibiotics for presumed hospital-acquired pneumonia when there was initial onset of pyrexia with respiratory findings. He continued to spike temperatures, and blood markers for infection remained elevated. After exclusion of lymphoma, the patient was commenced on quadruple ATT with a reducing course of oral prednisolone for presumed pleural, pericardial and lymph node tuberculosis under the guidance of respiratory and infectious diseases team.

Within a week of starting ATT, there was a rapid decline in pyrexia, infection markers and features of heart failure. Serial echocardiography demonstrated a temporal improvement in LVEF. Follow up was arranged in the heart failure and respiratory clinics.

Learning points

- Cardiac tuberculosis is a potentially treatable and reversible cause of cardiac failure.
- Always consider a diagnosis of myocardial tuberculosis in patients with refractory ventricular failure or uncontrollable ventricular arrhythmias in patients at risk of current of historical tuberculosis exposures without any cardiac risk factors.
Commence treatment based on clinical suspicion and be guided by the patient response, even in the absence of definitive tissue diagnosis of tuberculosis.

**Conflict of interest statement**

None declared.

**References**


Extracorporeal membrane oxygenation in life-threatening asthma unresponsive to mechanical ventilation: a comparison of patient demographics and outcomes between a large London-based intensive care unit and an international registry

Authors: Kritchai Vutipongsatorn, A Eri FujitakeA and Suveer SinghB
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Introduction

According to the British Thoracic Society (BTS) guidelines, extracorporeal membrane oxygenation (ECMO) may be considered in near-fatal asthma exacerbations refractory to conventional ventilator treatment. However, there is currently no clear criteria for accepting such patients for ECMO treatment. The comparison of local data to an internationally established database would lead to a better insight into optimal criteria for the commencement of ECMO treatment.

Methods

Medical records of asthmatic patients who were admitted to Royal Brompton Hospital (RBH) for ECMO from 2012 to 2018 were reviewed. Parameters such as pre- and post-ECMO blood gases, ventilator settings and outcomes were calculated and compared with the Extracorporeal Life Support Organization (ELSO) registry, an international database for ECMO from 1992 to 2016 (n=272).

Results and discussion

Ten patients (38.4 ± 13.6 years) were identified. Sixty per cent were known asthmatics, and 40% had previous hospital admissions for asthma. Eighty per cent had an infective trigger. The mean duration on ECMO and stay on intensive treatment unit (ITU) were 6.7 ± 2.9 days and 11.9 ± 5.3 days, respectively. Compared with the ELSO registry, there were no significant differences in patient demographics. Prior to ECMO, RBH patients were significantly more hypercapnic (16.0 vs 10.7 kPa, p=0.014), and were on a significantly less aggressive ventilator setting with regards to FiO₂ (57.1% vs 81.2%, p=0.002) and positive end-expiratory pressure (PEEP) (4.3 vs 8.3 kPa, p=0.043). However, there were no significant differences in survival (100% vs 83.5%, p=0.363) or duration on ECMO (6.7 vs 7.4 days, p=0.785). The pre-ECMO blood gas and ventilation settings could indicate a higher threshold for commencing ECMO in the RBH cohort, or the result of less aggressive ventilation settings prior to starting ECMO. However, this had no impact on survival and duration on ECMO.

Conclusion

Despite similar outcomes, there are significant differences in the RBH cohort with regards to the pre-ECMO ventilation settings and blood gases. As recommended by the BTS, further research of a bigger sample size is required to improve understanding of treatment-refractory fatal asthma.

Conflict of interest statement

None declared.
References


Finger nose proprioception test (case study)

Authors: Khin Bo
Rehab Medicine Service, Northern Lincolnshire & Goole NHS Foundation Trust, UK

Introduction

The author published on the finger nose proprioceptive test (FNPT) in 2017.\(^1\) FNPT is a bedside test to see if patient can touch his/her nose with his/her finger when the eyes are closed (Fig 1a). Patients with proprioceptive impairment will miss the tip of the nose (Fig 1b). As an extension of that research, can proprioception be improved by enhancing the remaining sensory pathways (eg temperature, pain, vibration)?

Materials and methods

A 30-year-old patient with generalised severe proprioceptive impairment from axonal ataxic polyneuropathy (variant of Guillain Barre syndrome). FNPT was severely positive in the left hand. He could still feel temperature reasonably well. Left fingers were immersed in ice cubes until the patient reported feeling very cold in the fingers. FNPT was repeated.

Results and discussion

There was about 75% improvement in locating the tip of the nose with the eyes closed (Fig 1c).

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Fig 1. The test and result
Conclusion

Impairment in proprioception can be improved by enhancing the remaining sensory pathway (temperature sensation in this case).

This is just a case report and further studies need to validate the finding.

Conflict of interest statement

None declared.

Reference

Hepatitis C, an unusual cause of inflammatory arthritis: a case report

Authors: Fiona Coath and Poonam Sharma
North West Anglia NHS Foundation Trust

Case

A 51-year-old gentleman of Pakistani origin, living in the UK for the last 20 years, presented to the rheumatology department with a 10-year history of widespread joint pain and deformity. He had a background of idiopathic thrombocytopenic purpura (ITP), chronic folliculitis, osteoporosis and hepatitis C virus (HCV) in 2008. He was unfortunately lost to follow up after the initial HCV diagnosis and not fully treated. On examination he had fixed flexion deformity of the right elbow with fusion of the right wrist but no palpable synovitis.

Up-to-date serology confirmed positivity for HCV antibodies, genotype 3, with a low viral load. Liver transaminases were at baseline following significant elevation during the acute infective period. There was persistent thrombocytopenia, but in the context of a normal liver fibroscan and spleen size, felt to be secondary to ITP rather than splenic sequestration. Liver synthetic function was otherwise normal. Polyclonal gamma-globulinaemia would be explained by chronic viral infection in this case. From an arthritis perspective autoimmune serology was unremarkable (negative rheumatoid factor (RF), anti-cyclic citrullinated peptide (CCP) antibodies (ACCPA), cryoglobulins, atypical anti-neutrophil cytoplasmic antibodies (ANCA) but myeloperoxidase (MPO) and proteinase 3 (PR3) negative). Imaging was consistent with HCV-associated arthritis, with plain film demonstrating wrist fusion but no erosions. Magnetic resonance imaging (MRI) of the right hand demonstrated fused carpals and ankylosis at the 2nd and 3rd carpometacarpal (CMC) joints, but no active synovitis.

The diagnosis was HCV-related arthropathy (HCVrA). Treatment for this patient required addressing the underlying HCV, as well as symptomatic management of his arthritis. In the absence of erosions, active synovitis or other features to suggest concomitant rheumatoid arthritis, there was no indication to start disease modifying antirheumatic drugs at present.

Discussion

Extra-hepatic complications of HCV are common and estimated to affect 74% of patients, with approximately 4% suffering from HCVrA. A larger proportion will experience arthralgia rather than true arthritis. Development of arthritis does not appear to correlate with the type or severity of HCV, so should be considered in all patients complaining of joint pain. Diagnosis can be challenging, as presentation is often polyarticular and symmetrical, mimicking a rheumatoid arthritis (RA) pattern. The distinction is important, as management differs. Serology can be unhelpful, with positive RF seen in 40–70% of HCVrA. ACCPA is more specific for RA, so if positive one would need to consider treating for RA in addition to HCV. HCVrA is associated with a lack of erosions, although in early RA this may also be the case. However, better outcomes are seen in early treated RA, so emphasis should be placed on adequate screening and prompt referral to rheumatology.

Learning points

- Effective management of HCVrA requires a multidisciplinary approach between rheumatology and hepatology.
- Patients with a new diagnosis of HCV should be screened for the presence of musculoskeletal symptoms and if there are concerns, referred for specialist assessment as soon as possible.
- In patients presenting with polyarthropathy in the context of normal autoimmune serology, clinicians should consider screening for secondary infective causes such as hepatitis.
Conflict of interest statement

None declared.

References

Investigation of large artery calcification in non-contrast computed tomography scans with small vessel disease, large artery atherosclerosis and stroke subtype in ischaemic stroke patients

Authors: Armaan Iqbal, A Kirti Kain and Ahamad Hassan

University of Leeds; Leeds Institute of Cardiovascular and Metabolic Medicine; Leeds General Infirmary, UK

Introduction

Strokes are the second leading cause of death worldwide. Arterial calcification has been associated with an increased frequency of stroke. Arterial calcification increases vessel stiffness, which has been indicated to be linked with cerebral small vessel disease. However the relation of large artery calcification to stroke subtype and progression is uncertain, despite its ability to be identified simply using a non-contrast computed tomography (CT) scan. This study aims to investigate the association between large artery calcification with both small vessel disease and large artery atherosclerosis in ischaemic stroke patients. Also to further investigate the association between large artery calcification and stroke subtype, with a focus on lacunar strokes.

Methods

The setting for this study took place at the Leeds General Infirmary. Ischaemic stroke patients were recruited from the stroke wards and stroke outpatient departments, as well as wards containing outlier stroke patients, between October 2018 and February 2019. A total of 70 patients were recruited within this period. Patients were assessed to have capacity to consent to take part in the study by either a doctor or stroke nurse specialist. A visual assessment of patient non-contrast CT head scans by a consultant neurologist was used to check for the presence of cerebral large vessel calcification. Magnetic resonance imaging (MRI) or CT scans were used for small vessel disease scores, and ultrasound or angiography was used to determine large artery atherosclerosis scores, both of which were based on simple visual rating scales. Strokes were subtyped based on the modified Trial of Org 10172 in Acute Stroke Treatment (TOAST) criteria.

Results and discussion

The mean age in the study population was 67 years for males and 69 years for females. There were no significant difference found between males and females in risk factors including obesity, blood pressure and diabetes. The prevalence of large artery calcification was found to be 50% in the study population. Univariate analysis found no significant association between large artery calcification with leukoaraiosis (p-value 0.087), or with degree of large artery atherosclerosis as measured by ultrasound scan or angiography (p-value 0.731). There was also a lack of association found between large artery calcification and stroke subtype, when analysing lacunar strokes in comparison with other ischaemic stroke subtypes (p-value 0.718). However large artery calcification was found to be associated with hypertension (p-value 0.038). The findings from the study indicate that large artery calcification is not related to a particular subtype of stroke, but may indicate a marker of generalised atherosclerotic disease. This is supported by the association of large artery calcification with hypertension, hypertension being a risk factor for various strokes, not just a particular subtype, similarly large artery calcification may reflect hypertension in this way.
Conclusion

In conclusion the study findings support the idea that large artery calcification reflects advanced vascular disease rather than a specific ischaemic stroke subtype or mechanism.

Conflict of interest statement

None declared.

References

LEOPARD syndrome: a case report and literature review

Authors: Morteza Moatamedi\textsuperscript{A} and Mohammad Derakhshan\textsuperscript{B}

\textsuperscript{A}Salford Royal NHS Foundation Trust, UK; \textsuperscript{B}University of Glasgow, UK

Clinical findings

A 36-year-old male presented to the dermatology department with multiple pigmented macular lesions on his skin present for most of his life. Multiple freckles were noted on non-light exposed areas, mainly on his trunk; light exposed areas such as his face were relatively spared. There were no associated symptoms and he was not on any medication. His mother had similar lesions. Biopsy results from a fleshy lesion on his back reported a simple lentigo. He was initially diagnosed as having ‘generalised lentiginosis’. Meanwhile he had a lesion excised from his chin that reported intradermal naevus. Patient was reassured.

He was referred again 3 years later with a lesion on his back; excisional biopsy favoured a benign intradermal naevus. Absence of underlying medical conditions as well as a lack of associated symptoms suggested the same diagnosis ‘lentiginosis profusa’; however, on consultation with clinical geneticists, the presence of signs of hypertelorism (wideset ears) with striking blue eyes and low-set posterior rotated ears was emphasised. These clinical features along with multiple lentigines confirmed a diagnosis of LEOPARD syndrome. While the patient had no genital abnormality, he had stable mild cardiomyopathy. The patient had no short stature, bleeding disorders or developmental abnormalities characteristic of Noonan syndrome.

Discussion

LEOPARD is an acronym for: lentigines, electrocardiographic conduction defects, ocular hypertelorism, pulmonary valve stenosis, abnormalities of genitalia, retardation of growth and deafness. LEOPARD is multiple congenital anomaly syndrome inherited in an autosomal dominant manner with full penetrance and variable expressivity.\textsuperscript{1} Clinical diagnosis is based on multiple lentigines, typical facial features and cardiac anomalies. It was first reported by Zeisler and Becker in 1936, in a female patient presenting with multiple lentigines (increasing in number from birth to puberty), pectus carinatum, hypertelorism and prognathism.\textsuperscript{2} Around 200 patients have been reported worldwide.

The lentigines may be congenital, but commonly manifest by the age of five and increase throughout puberty. Ocular hypertelorism, palpebral ptosis and low-set ears are common facial characteristics. Stature is usually below the 25th centile. Cardiac defects, in particular hypertrophic cardiomyopathy mostly involving the left ventricle, and electrocardiogram (ECG) anomalies are common. Additional common features are café-au-lait spots, chest anomalies, cryptorchidism, delayed puberty, hypotonia, mild developmental delay, sensorineural deafness and learning difficulties.\textsuperscript{3}

The main genetic abnormality is associated with tyrosine phosphatase SHP2 (PTPN11) gene mutation. This gene is located on chromosome 12q24.1. Germline mutations in PTPN11 cause Noonan and LEOPARD syndromes, which have overlapping clinical features.\textsuperscript{4}

While the lentigines remain an aesthetic problem, hypertrophic cardiomyopathy needs careful risk assessment and prophylaxis against sudden death in patients at risk.

Conflict of interest statement

None declared.
References

Making waves: what drives coronary perfusion in the failing heart?

Authors: Sadman Chowdhury, Natalia Briceno, Matthew Ryan, Haseeb Rahman, Simone Rivolo, Jack Lee and Divaka Perera
St Thomas’ Hospital, London, UK

Introduction
Coronary flow reserve (CFR) is diminished in patients with left ventricular (LV) systolic dysfunction (LVSD) but it is unclear whether this reflects primary microvascular dysfunction or altered autoregulation.

Methods
Patients with LVSD undergoing elective percutaneous coronary intervention (PCI) were included and those in cardiogenic shock or acute ST-elevation myocardial infarction (STEMI) were excluded. LV pressure-volume loops and coronary flow velocity and pressure measurements were taken following PCI, at rest and during hyperaemia, to calculate CFR and pressure-volume area (PVA=LV stroke work + potential energy (PE)), a measure of myocardial oxygen demand. Coronary wave intensity analysis and wave separation were performed to quantify accelerating and decelerating wave energies.

Results and discussion
Twelve patients (70 ± 12 years, LV ejection fraction (LVEF) 27.3 ± 7.8%, post-PCI fractional flow reserve 0.90 ± 0.12) were enrolled. CFR was 1.6 ± 0.5 (resting flow 24.5 ± 14.4 cm/s vs hyperaemic flow 31.4 ± 19.1 cm/s; p=0.005); with a positive correlation observed with LVEF ($r^2=0.56$, p=0.020). Patients with lower LVEF had a higher PVA ($r^2=0.52$, p=0.008), driven predominantly through PE ($r^2=0.68$, p=0.001). The magnitude of PE correlated negatively with resting microvascular resistance ($r^2=0.44$, p=0.018) but not with minimal (hyperaemic) microvascular resistance. Accelerating wave energies were greater in patients with higher PE (forward compression wave $r^2=0.56$, p=0.005; backward expansion wave $r^2=0.54$, p=0.007) (Fig 1). Consequently, patients with higher PE had a greater resting coronary blood flow velocity ($r^2=0.43$, p=0.02) with reduced CFR ($r^2=0.54$, p=0.025).
Fig 1. Pressure-volume loops and coronary wave profiles are presented for two patients with better (patient 003) and worse (patient 009) LV ejection fraction.

BEW = backward expansion wave; EF = ejection fraction; LV = left ventricular; PE = potential energy; PVA = pressure-volume area

**Conclusions**
Reduced CFR in LVSD reflects exhausted autoregulation due to raised PE rather than elevated minimal microvascular tone. Strategies to reduce PE, such as mechanical unloading, may improve CFR and protect against ischaemia during high-risk PCI.

**Conflict of interest statement**
None declared.

**References**
Management of patients with decompensated liver cirrhosis within first 24 hours of admission: an audit against BSG–BASL cirrhosis care bundle pathway

Authors: Katrina Sheikh, A Sophia Than, B Georgios Marinopoulos, B Thomas Troth B and Alexandra Daley B

A Chelsea and Westminster NHS Foundation Trust, UK; B Heart of England NHS Trust, UK

Introduction

• Incidence of liver cirrhosis is rising worldwide. Decompensated liver cirrhosis (DLC) is associated with 10–20% inpatient mortality.
• Recognition of conditions and starting an early effective intervention can save lives and reduce hospital stay in patients with DLC. A recent National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report in 2013 revealed that only 47% of patients received good care.
• Due to that report, BSG–BASL (British Society of Gastroenterology–British Association for the Study of the Liver) has developed the ‘Cirrhosis care bundle pathway’ which provides a checklist to ensure that all appropriate investigations are undertaken when a patient with DLC presents to the hospital. These investigations should be performed ideally within 6 to 24 hours of attendance.

Method

• The aim of the study was to audit the current practice in our Trust against the ‘BASL–BSG cirrhosis care bundle pathway’ proforma.
• Gastroenterology junior doctors visited the medical admission units daily to identify patients admitted with DLC over a 6-week period.

Results

• The majority of the patients (74%) were male. All were Caucasians.
• The median age was 50 years (range: 27, 83 years).
• The median number of days in hospital was 14.5 days (range: 3, 86 days).
• Six patients died (17% mortality rate).
• Eighty per cent of patients (n=28) were seen by a gastroenterologist within 24 hours of admission.

Conclusions

This audit highlighted the need for improvement in many areas:

• Basic investigations such as liver function tests (LFTs), coagulations, electrolytes (Ca/Mg/PO4) should be checked in all patients with DLC
• Alcohol intake should be documented in all patients (only 77% were noted in our study).
• All patients presented with ascites should have ascitic tap (only 44% in this study).
• Don’t forget to give albumin in spontaneous bacterial peritonitis (SBP) (only 20% received albumin).
• Think of low-molecular-weight heparin (LMWH) in DLC patients with no evidence of gastrointestinal bleed since they are at risk of developing thromboembolism.

Conflict of interest statement

None declared.
Maternal and perinatal outcomes in teenage pregnancy between indigenous and non-indigenous. Is there a difference?

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Introduction

Pregnancy in teenagers is a common occurrence worldwide and its rates vary between countries due to the differences in level of sexual activity, law and policies in teen marriages, sex education provided and access to contraception. There are about 16 million teenagers between the age of 15–19 years old giving birth every year, contributing to 11% of total deliveries worldwide. According to the World Health Organization (WHO), teenage pregnancy is defined as a ‘teenaged or under-aged girl, usually within the age of 13–19, becoming pregnant’. This study is looking into teenage pregnancy in Sarawak, a state in Borneo, Malaysia.

Aim

To look into both maternal and perinatal outcomes in teenage pregnancy among indigenous and non-indigenous groups in Sarawak.

Methods

A retrospective analysis of case records of teenage pregnancies from January to December 2014 in the Department of Obstetrics and Gynaecology, Sarawak General Hospital (SGH), Kuching, Malaysia. A total of 970 teenage pregnancies were analysed using Chi squared test and logistic regression analysis in SPSS Version 24.

Results

The overall teenage pregnancy rate in 2014 in SGH was 8.3%. Indigenous population had a higher teenage pregnancy rate with 10.2% rather than 7.9% among non-indigenous. This study has also shown that indigenous teens were 2.87 times more likely to be single (95% confidence interval (CI): 1.76–4.70), had a 1.57 times higher risk (95% CI: 1.09–2.27) of going into caesarean section during delivery and they are at 2.05 times higher risk of having low birth weight babies.

Conclusion

Indigenous teenagers are 2.87 times more likely to be single than married, have a 1.57 times higher risk of delivering by caesarean section and a 2.05 times increased chance of having low birth weight babies.

Conflict of interest statement

None declared.

Reference

Potential risk of transfusion-transmissible infections among blood donors in district Faisalabad of Pakistan

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Background
In developing countries, blood transfusions have a potential risk of transmitting hepatitis B virus (HBV), hepatitis C virus (HCV), syphilis and malaria to the recipients.\(^1\) The frequency of these infections among apparently healthy donors may reflect the disease burden in the population.\(^2\) Thus, the objective of our study was to estimate the potential risk of transfusion-transmissible infections among blood donors in the local population.

Methods
This was a retrospective study conducted at Madinah Teaching hospital (MTH) blood bank in district Faisalabad from May 2018 to February 2019. Quality-monitored screening of infectious diseases was carried out on using chemiluminescence-based immunoassay (Roche e611). Statistical package of Social Sciences (SPSS) version 22.00 was used to calculate the means and percentages. Logistic regression analysis was performed to identify the potential high-risk donors. A p-value <0.05 was taken as significant.

Results and discussion
A total of 6,594 blood donors were included in the study. Mean age of our donors was 29±7 years. 6,592 (99.97%) of blood donors were male and 74 (1.12%) were voluntary donors. Most of the blood donations in our set up were being done on replacement basis. In the majority of the cases, family members of the patients donated the blood. Some volunteers also donated the blood. In total, 432 (6.55%) were refused for carrying at least one infection. Of these 432, 214 (3.24%) were seropositive for HCV, 74 (1.12%) were seropositive for HBV, 12 (0.18%) were seropositive for HIV, 73 (1.10%) were seropositive for syphilis and 59 (0.89%) were seropositive for malarial parasite. Eleven (0.16%) were co-infected with HCV, HBV, HIV and syphilis. Fifteen (0.22%) were co-infected with HBV and HCV. HCV is the most prevalent infection among our local donors followed by HBV, syphilis, HIV and malaria. A study conducted in the southern area of country showed a higher prevalence for HBV than HCV.\(^3\) Our study was conducted in the eastern region of the country and showed higher prevalence for HCV. The pattern of infection in our population is quite different from other populations. The other populations show highest prevalence of HBV rather than HCV.\(^4,5\) The prevalence of HIV is comparatively lower in our population. People belonging to low socioeconomical status were more associated with these infections vs others (2.56 (1.45–4.67) vs 2.13 (1.12–3.23)).

Conclusion
A substantial risk of transmissible infections is present in our population. This demands adhering to the standard operating procedure more meticulously and vigilantly. Community-based studies are required to identify the social risk factors of these infections.

Conflict of interest statement
None declared.
References


Predicting poor short- and medium-term survival after transcatheter aortic valve implantation: a single UK centre experience

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A Cardiff University, Cardiff, Wales, UK; B University Hospital of Wales, Cardiff, Wales, UK

Introduction
Transcatheter aortic valve implantation (TAVI) for severe, symptomatic aortic stenosis improves quality of life and survival in most patients. It is, however, important to identify patients who are unlikely to get these benefits from TAVI so that futile treatment can be avoided. Futility in this context can be regarded as lack of functional improvement or death within the first 2 years after the procedure. The FRANCE-2 multiparametric risk score was previously developed to predict mortality after TAVI and comprises nine pre-procedural factors integrated into a 21-point scoring system. The FRANCE-2 score was originally validated against early (up to 30 days) mortality after TAVI but its value in anticipating longer term outcomes is uncertain.

Aims
The aims of this study were to determine whether the FRANCE-2 scoring system is of value in determining medium- as well as short-term survival in patients undergoing TAVI in a single UK centre, and to compare its relative merits in this regard with the logistic EuroSCORE.

Methods
A cohort of 187 consecutive patients undergoing TAVI in a single UK centre were studied. Baseline clinical data were collected from the UK Central Cardiac Audit Database (CCAD) and patient records. Mortality tracking was achieved in 100% of patients. FRANCE-2 risk scores were calculated retrospectively and c-statistics were applied to determine the discriminative power of the FRANCE-2 score and the logistic EuroSCORE in associating with mortality. Using the FRANCE-2 scores, the patients were divided into low-risk (score 0), moderate-risk (score 1–5) and high-risk (score >5) groups and the survival outcomes were compared.

Results
Of the 187 patients, 57.2% were male and the mean age was 80.9±6.9 years. Survival rates after TAVI at 30 days, 1- and 2-years were 95.7% (n=179), 88.2% (n=165) and 77.5% (n=145), respectively. The frequency of high-risk parameters in this cohort of patients that contributed to the FRANCE-2 scores is shown in Table 1. The median score was 2 and the highest score was 9. The c-index of FRANCE-2 score for predicting 30-day mortality was 0.793 (p=0.009) and for 1-year mortality was 0.679 (p=0.016). The mean survival time for patients with high FRANCE-2 scores (18.6 months) was significantly less than for patients with low (53.8 months) and moderate (53.6 months) scores (p=0.0004). The logistic EuroSCORE was poorly associated with mortality with a c-index of 0.605 (p=0.346) and 0.616 (p=0.11) for 30-day and 1-year mortality respectively.

Table 1. Patient parameters contributing to FRANCE-2 score

<table>
<thead>
<tr>
<th>Patient parameters</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥90 years</td>
<td>7.0% (n=13)</td>
</tr>
<tr>
<td>BMI &lt;18.5</td>
<td>1.6% (n=3)</td>
</tr>
<tr>
<td>New York Heart Association Class IV</td>
<td>7.5% (n=14)</td>
</tr>
<tr>
<td>Acute pulmonary oedema ≥2 in past year</td>
<td>6.4% (n=12)</td>
</tr>
<tr>
<td>Systolic pulmonary artery pressure ≥60 mmHg</td>
<td>5.9% (n=11)</td>
</tr>
<tr>
<td>Critical preoperative state</td>
<td>4.3% (n=8)</td>
</tr>
</tbody>
</table>
Respiratory insufficiency 43.9% (n=82)
Dialysis 1.1% (n=2)
Delivery approach other than transfemoral or subclavian route 0% (n=0)

BMI = body mass index

**Fig 1. Survival functions**

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**Conclusions**

The FRANCE-2 risk score is predictive of medium-term as well as short-term survival after TAVI in a single UK centre clinical practice. The logistic EuroSCORE is a poor predictor of short- and medium-term survival after TAVI. The presence of a high FRANCE-2 score (>5) is associated with poor survival after TAVI. The use of the FRANCE-2 scoring system may be a useful additional tool for the heart multidisciplinary team (MDT) in identifying patients who will benefit least from TAVI.

**Conflict of interest statement**

None declared.

**References**


Prevalence of vitamin D deficiency and its associated factors among rheumatoid arthritis patients managed in a rheumatology unit of a tertiary care hospital in Sri Lanka

Authors: Sethuge Sanjeeva Chaminda Silva,^A^ Gunendrika Kathurirathne^A^ Buddhika Mahesh,^B^ Janalini Sashikaran^A^ and Kumari Jayasiri^C^  
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Introduction

Prevalence of unrecognised vitamin D deficiency can be high among rheumatoid arthritis (RA) patients. Lack of mobility among these patients prevents them receiving adequate sun exposure. Low levels of vitamin D could potentially cause a higher disease burden and disease activity.

Materials and methods

A descriptive cross-sectional study was done among patients with RA with a calculated sample size of 137. Being diagnosed according to American College of Rheumatology (ACR) – European League Against Rheumatism (EULAR) criteria and availability of serum vitamin D level were among the inclusion criteria. Patients with disabilities due to causes other than RA were excluded. All patients satisfying the eligibility criteria were invited to be recruited. A data extraction sheet was utilised. Data was collected by investigators. The associations were evaluated with Chi square test and Spearman correlation coefficient at a significance level of 5%. Ethics approval was obtained from the ethics committee of National Hospital of Sri Lanka (NHSL).

Results and discussion

The response rate was 92%. The median (interquartile range (IQR)) age of participants was 56.5 (49.0 to 64.25). Among participants, the majority (n=117, 92.9%) were females. Only 11.1% (n=14) had normal vitamin D levels. The insufficient and deficient categories comprised of 38.1% (n=48) and 50.8% (n=64). The commonest symptoms included; joint pain (n=101, 80.2%), fatigue (n=84, 66.7%) and muscle pain (n=78, 61.9%). Deficiency or insufficiency was lowest in the occupation category of ‘agricultural and labourer’ (37.5%) while 100% in many indoor-occupied categories and among Muslims. ‘Deficiency or insufficiency’ was significantly associated with muscle pain (p=0.001) but not with Clinical Disease Activity Index (CDAI) (p=0.896), fatigue (p=0.549) or joint pain (p=0.735).

Conclusions

Vitamin D ‘deficiency or insufficiency’ is common among patients with RA and commoner in the subcategories with muscle pain and with restricted sun exposure. More research must be promoted in this regard.

Conflict of interest statement

None declared.
Role of Taxotere in metastatic castration-resistant prostate cancer in Sudanese patients and the effective number of cycle and dose (2013–2017)

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Omdurman Islamic University, Sudan, Africa

Background

Prostate cancer remains the most common cancer in men worldwide and in Sudanese people. The initial treatment of choice for prostate cancer is androgen deprivation. If resistant to treatment, this leads to a state termed metastatic castration-resistant prostate cancer (mCRPC) which leads to the use of docetaxel (Taxotere) which has been a mainstay of therapy for patients with mCRPC.

Objectives

- To evaluate the benefit of docetaxel in patients with mCRPC after initial good response to first-line hormonal therapy.
- To determine the effective number of cycles and doses of docetaxel.

Methods

- Study design; retrospective study (duration, 2013–2017).
- Area; The Radiation and Isotopes Centre of Khartoum (RICK).
- Population; mCRPC in RICK.
- Inclusion criteria; any prostatic cancer patient who became castration-resistant and was receiving docetaxel therapy.
- Exclusion criteria; prostatic cancer patients not castration-resistant and not on docetaxel therapy.
- Data collection; RICK record.
- Procedure; patient files, sample size 60 patients.
- Permission; from Ministry of Health and from RICK.

Results and conclusion

To determine the optimal number of cycles of docetaxel for mCRPC, we retrospectively collected data from 60 patients receiving varying numbers of docetaxel plus prednisolone and analysed the clinical outcomes including performance status, prostate-specific antigen (PSA) response and pain. According to this study we found that docetaxel has an effective role in the treatment of mCRPC patients with an optimal number of 6–8 cycles every 3 weeks and with a dose of 75 mg.

Conflict of interest statement

None declared.
Spectrum of dystrophin gene mutations observed in patients suspected of Duchenne muscular dystrophy in Pakistan

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Introduction

Duchenne muscular dystrophy (DMD) is an inherited X-linked recessive genetic disorder caused by a defect in the dystrophin gene. This results in a quantitative and/or qualitative abnormality in the dystrophin protein causing progressive muscular damage and weakness.

Objective

To investigate the spectrum of deletions and duplications in the dystrophin gene of patients suspected of DMD or of being DMD carriers.

Methods

A retrospective review of DMD testing performed from March 2017 to June 2018 was conducted at Aga Khan University Hospital, Karachi. Multiplex ligation-dependent probe amplification (MLPA) was used for identification of deletion/duplication in 79 exons of the dystrophin gene.

Results

In a total of 92 cases, 85 males and 7 females were examined. In males, deletions and duplications were identified in 44 (52%) of the 85 cases; deletions were found in 38 cases (45%) and duplications in 6 cases (7%). In seven cases referred for females, two of the seven females (30%) were found to have a heterozygous deletion, suggestive of carrier status.

Conclusions

This study identifies deletions in dystrophin exon 42–52 to be the most common while duplications were mostly found in exons 3–7. This information can facilitate the use of new treatments with exon-skipping drugs which are mutation specific for DMD.

Conflict of interest statement

None declared.
Tracheobronchopathia osteochondroplastica in a patient requiring extracorporeal membrane oxygenation: a case report

Authors: Kritchai Vutipongsatorn, A Eri Fujitake and Suveer Singh

Introduction

Tracheobronchopathia osteochondroplastica (TO) is a large airway disorder, characterised by bony nodule growth on the anterior and lateral walls of the trachea and bronchi. Its diagnosis is based on the ‘rock garden’ appearance on bronchoscopy.1–3 However, as an uncommon condition with an estimated incidence of 0.01–0.12%, TO often goes unnoticed even though patients often have an increased risk of recurrent respiratory symptoms, such as chronic cough or haemoptysis. Here, we report a case of TO in a patient requiring extracorporeal membrane oxygenation (ECMO), which to our best knowledge has not been reported before.

Methods

A 51-year-old female presented to the local hospital with a 2-day history of dyspnoea preceded by a prodrome of myalgia, diarrhoea and fever. She was admitted and treated for an infective exacerbation of asthma with non-invasive ventilation, nebulised salbutamol and hydrocortisone, as well as tazocin and clarithromycin. Chest X-ray revealed lower lobe consolidation of both lungs (Fig 1).

Fig 1. Chest X-ray
Subsequent deterioration led to endotracheal intubation with ventilatory support. Following hypoxaemia refractory to 100% fraction of inspired oxygen, a decision was made to transfer the patient to an intensive care unit (ITU) at a tertiary care centre on ECMO. Review by a senior respiratory intensivist identified firm interspaced pale nodules protruding from the mucosal walls within the tortuous ‘corkscrew-like’ airways. These extended throughout both airway trees. The computed tomography (CT) chest scans demonstrated prominent cartilaginous proximal airway walls (Fig 2). A diagnosis of TO was made. The patient eventually made a full recovery and was discharged back to local hospital after 48 days in ITU.

Results and discussion

We treated a patient with newly diagnosed TO with a primary diagnosis of meningococcal septicaemia and pneumonia requiring ECMO. In this patient, the diagnosis of TO did not change the management plan. However, we cannot rule out the possibility that TO might have contributed to the acquisition and severity of the chest infection. Furthermore, the diagnosis was only made on the sixth bronchoscopy by a specialist respiratory intensivist, highlighting the need for physicians to be familiar with the condition.

Conclusion

To our best knowledge, this is the first reported case of a TO patient requiring ECMO in an ITU, which demonstrates that ECMO can be effectively used in these patients.

Conflict of interest statement

None declared.
References


Unusual presentation of hyperhomocysteinaemia

Authors: Deepak Ramnani, Swati Kapoor and Rajeev Upreti

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Introduction

Acute portomesenteric vein thrombosis is an uncommon but serious condition with potential sequelae, such as small bowel gangrene and end-stage hepatic failure. Here we describe a rare association of hyperhomocysteinaemia with isolated portomesentric thrombosis.

Case

A 39-year-old gentleman presented with a complaint of severe diffuse abdominal pain along with episodes of non-projectile non-bloody vomiting. The patient also had history of recurrent episodes of diffuse abdominal pain since a few days ago which were not as severe in intensity and were relieved by oral analgesics. This episode was not associated with any change in frequency of stools, fever or any history of travel or eating out. The patient was a vegetarian, non-smoker and was a social drinker with no alcohol intake in recent times. On examination, the patient was dehydrated, hypotensive and had a pulse rate of 110 beats/min. There was guarding of the abdomen with diffuse tenderness and bowel sounds were sluggish. An X-ray was immediately done which was not suggestive of any obstruction. His laboratory tests however revealed low haemoglobin, with a macrocytic picture on peripheral smear. Meanwhile computed tomography of the whole abdomen with angiography revealed superior mesenteric vein thrombosis, portal vein thrombosis along with jejunal wall ischaemia and moderate free fluid. In view of that the vascular surgery team was consulted and anticoagulant (unfractionated heparin) was started under close monitoring.

Results and discussion

His coagulation profile revealed a high homocysteine level (45.8 µmol/L), while the rest of the parameters (activated partial thromboplastin time, international normalising ratio, lupus anticoagulant factor V, protein S and C, JAK 2 mutation) were within normal limits. Partial thromboplastin time was slightly above the normal range.

In view of high homocysteine levels and macrocytosis, the patient's vitamin B₁₂ levels were sent to laboratory and they turned out to be low.

In the urgent exploratory laparotomy that was performed, a 30 cm gangrenous portion of small bowel was resected and anastomosis was done using stapler. The patient's postoperative period was uneventful and he was discharged after 5 days in stable condition. The patient was supplemented with anticoagulants and vitamin B₁₂ on discharge. Thus, this is a rare case of hyperhomocysteinaemia presenting with portomesentric thrombosis.

Hyperhomocysteinaemia has been well documented to be associated with increased risk of arterial thrombotic events, peripheral arterial disease and stroke. It is also a risk factor for deep-vein thrombosis in the general population. However, its association with portal vein thrombosis is very unusual and only a few cases have been reported.
Conclusion

Portomesentric vein thrombosis is in itself a rare cause of abdominal pain, and in the absence of hepatic disease, an underlying thrombophilia should be suspected. We emphasise the importance of measuring serum homocysteine in all patients with portal vein thrombosis to avoid missing this rare but curable condition. Management of acute portal vein thrombosis is complex because of the lack of evidence-based therapeutic algorithms. Close cooperation between surgery, radiology and internal medicine is crucial.

Conflict of interest statement

None declared.

References

Advanced nurse practitioners; what do the team think?

Authors: Anuska Glendinning and David Walker
Royal United Hospitals Bath NHS Foundation Trust, UK

Introduction

The advanced nurse practitioner (ANP) is an established role within many hospitals and can be found in all aspects of health organisations. This new role has equipped nurses to take on more procedures as well as tasks traditionally associated with junior doctors, including the ability to diagnose and prescribe, while still retaining their foundation nursing roles. Previous research has focused on the ANP role within the community setting or emergency departments. This innovative study aimed to examine perceptions from the nursing and medical teams of an ANP working on a gastroenterology ward.

Methods

A qualitative study was conducted at the Royal United Hospital Bath using three separate focus groups, each comprising of five doctors (FY1 to registrar), five nurses (grades 5–7) and six ANPs. Each focus group lasted between 40–60 minutes and consisted of a set format of questions to guide discussions and aid with moderation of the group (eg perceptions of the value of the ANP role within the ward environment, advantages of an ANP and how the ANP assists with a doctor’s role). Transcripts of the interviews were analysed and the data was reduced into themes.

Results and discussion

Thematic analysis identified three positive themes related to the perception of an ANP working on a gastroenterology ward: (1) assisting with workload; (2) teamwork; and (3) leadership. It was highlighted that due to the ANP’s understanding of the processes of patient flow, tasks were pre-empted and performed in advance, improving efficiency and reducing the workload of other team members. Within the analysis there was an overriding theme of consistency; quotes from doctors included, ‘the ANP is an absolute “life line” at the start of a new rotation. Their consistency allowed things not to get missed and acted as a safety net for us all, patients alike’. There were several sub-themes relevant to gastroenterology, particularly; ‘sharing of applied skills and knowledge’. This was relevant for ascitic paracentesis, nasogastric (NG) tube insertion, implementation of the liver care bundle and application of gastroenterology algorithms for complex patients which included gastrointestinal (GI) bleeding.

Conclusion

The study demonstrated that an ANP is a great asset to a medical ward and a valued member of the team. They provide consistency within the department, to both the nursing and medical teams. This is deemed vital, due to the ongoing 4-monthly rotations of junior medical staff, which is perceived as disruptive to teamwork and affecting consistency of patient care. The results have also identified how the ANP role appears to be more than just a ‘work gap’ solving role, they are paramount in sharing skills and knowledge with junior doctors as well as contributing to and enhancing teamwork, which is essential in healthcare transformation.

Conflict of interest statement

None declared.
Prevention of type 2 diabetes in a high-risk population: a closed-loop audit in primary care

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A Cardiff University, Cardiff, Wales, UK; B St Paul’s Clinic, Newport, Wales, UK

Background

Diabetes mellitus remains as one of the leading causes of preventable chronic disease in the UK. Minor ethnicities such as South Asian, Chinese and African-Caribbean populations are predisposed to developing diabetes significantly earlier in life.1,2 In fact, the South Asian population is the second largest ethnic group in the UK after the white population.3

In terms of ethnic population, our general practice in Newport with a total patient population of over 4,700 is a microcosm of the UK. The patients come from an ethnically and culturally diverse background with 27% of South Asian population.

The National Institute for Health and Care Excellence (NICE) guideline on type 2 diabetes prevention in high-risk populations recommends a two-stage risk assessment for high-risk populations.4 Our aim was to evaluate and improve the identification of high-risk adults and provide effective interventions to prevent or delay the onset of type 2 diabetes in accordance with the NICE guidance.

Methods

An electronic search was performed on the Vision database in St Paul’s Clinic. Data on number of eligible patients with a risk assessment performed, number of high-risk patients with haemoglobin A1c (HbA1c) tested and number of patients with matched interventions provided were collected.

Following the audit, the following interventions were implemented, and a re-audit was performed 12 weeks later:

1. Presentation and education on use of diabetes risk assessment tool in practice meeting.
2. Set up of telephone and text communications generated recall of patients with high-risk score for HbA1c blood test.
3. Recall of patients with impaired glycaemic control or suspected diabetes for lifestyle advice and review.

Results

The baseline search included a total of 110 eligible patients who had their risk assessment performed. Nine of them were identified as high risk with a score of more than 5.2. At the re-audit, 269 patients had a risk assessment in place with 124 patients identified as high risk.

After changes were implemented, the percentage of high-risk patients who have had a HbA1c test performed in the last 12 months increased from only 33% to 73%. There was a slight improvement on lifestyle intervention for patients with an increased HbA1c (baseline = 0%; re-audit = 28%).

Of the 47 patients with a high HbA1c, 32 had a HbA1c level between 42–47 mmol/mol and 15 had a HbA1c level of 48 mmol/mol and above. This re-audit has also identified four patients with pre-existing diabetes who were not previously put on the diabetes register, two newly diagnosed patients and nine patients with a HbA1c of more than 48 mmol/mol to be reviewed by the GP.
Conclusion

Continued patient education and training for healthcare professionals should be undertaken to improve the outcomes of patients who are at high risk of developing diabetes. Implementation of sustainable change such as automated alerts in identified high-risk patients will warrant prompt review by the healthcare professionals. The diabetes prevention programme as recommended by the NICE guideline should be better utilised in ensuring preventative measures and matched interventions are provided timely.

Conflict of interest statement

None declared.

References

Regular monitoring with stool chart prevents constipation, urinary retention and delirium in elderly patients: an audit leading to clinical effectiveness, efficiency and patient centredness

Authors: Tun Zan Maung and Kanwaljit Singh
University Hospitals Birmingham NHS Trust, UK

Introduction

Monitoring patients’ bowel habits is very important in geriatric wards. Constipation in elderly patients may result in urinary retention, delirium and bowel obstruction. However, there was a concern that bowel monitoring might have been missed and that documentation in stool charts was occasionally not completed in busy medical wards. We carried out the study to assess the quality of bowel monitoring with the Bristol Stool Chart. The standard is that every elderly patient should have bowel monitoring with the stool chart every day. The stool chart must be fully documented. The compliance must be 100%.

Methods

Inclusion criteria: every elderly patient admitted to Frailty Unit of Good Hope Hospital.

The first study was performed in November 2017. After the intervention, the audit was repeated in January 2018 to reassess the situation. We looked into three domains: whether it was documented, the quality of documentation and medical review of the chart.

Data was collected retrospectively from nursing and medical notes.

As intervention, a small group training of nursing staff was arranged to improve stool chart monitoring in elderly patients. Audit was presented at the weekly elderly care meeting.

Results and discussion

The first audit showed compliance of 85% in documentation, 75% in eligibility and 90% in medical review. We also noted one patient got urinary retention due to constipation and needed to be catheterised. Another had delirium due to constipation. During the study, we found out that many nurses were not aware of the importance of proper stool chart monitoring in elderly patients.

After the intervention, we could see an improvement with compliance of 91% in documentation, 93% in eligible documentation and 91% in medical review. No patient had urinary retention and delirium due to constipation.

Conclusion

Although we could see an improvement in documentation, we still need to continue educating nursing staff and junior doctors to get 100% compliance of stool chart monitoring. We are also planning to repeat the audit in regular cycles in the future.

Conflict of interest statement

None declared.
Systematic literature review investigating whether methotrexate causes chronic pulmonary fibrosis

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St Helens and Knowsley Trust Hospitals, UK

Introduction
Methotrexate is a treatment widely used in many medical conditions. It is highly effective especially in conditions such as rheumatoid arthritis (RA) and psoriasis. Methotrexate is associated with a potentially fatal acute methotrexate pneumonitis. In regards to chronic lung complications, three case reports with a total of four patients have suggested a link between methotrexate and chronic lung fibrosis. Subsequent longitudinal studies have refuted this claim. The aim in this study is to undertake a systematic literature review to evaluate the published evidence on whether methotrexate causes chronic interstitial pulmonary fibrosis in humans.

Methods
The preferred reporting items for systematic reviews and meta-analyses (PRISMA) checklist for systematic reviews was followed. The review was registered with Prospero. Electronic searches were performed using scientific literature databases for articles relating to methotrexate use and chronic pulmonary fibrosis. Literature searches were performed by two investigators in two stages. Non-English, non-human and all other methotrexate complications apart from interstitial lung fibrosis were excluded from this study. Data collected were subsequently separated into two groups (one supporting and one rejecting the claim of methotrexate-induced pulmonary fibrosis). Articles in each group were analysed based on their level of evidence using Oxford (UK) and Downs and Black quality scoring. Risk of bias was assessed with the risk of bias in non-randomized studies of interventions (ROBINS-I) assessment tool.

Results and discussion
A total of 22 articles met the inclusion criteria, 11 articles were found to support the claim that methotrexate causes pulmonary fibrosis and another 11 found otherwise. It was found that 63% the articles from the supporting groups were published before the year 2000. Articles in the supporting papers are of a low Downs and Black score (<6/27) and are at a serious-to-critical level of bias. They contain three case reports/series and seven review articles.

With regards the articles in the rejecting group, they are higher scoring on the Downs and Black score and have only low-to-moderate risk of bias. They contain cohort studies, one review article and two meta-analyses of randomised controlled trials of methotrexate. The study populations in the meta-analyses contained 1,630 and 8,584 patients. The most recent cohort study where 52/78 RA–interstitial lung disease (ILD) patients were treated with methotrexate: methotrexate treatment was actually associated with a statistically significant improved survival.

Conclusion
Our systematic literature review found high-quality unbiased evidence that methotrexate does not cause chronic pulmonary fibrosis in humans. In patients with RA, chronic pulmonary fibrosis is due to the underlying disease and not methotrexate. It is important to now address this across all disciplines and reject the hypothesis that methotrexate causes chronic pulmonary fibrosis as it is resulting in patients having their methotrexate therapy withdrawn without any quality evidence base to support that clinical decision. It is possible that methotrexate treatment may actually improve outcomes in RA–ILD patients which is an area for further research.

Conflict of interest statement
None declared.
References

The frailty flying squad: implementing a front door service

Authors: Aishwarya Desai, Donna Thomas, Katharine Abbott, Olivia Maskell, Katie Rainey and Jarrod Richards
Southmead Hospital, North Bristol NHS Trust, UK

Introduction

Frailty is an important geriatric syndrome characterised by ageing-associated declines in reserve and function across multiple physiologic systems.\(^1\) Appropriate management of frailty within secondary care is crucial, particularly in the context of acute hospital admissions.\(^2\) This was a pilot study within Southmead Hospital implementing a frailty ‘front door’ team based within the emergency department (ED) and acute medical unit (AMU).

Methods

This pilot ran over 8 weeks and consisted of a team with a consultant geriatrician, advanced nurse practitioners (ANPs) and therapy support. Patients were selected from the medical referral list and direct review of ED patients which were deemed appropriate by the consultant geriatrician or ANPs. A multifaceted clinical review was carried out including falls assessment, cognitive assessment and selected advanced care planning.

Results and discussion

A total of 42 patients were seen over the 8-week period with an average Rockwood Clinical Frailty Score of 6. The majority of patients were seen in ED (62%) followed by AMU (33%) and direct GP referrals (5%).

The same day discharge rates were 66% for the patients reviewed. Of note 93% of these patients had already been referred to medicine for acute admission. The readmission rate in the group was 14%. The most common presenting complaint was ‘fall’ (71%). All patients underwent cognitive assessment and there was an average of 0.55 medications stopped per patient.

The average length of stay (LOS) was 4.4 days for the patients who were admitted. There were three patients who had complex needs and subsequently an increased LOS of 8, 8 and 12 days. Excluding these patients, the average LOS was 2.4 days compared with the pre-existing LOS on the short stay care of elderly ward which was 4.8 days. The potential cost savings with this service remain to be accurately calculated but are significant.

Conclusions

The introduction of this pilot has reduced admission rates of frail elderly patients and LOS. It remains ongoing and we intend to increase resources (ANPs, therapists and consultant) to help meet demands of admissions. We have a wide range of patient stories with successes in family discussion and primary care liaison. Other successful services have used a dedicated ‘silver phone’ for patients to provide post discharge advice if required.\(^2\) The overall aim is to create a dedicated area to review identified patients from ED, AMU and GP referrals with closer operation with ambulance services.

Conflict of interest statement

None declared.
References


What is the outcome of thrombolysing stroke patients in Gwent, Wales?

Authors: Amer Jafar, Pak Tsu Yu Eunice, Anthony Wijaya and Aisling Sweeney

Aneurin Bevan University Health Board, Wales; Cardiff University Medical School, Wales, UK

Introduction
Stroke is the third most common cause of death and a major cause of disability worldwide. The benefits of thrombolysing ischaemic stroke patients outweigh the risks within the time window of <4.5 hours of the symptoms presentation. This study was to analyse the data regarding the outcome of thrombolysing stroke patients in Gwent, after centralising the stroke thrombolysing service in south-east Wales.

Methods
Retrospective databases during 2016 to 2018 were reviewed for neurological outcome after 3 months in relation to demographics, door-to-computed tomography (CT) time, door-to-needle time, type of stroke and the discharge destination. Univariate and multivariate analyses were performed.

Results
Of the total 1,748 patients, 262 were excluded as they were diagnosed with brain haemorrhage. Another 87 patients were excluded as they were stroke mimics. We thrombolysed 13.7% of stroke patients with an average age for both sexes of 72.3 years. The average age for the female patients was 75 years, while that for male patients was 69 years. The average door-to-CT brain time was 38 minutes, while the average door-to-needle time was 85 minutes. The majority of the thrombolysed patients were partial anterior circulation infarct (PACI) (62.7%). The majority of patients went home (77.6%) after thrombolysis with an average length of stay of 8 days in the acute stroke ward. The mortality rate was 17%. More male patients died after thrombolysis than female, but the difference was non-significant. The average Modified Rankin Scale (MRS) for patients who went home was 2.

Conclusion
This is probably the first report to show independent improvement in outcome of thrombolysing ischaemic stroke in Gwent. With the clinical future strategy of the Aneurin Bevan Health Board, we expect further improvement in the outcome and higher rate of thrombolysing stroke patients in Gwent. We need to intensify our efforts to engage the primary care doctors and the public to increase the awareness of the thrombolysis service.

Conflict of interest statement
None declared.
Virtual clinics in the present – a predictor for the future?

Authors: Tina Parish, Maathu Ratnaraj and Tazeen J Ahmed

A St George’s University of London, London, UK; B Croydon University Hospital, Croydon, UK

Introduction

There is great interest in non-face-to-face (F2F), internet or app based outpatient interaction at the moment. As these become established, we look at the non-F2F appointments already happening in telephone and virtual clinics in a busy urban rheumatology department. Here we look at the type of diagnoses dealt with in a non-F2F environment and potential outcomes from these non-F2F appointments.

Materials and methods

Data was collected from electronic (Cerner) patient records on 240 patients who had a virtual appointment in May 2018. The data was analysed using MS Excel 2010.

Results

Two hundred and forty patients had virtual appointments in 1 month; 121 (50.4%) were via telephone and 119 (49.6%) via patient letter; 34 (14.1%) patients had multiple virtual/telephone appointments; 129 (54%) were carried out by consultants, 78 (32%) by nurses and 33 (14%) by registrars; 37% had rheumatoid arthritis; 32 (13%) appointments lead to a prescription. Virtual appointments produced 44 referrals, including 18 to another specialty, 16 to physiotherapy and the rest to hand therapy or podiatry. Most patients had an F2F appointment before and after their virtual appointment in May 2018, one patient had died before having a second F2F appointment and 13 (5%) were discharged from their virtual appointment.

Conclusion

Consultants undertook the bulk of virtual clinics, and these appointments resulted in the majority of referrals and prescriptions. Virtual appointments reduce the waiting times for contact with a healthcare professional between appointments. Many patients had several virtual appointments between F2F appointments and this cohort may benefit from more scrutiny. Current technology already improves communication and leads to significant changes in patient care without requiring F2F appointments. Internet based and app based interaction should face the same scrutiny.

Table 1. The mean number of days between each type of appointment

<table>
<thead>
<tr>
<th>Mean number of days between appointments</th>
</tr>
</thead>
<tbody>
<tr>
<td>From 1st face-to-face to virtual appointment</td>
</tr>
<tr>
<td>From virtual to 2nd face-to-face appointment</td>
</tr>
<tr>
<td>From 1st face-to-face to 2nd face-to-face appointment</td>
</tr>
</tbody>
</table>
What is the clinical effectiveness and cost-effectiveness of using digital health technologies to improve treatment adherence and outcomes in patients with tuberculosis?

Authors: Kartik Kumar and Saira Ghafur

Introduction

Non-adherence to tuberculosis (TB) therapy increases the risk of treatment failure, leading to poor clinical outcomes and a significant financial burden to healthcare services. Digital health technologies may offer innovative solutions to this, but studies evaluating their utility remain sparse. To address this research gap, a systematic review was undertaken to evaluate the existing evidence for the clinical effectiveness and cost-effectiveness of using digital health technologies to improve TB treatment adherence and clinical outcomes.

Materials and methods

Articles were retrieved by systematically searching MEDLINE, EMBASE, Web of Science, Scopus, CENTRAL, ClinicalTrials.gov, World Health Organization (WHO) Clinical Trials Registry Platform, WHO publications and the grey literature. Technologies under consideration were short message service (SMS), smartphone applications, medication monitors, video observed therapy (VOT), ingestible sensors with wirelessly observed therapy (WOT) and social media platforms. Studies were included if they were randomised controlled trials (RCTs), observational studies with controls or economic studies. Primary outcome measures were treatment adherence, cure, treatment completion, treatment failure, loss to follow-up and treatment success, as defined by WHO. A further outcome measure of interest was any related cost or cost-effectiveness data.

Results and discussion

4,044 records were initially identified. After removal of duplicate records and articles unrelated to either TB or digital health technologies, 111 records remained. Of these, 16 articles were eligible for inclusion in the qualitative analysis.

SMS

Compared to directly observed therapy (DOT), one-way SMS improved TB treatment completion but did not improve treatment success or cure rates. The remaining one-way SMS studies and all the two-way SMS studies did not demonstrate significant improvements in adherence or outcomes. An economic study on SMS use in TB care demonstrated an incremental cost-effectiveness ratio of 350 ‘international dollars’ per disability adjusted life year.

Smartphone applications

The one study on smartphone applications did not demonstrate an improvement in TB treatment outcomes. No evidence was available regarding cost-effectiveness.

Medication monitors

Medication monitors may improve TB cure rates compared to DOT and, when used alone or in conjunction with SMS, they may decrease treatment non-adherence rates, but they did not affect treatment failure rates, death or loss to follow-up when compared to standard self-administered treatment or DOT. A cost minimisation analysis projected lower costs per patient when using medication monitors compared to DOT.
VOT
VOT did not improve TB treatment completion rates compared to DOT.\textsuperscript{12,13} Economic studies suggested that VOT may be associated with cost savings.\textsuperscript{13–16}

Ingestible sensors with WOT
No eligible studies were identified regarding the clinical effectiveness of WOT in TB treatment. One economic modelling study suggested that using WOT may lower costs compared to DOT.\textsuperscript{17}

Social media platforms
No eligible studies were identified regarding the clinical effectiveness or cost-effectiveness of using social media platforms in the management of TB.

Conclusion
There is currently insufficient evidence available on the clinical effectiveness and cost-effectiveness of using these digital health technologies to improve TB treatment adherence and outcomes. These findings will be of relevance to health policymakers who determine how best to invest in resources for TB control and to healthcare providers seeking to establish which technologies may be of value at a local level. The paucity in evidence means that, at present, policymakers cannot make definitive evidence-based decisions regarding wider implementation of these technologies. Further robust studies are needed, particularly in regions with the highest TB burden.

References


Transitional care intervention effects on mortality and healthcare utilisation: a systematic review of pragmatic trials

Authors: Shawn CW Ng, Yu H Kwan and Lian L Low

Duke-NUS Medical School; Singapore General Hospital

Introduction

Transitions in care for patients with chronic conditions are often complex, leading to increased mortality and healthcare utilisation. Systematic reviews on effectiveness of transitional care (TC) interventions are inconclusive and none to date have examined pragmatic randomised controlled trials (RCTs) specifically. We aimed to determine the effectiveness of the components of TC interventions on mortality and healthcare utilisation.

Materials and methods

We conducted a systematic review to determine the effectiveness of TC interventions for patients suffering from one or more chronic diseases following the preferred reporting items for systematic reviews and meta-analyses criteria. RCTs were identified through PUBMED, Cochrane and EMBASE (1960–2018). Two independent reviewers performed the study selection, pragmatic scoring (using PRECIS-2 tool) and data extraction.

Results and discussion

Out of 13,918 articles, 37 pragmatic RCTs were reviewed. TC interventions improved mortality and/or hospital readmission in most of the articles (n=33). Education, structured telephone support and home visits were the most commonly used and were a demonstrably effective intervention. Case management and discharge planning however showed poor evidence of effecting positive health outcomes. Medication reconciliation, in contrast to reviews that studied non-pragmatic trials, also showed poor evidence for positive health outcomes. To our best knowledge, this is the first review that examined the effectiveness of TC interventions in pragmatic trials, demonstrating the difference that an analysis of pragmatic trials, as opposed to explanatory trials, can have on health outcomes.

Conclusion

TC interventions improve transitions of care and should be incorporated in discharge processes, especially education, telephone and/or home visit follow-ups. Case management, discharge planning and medicine reconciliation however should be applied with caution in designing future TC interventions. Additionally, future research into transitional care should take pragmatism into consideration to better inform policy makers and clinicians on its real world effects.
The role of the specialist physiotherapist in ambulatory emergency care; leading on developing the frailty pathway in the ambulatory assessment unit at the John Radcliffe Hospital, Oxford

Authors: Beverley Greensitt, Jordan Bowen, Sudhir Singh, Leila Vaziri, Anuja Bambarvajane, James Price and Mridula Rajwani

Introduction

Background
The Future Hospital Commission report recommended ambulatory care by default for all acute presentations. The ambulatory assessment unit (AAU) at the John Radcliffe Hospital aims to provide excellent care for complex patients with varying range of medical presentations. It sees over a 30% of the acute take in a 24-hour period (50% in operational hours), with over 40% of AAU patients over the age of 70. Staff feedback consistently identified a suboptimal service provided to the frail group within this patient cohort. A dedicated physiotherapy post was appointed in October 2018 to address this.

Aim

- Early identification patients with frailty on the ambulatory unit.
- Improve staff understanding of frailty, assessment and referral.
- Support plan in the community for patients with follow-up.
- Influencing admission rate in this group of patients.

Materials and methods

- Frailty staff questionnaire to ascertain baseline understanding and learning needs.
- Introduction of frailty identification tool as per trust guidance.
- Raise staff and patient awareness of available services within the community to support patients.
- Data collection to review interventions taken, bed days saved and re-admission rates.

Results

In a 2-month period following introduction of the service, 76 new patients were seen; 89% were discharged on the same day; 17% had admission avoidance directly due to therapy intervention; 28% and 14.5% of referrals were referred to community therapy and nursing, respectively and 66% of patients were provided with information on service available. The re-admission rates within 7 days and 30 days were 3% and 1.3%, respectively. Staff surveys have felt that the introduction of the service has improved the care to this group of patients. Over this short period, the number of bed days saved were 26 with a significant cost saving overall.

Conclusion

The introduction of a dedicated therapy service to an ambulatory setting has shown to have a role in influencing admission and the care provided to frail patients. There is still room for further education and potentially increasing capacity of the service by expanding the workforce.

Reference

The effect of prehospital epinephrine in out-of-hospital cardiac arrest: a systematic review and meta-analysis

Authors: Wan Y Teoh, A and Ka T Ng B
AUniversity of Liverpool; BUniversity of Malaya

Introduction

Epinephrine has been recommended for out-of-hospital cardiac arrest (OHCA) resuscitation for nearly a century, but its efficacy and safety remain unclear in the literature. The primary aim of this review was to determine whether epinephrine increases the return of spontaneous circulation in OHCA patients.

Method

We conducted a systematic review and meta-analysis using the following databases: MEDLINE, EMBASE and CENTRAL from their inception until October 2018. All the randomised controlled trials (RCTs) were included. Observational studies, case reports, case series and non-systematic reviews were excluded.

Main results

Two trials including 8,548 patients were eligible for inclusion in the data synthesis. In patients who received epinephrine during OHCA, the incidence of return of spontaneous circulation was increased, with an odds ratio (95% confidence interval (CI)) of 4.25 (3.79–4.75), p<0.001, high quality of evidence. The number of patients transported to hospital was increased in patients who had prehospital epinephrine, with an odds ratio (95% CI) of 2.31 (2.11–2.53), p<0.001, high quality of evidence. The prehospital use of epinephrine was associated with an increased survival to hospital discharge, the odds ratio (95% CI) being 1.43 (1.10–1.87), p=0.008, moderate quality of evidence. No significant effect was noted on the favourable neurologic state of patient at hospital discharge, with an odds ratio (95% CI) of 1.21 (0.90–1.64), p=0.21, moderate quality of evidence.

Conclusions

In summary, this meta-analysis suggests that the prehospital use of epinephrine increases return of spontaneous circulation, transport of patients to hospital and survival to hospital discharge for OHCA. However, no significant effects on favourable neurologic function at hospital discharge were demonstrated. The general quality of evidence ranged from moderate to high.
A mixed methods study of the policy and practice of private patient care in acute NHS trusts in England

Author: Sarah Walpole

Newcastle Hospitals

Background

Between 2012/13 and 2015/16 there was a 12% real terms increase in NHS trusts’ earnings from private patients (PPs). Approximately 1% of NHS beds are set aside for PP occupancy. Little is known about the impacts of NHS trusts’ policies and practices in relation to PP treatment.

The aim of this study was to explore NHS trusts’ management of PPs and health professionals’ experiences, knowledge and perceptions regarding NHS PPs.

Methods

Documentary analysis of national guidance, local guidelines from three NHS trusts and published market reports informed the development of freedom of information (FOI) requests about NHS PP care. FOI requests were sent to all 153 acute NHS trusts, asking for data on their PP activity (including income and expenditure) and procedures for calculating tariffs for PPs.

An interview pro forma was developed and refined based on feedback from health policy experts. Interviews were carried out with 17 NHS staff members from varied professions, specialties, levels of experience and geographical places of work. Interviews were transcribed and then analysed using thematic analysis.

Results

Of 153 NHS trusts, 102 responded to the FOI request. Thirty-six gave figures for the expenditure, 23 providing data on administration costs and 13 provided data on capital costs associated with PP treatment. Most trusts responding did not hold the information or could not isolate expenditure on PP treatment from expenditure on NHS patients; a minority stated that they were not willing to release the data due to commercial sensitivity.

Of 78 trusts who gave information about their approach to tariff setting for PPs, 29% calculate the cost of providing the treatment, compared to 10% who agree a tariff with insurance companies, 3% set a price based on market rates, and 29% who set prices by adding a mark-up to NHS national tariffs.

Thematic analysis of interviews yielded five themes.

- Impacts on availability of resources: prioritisation of PPs over NHS patients, increased time required to treat PPs and for administration related to PPs and investment in resources for use with PPs.
- Patient safety impacts: potential risks when PPs are prioritised on NHS wards, quality in PPUUs and deviation from protocols when treating PPs.
- Impacts on training: PPs providing less training opportunities and consultants leading PP care.
- Recuperation of costs: lack of awareness of clinical staff about PP protocols, lack of awareness of clinical staff of which patients are private, PP office awareness of PP admissions and variable approaches to tariff setting and billing for PPs.
- Direction setting: various opinions of clinical staff about whether PPs should be seen in the NHS, motivations of trusts to permit private practice including retention of skilled consultants and health professionals being obligated to support the treatment of PPs.
Conclusions

NHS trusts vary widely in the extent to which they permit or encourage PP care and approaches to cost measurement and recuperation. NHS professionals’ insights into realities of NHS PP care delivery and related concerns, eg patient safety and resource allocation impacts, are valuable for health policy development and implementation.

References

A rheumatology based ultrasound service in clinical practice – results from a busy urban early inflammatory arthritis service

Authors: Maathu Ratnaraj,A Tina ParishA and Tazeen AhmedB

A St George’s University of London; B Croydon University Hospital

Introduction

The use of ultrasound (US) scans within a rheumatological setting has been increasing significantly over the past 10 years due to its ease of use and access compared to magnetic resonance imaging. Most published studies are set in a research setting with a structured emphasis on clinical diagnoses and outcomes. Here we look at real world data from an established rheumatology based US service which supports an early inflammatory arthritis service. The aim of this study was to look at the utilisation and outcomes of the rheumatology based US service in a busy urban general rheumatology department.

Materials and methods

The study sample included 141 patients who were referred for a US scan from March to August 2018; data was collected from electronic patient records (Cerner). Data was analysed using MS Excel 2010.

Results and discussion

76.6% of patients were referred for a US scan for a synovitis screen. 54% of scans were conducted on the hands and wrist of patients. 6.4% of these patients were anti-cyclic citrullinated peptide positive and 22% were rheumatoid factor positive. 18% of scans led to a diagnosis of inflammatory arthritis, 9% psoriatic arthritis and 3% rheumatoid arthritis. 35% were diagnosed with osteoarthritis. 23% had further investigations recommended after the scan. Most US scans led to a therapeutic outcome, see Table 1.

Conclusion

The majority of scans supported a diagnosis of inflammatory arthritis and a fifth required further investigations. This study shows that US is an important tool in the assessment of inflammatory arthritis but is often not sufficient in itself to provide a complete diagnosis. However, the US service does provide useful outcomes where there is diagnostic dilemma.

Table 1. Outcomes from the rheumatology ultrasound scan appointment

<table>
<thead>
<tr>
<th>Outcome of scan</th>
<th>Percentage of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start DMARD</td>
<td>26</td>
</tr>
<tr>
<td>Same DMARD</td>
<td>2</td>
</tr>
<tr>
<td>Stop DMARD</td>
<td>1</td>
</tr>
<tr>
<td>Referral to physiotherapy</td>
<td>14</td>
</tr>
<tr>
<td>Referral to hand/feet therapy</td>
<td>7</td>
</tr>
<tr>
<td>Others</td>
<td>13</td>
</tr>
<tr>
<td>Did not attend</td>
<td>3</td>
</tr>
<tr>
<td>None of the above</td>
<td>34</td>
</tr>
</tbody>
</table>

DMARD = disease-modifying anti-rheumatic drug.
An analysis of mechanical thrombectomy services for patients with acute ischaemic stroke at the Walton Centre

Authors: Nibu Thomas, Alekendu Sekhar and Amanda Brickstock

Aintree University Hospital; The Walton Centre NHS Foundation Trust; Liverpool University

Introduction

Mechanical thrombectomy is clot retrieval procedure that aims to restore normal blood flow to the brain using a device to remove the blood clot blocking the artery. In the UK, there are currently 28 centres performing thrombectomy but only one centre offers the procedure 24-hours a day. The National Institute for Health and Care Excellence (NICE) guidelines have updated literature suggesting thrombectomy should be offered to patients ≤ 24 hours after onset of symptoms compared to current 12-hour recommendations. We looked at our local thrombectomy service in the Walton Centre, Liverpool which is provided from 07.00 to 17.00 every Monday to Friday.

Methods

Data was collected retrospectively (n=48) on patients transferred for thrombectomy to the Walton Centre between May 2017 to September 2018. The patients included were from Merseyside (n=42) and north Wales (n=5), unknown (n=1). The age of patients ranged from 17 to 88 with mean of 69.5. We looked at age, onset to arrival at first hospital, arrival at 1st hospital to 1st brain imaging, computed tomography (CT) to CT angiogram, arrival at 1st hospital to procedure start, onset to procedure start, onset to procedure end, duration of procedure, device type, anaesthetic, National Institutes of Health Stroke Scale (NIHSS) at referral/referring hospital/24 hours, thrombolysis in cerebral infarction pre/post intervention, date of procedure, outcome, hyperdense vessel sign and Alberta stroke programme early CT (ASPECT) score.

Results and discussion

Stroke severity is best measured using NIHSS score, this was collected on arrival at the Walton Centre and 24 hours post procedure (Table 1). It was also compared in patients alive and deceased.

Timing intervals

Timing intervals are extremely important in providing the best clinical outcome (Table 2). They are an area that can be continually enhanced to provide best patient care and ensure that successful recanalisation following thrombectomy is achieved.

Imaging

CTs are used in stroke in order to assess for a hyperdense vessel sign (HVS), ASPECT score and tissue viability. The HVS was found in 34, 10 did not and four were unknown. Thirteen had an ASPECT score of <7, 33 with a score of 7–9 and zero with a score of 10. The minimum score was 6 and maximum was 9 with a mean of 7.5. Table 3 shows the ASPECT score and HVS combined.

Recanalisation

Fig 1 shows 48 thrombolysis in cerebral infarction (TICI) scores pre/post intervention with thrombectomy.
Problems after thrombectomy

No recording was made on patient incidence of significant intracerebral haemorrhage but CT was performed within 36 hours of thrombectomy at the Walton Centre unless the patient had died or they did not receive thrombectomy. After stroke/thrombectomy the data showed that 16 patients died, mean = 72.93. The time of death is shown in Table 4; however, cause of death has not been documented.

Conclusion

The aim of any intervention including thrombectomy in acute ischaemic stroke patients is to improve patients’ quality of life (QoL) and mortality. The modified Rankin Scale data were missing in the data set, for future studies this scoring could be provided in order to have more evidence for QoL after stroke.

The Walton Centre data show that the majority of patients who had thrombectomy (n=33) had an ASPECTS between 7–10. However, three had a score ≤5. Sixty-six per cent of these patients died within 10 days after thrombectomy. None had an ASPECTS of 10, perhaps a score of this magnitude is so severe that thrombectomy would not improve outcomes. Thirty-four had a hyperdense vessel sign compared to 10 without. This could be a potentially important trigger for which patients should receive thrombectomy.

The Walton Centre data show 36 (75%) had a TICI score of ≥2b after procedure compared to none before intervention. Although some patients remained at scores of 0 (n=4), 1 (n=2) and 2a (n=6), there is clear indication that the Walton Centre is producing successful results after recanalisation and is therefore selecting the right patients for mechanical thrombectomy.

References

Table 1. National Institutes of Health Stroke Scale scores on arrival and 24 hours post procedure

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIHSS on arrival</td>
<td>17.8</td>
<td>7</td>
<td>29</td>
</tr>
<tr>
<td>NIHSS 24 hours post procedure</td>
<td>14</td>
<td>0</td>
<td>34</td>
</tr>
</tbody>
</table>

Two were unknown for NIHSS on arrival and 20 were unknown for NIHSS 24 hours post procedure. NIHSS worsened in four patients at 24-hour review. NIHSS = National Institutes of Health Stroke Scale.

Table 2. Time intervals from Walton Centre data in minutes

<table>
<thead>
<tr>
<th>Time interval</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset to arrival at first hospital</td>
<td>85.04</td>
<td>0</td>
<td>420</td>
</tr>
<tr>
<td>Arrival at 1st hospital to 1st brain imaging</td>
<td>32.06</td>
<td>8</td>
<td>120</td>
</tr>
<tr>
<td>Arrival at 1st hospital to procedure start</td>
<td>218</td>
<td>108</td>
<td>552</td>
</tr>
<tr>
<td>Arrival at Walton Centre to procedure start</td>
<td>24.03</td>
<td>5</td>
<td>74</td>
</tr>
<tr>
<td>Onset to procedure start</td>
<td>306.39</td>
<td>125</td>
<td>980</td>
</tr>
<tr>
<td>Duration of procedure</td>
<td>51.23</td>
<td>16</td>
<td>125</td>
</tr>
</tbody>
</table>

For onset to arrival at first hospital the 2nd longest patient was 232 minutes, the average after accounting for this was mean = 75.93. For arrival at Walton Centre to procedure start, 18 were not known and five did not have the procedure performed.

Table 3. Alberta stroke programme early computed tomography score and hyperdense vessel sign

<table>
<thead>
<tr>
<th>Patients with/without hyperdense vessel sign in correlation with ASPECT score</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPECT score &lt;7</td>
<td>10</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>ASPECT score = 7–9</td>
<td>23</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>ASPECT score = 10</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

ASPECT = Alberta stroke programme early computed tomography.

Table 4. Deaths of patients after stroke/thrombectomy in days

<table>
<thead>
<tr>
<th>Day</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3 days</td>
<td>2</td>
</tr>
<tr>
<td>4–7 days</td>
<td>6</td>
</tr>
<tr>
<td>8–10 days</td>
<td>4</td>
</tr>
<tr>
<td>11–30 days</td>
<td>1</td>
</tr>
<tr>
<td>&gt;30 days</td>
<td>3</td>
</tr>
</tbody>
</table>
RESEARCH AND INNOVATION

A HaemSTAR-led, UK-wide ‘flash-mob’ audit of intravenous immunoglobulin use in immune thrombocytopenia


A University Hospitals Birmingham NHS Foundation Trust; B University of Birmingham; C Leeds Teaching Hospitals NHS Trust; D University Hospital of Wales; E Barnsley District General Hospital; F Blackpool Victoria Hospital; G Bradford Teaching Hospitals NHS Foundation Trust; H Bristol Royal Infirmary; I Cambridge University Hospitals NHS Foundation Trust; J Forth Valley Hospital; K Frimley Health NHS Foundation Trust; L Gateshead Health NHS Foundation Trust; M Gloucestershire Hospitals NHS Foundation Trust; N Greater Glasgow and Clyde NHS Trust; O Guy’s and St Thomas’ NHS Foundation Trust; P Kings College Hospital NHS Foundation Trust; Q Heartlands Hospital, Birmingham; R Homerton University Hospital Trust; S Imperial College Healthcare Trust; T London North West University Healthcare NHS Trust; U Mid Yorkshire Hospitals NHS Trust; V Milton Keynes University Hospital NHS Foundation Trust; W Newcastle upon Tyne Hospitals NHS Foundation Trust; X Newham University Hospital; Y North Bristol NHS Trust; Z Northampton General Hospital; AA Oxford University Hospitals NHS Foundation Trust; AB Queen’s Hospital, Romford; AC Royal Devon and Exeter Hospital; AD Royal United Hospitals Bath NHS Foundation Trust; AE Russells Hall Hospital, Dudley; AF Salford Royal Hospital; AG South Tees Hospitals NHS Foundation Trust; AH St Helens and Knowsleys Teaching Hospitals NHS Trust; AI Great Western Hospital, Swindon; AJ The Royal London Hospital; AK Torbay and South Devon NHS Foundation Trust; AL University Hospitals of Leicester NHS Trust; AM University Hospitals Coventry and Warwickshire NHS Trust; AN University Hospitals of North Midlands NHS Trust; AO University Hospitals Plymouth NHS Trust
Introduction

Intravenous immunoglobulin (IVIg) is a common therapy for patients with immune thrombocytopenia (ITP). The initial response rate for IVIg is 80%\(^1\) and is typically rapid, with some patients responding in 24 hours, although usually in 2–4 days.\(^2\) When IVIg is used alone, the response is relatively short, averaging around 2–4 weeks. Potential side effects include headache, renal failure, thrombosis and transfusion-transmitted infection. The cost of IVIg is significant, averaging £400 for 10 g.\(^3\) Historic dosing regimens for IVIg are either 1 g/kg/day for 1–2 days or 0.4 g/kg/day for 5 days.\(^4\) There are data to suggest an increased likelihood of response with 1 g/kg/day for 1–2 days than with 0.4 g/kg/day for 5 days.\(^5\) Recent guidance from NHS England recommends 1 g/kg for 1 day, with a second dose of 1 g/kg at 7 days only if there is failure to achieve a haemostatically adequate platelet count.\(^6\) Using the optimal dosing regimen is important for maximum efficacy, the avoidance of side effects and prudent healthcare.

HaemSTAR (Haematology Specialty Trainee Audit and Research) is a UK-wide network of clinical haematology registrars that is supported by the National Institute of Health Research (NIHR) Haematology Clinical Research Network (CRN). We have members in each NIHR Local CRN who coordinate local research activity and involvement of other participants as is needed. Our overarching aim is to promote clinical research in non-malignant haematology. One way that we intend to do this is by enabling effective transition of worthy local audits to a national scale.

Methods

This project aimed to audit the IVIg prescribing practices for treatment of ITP in the UK. Data from a 5-year period between 2013 and 2018 were eligible for inclusion. The primary outcome measure was the proportion of IVIg treatments that were dosed according to the 2011 American Society of Hematology guidelines.\(^4\) We also collected data on concomitant treatments and platelet count responses. We aimed to use this project to develop a generalisable methodology for future mass participation audits in non-malignant haematology.

With competitively won support of a data manager from the West Midlands Local CRN, we set up a data collection tool on a secure server running the Research Electronic Data Capture (REDCap) web application.\(^7\) With the help of our network, in late 2018, 134 collaborators across 39 hospital sites input data from the IVIg treatment episodes of 978 adult patients with ITP, over the course of just 80 days. This was all at no extra financial cost to the NHS.

Results and discussion

Nine hundred and fifty-six treatment episodes of IVIg were recorded with enough data for inclusion in the assessment of the primary outcome measure. Of these, 671 (70.2%) used the recommended dose of 1 g/kg/day, and 324 of these 671 (48.2%) were either given on a single day, or had a second dose after an adequate interval to allow for a response assessment. Three hundred and forty-seven (51.7%) treatments involved the use of additional doses given in a manner not endorsed by the guidelines; 324 had IVIg over two consecutive days, three were dosed over 5 days and 20 received a different dosing regimen. The platelet response following treatment with 1 g/kg on a single day was non-inferior to when IVIg was given over two consecutive days.

Not only do these data suggest that we may be spending more money than we should and exposing our patients to unnecessary risk by using significantly more IVIg than is recommended to treat ITP, but they also show that it is possible to collect valuable health data rapidly utilising minimal resources, by coordinating audit activity across the country with research networks such as HaemSTAR. We intend to repeat this national audit model annually with other important questions in haematology.
References


A study of views of spiritual care among junior doctors at a district general hospital

Authors: Dennis Poon, Wendy Yap, Nor Faizul Ahmad, Jia-Wei Tang, David Knight and Aditya Mandal
Lincoln County Hospital, Lincoln, UK

Introduction

Patients with advanced cancers are often admitted to hospitals for control of symptoms such as pain, nausea and vomiting. Exploring and addressing patients’ spiritual needs while they are inpatients is recognised as an essential part of comprehensive palliative care. Studies show that addressing patients’ religious and spiritual needs has a positive impact on their spiritual wellbeing and quality of life. However, in clinical practice most doctors do not usually address patients’ spiritual needs and have a limited involvement in their spiritual care. This aspect of care could be improved by active involvement and participation of local chaplaincy.

We undertook this study to determine awareness of chaplaincy service at our local district general hospital among the junior doctors working in adult medical and oncology wards, and also to assess their views on spiritual support in caring patients with advanced cancers.

Methods

Questionnaires were completed by junior doctors to explore their awareness of local chaplaincy services and views on spiritual and religious support in caring patients with advanced cancers. Newly admitted patients with advanced cancers who were either on palliative radio-chemotherapy or supportive management were identified across all general medical wards (excluding cardiology wards, stroke unit and acute admission unit) and the oncology ward over 1 month (1–31 March 2018).

Medical notes were reviewed prospectively to record patients who were offered spiritual and religious support, and also referred to the local chaplaincy services if they wished. Referrals received by the local chaplaincy services from these wards during the study period were also reviewed.

Results and discussion

There is a lack of awareness of local chaplaincy services among the junior doctors, and spiritual support is perceived as unimportant in caring patient with advanced cancers.

Thirty-five patients (17 male and 18 female) with advanced cancer were admitted over the 1-month period. Thirty-six admissions (17 in oncology, 19 in medical wards) were recorded, with one patient being admitted twice to the oncology ward. Thirty-three of the patients were white British (one Indian, one Romanian). Average hospital stay was 13 days.

Patients were admitted for pain control (n=11), weakness, falls and not coping at home (n=8), general deterioration from disease progression (n=5), jaundice (n=4), breathlessness (n=3), nausea and vomiting (n=1), seizures (n=1) and shingles (n=1). Two patients were repatriated to Lincoln following resections of brain tumours.

Twenty-two patients had a religious belief (18 Church of England, one Catholic, one Orthodox, one Spiritualist, one Hindu); 13 were atheists or had no religion. All except the Romanian patient spoke English.

Two patients were deemed to lack mental capacity during admission (one with an advanced brain tumour, one with acute delirium secondary to infection). No one had dementia. Two patients were started on the end-of-life care pathway during admission, and eight were seen by the palliative team while in hospital. Only one patient was documented to have been offered spiritual support by the medical team.
Chaplaincy received 14 referrals from both general medical wards and the oncology ward over the 1-month period. Referrals were mainly made by relatives and nurses, and none by a medical doctor.

**Conclusion**

Spiritual support is very occasionally offered by nurses to patients with advanced cancers during their hospital stay. Our study shows that doctors do not routinely offer these patients spiritual support from the local chaplaincy, and we found no difference between the medical and oncology teams. This is due to a significant lack of awareness of local chaplaincy services, and also spiritual support is not viewed as an important aspect of palliative care. Comprehensive palliative care teaching targeting at these areas for local junior doctors should improve the quality of care of patients with advanced cancers.

**References**

Analysis of the experienced-based design feedback data on a national scale

Authors: Sakib Rahman and Alice Clayton
Acute Frailty Network

Introduction

The Health Foundation has noted a 46% increase in the number of hospital admissions for those aged over 65 between 2005 and 2016. Many will be admitted through accident and emergency (A&E) and remain on an acute medical unit during their stay. The Acute Frailty Network (AFN) has been working on improving the care of older and frail people in these acute sites. The AFN have advocated the use of experience-based design (EBD) to collect feedback from patients, which then helps to shape and transform services around the needs of the patient. Although individual hospitals monitor their own EBD data, they had not yet been analysed on a national level. The project’s aim was to analyse the EBD data and determine general conclusions that future sites may wish to focus on when designing their services.

Methods

The EBD is a tool that looks at several aspects of an individual’s experience through hospital, from admission to discharge. There are eight key points (Fig 1). Our project analysed over 600 respondents who used the feedback tool to look at common themes in their responses.

Results

Across all the domains, the most common words used by patients were confusion, worry and unhappiness. Thirty per cent of respondents reported confusion on being admitted and on first assessment, and 10% expressed being confused with the communication. Twenty-one per cent expressed worry on being admitted, 26% on their first assessment and 16% on being discharged from an acute medical ward.

Discussion

The statistics and associated comments highlight that communication remains an issue for patients, particularly on admission, assessment and at discharge. A follow-up discussion with a patient focus group echoed these conclusions. Acute care services will need to look at their models of communication and ways to improve these in order to improve the quality of care that the frail older population receive in their departments.
Fig 1. EBD feedback example
Complex care liaison preoperative assessment clinic: a 1-year review

Authors: Emma Mitchell, Roisin Coary, Alethea Peters, Rebecca Winterborn and David Shipway
North Bristol NHS Foundation Trust

Introduction

Due to advances in surgical and anaesthetic techniques, the volume of older people undergoing surgery has rapidly increased. However, this patient group remains vulnerable to adverse postoperative outcomes, in particular to medical complications.

Comprehensive geriatric assessment (CGA) has been demonstrated to improve survival and to increase the chances of living independently following hospital discharge. When applied in a preoperative setting, using CGA for assessment and patient-specific optimisation can lead to a reduction in postoperative complications.

Aims

To describe the patient population attending this clinic and subsequent associated outcomes.

Methods

Clinic format incorporates aspects of CGA, including medical, functional and psychological assessments in addition to the use of risk prediction tools. Standardised action plans are initiated where patient risks are identified, for example nutritional optimisation or delirium prevention measures.

This study was a 1-year, retrospective cross-sectional analysis concerning all patients attending clinic in 2018. Case note review of electronic patient records was performed and data were inputted into Microsoft Excel.

Results and discussion

During 2018, 117 patients attended clinic. Ninety (77%) were male and the average age was 75 years (range 44–94 years). One hundred and two (87%) were referred from our vascular colleagues; these were predominantly referrals regarding patients with abdominal aortic aneurysms (47 (40%)) or critical limb ischaemia (37 (32%)).

Table 1. Patient characteristics: average and range

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<th>Range</th>
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</thead>
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<tr>
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<tr>
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<td>8</td>
<td>0–21</td>
</tr>
<tr>
<td>Exercise tolerance (METS)</td>
<td>3</td>
<td>1–7</td>
</tr>
<tr>
<td>Nutrition (MUST)</td>
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<td>0–8</td>
</tr>
<tr>
<td>Edmonton Frail Scale score</td>
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<tr>
<td>Cognition (MOCA)</td>
<td>23</td>
<td>2–30</td>
</tr>
</tbody>
</table>

Thirty-three of 80 (41%) patients with full datasets had a mortality risk of ≥5% (NSQIP); 10 (30%) of these went on to have surgery and four (40%) were managed postoperatively in intensive care.

Forty-seven (40%) patients underwent surgery. Twenty-one (45%) of these suffered complications and 19 (40%) were admitted to intensive care. Overall average length of stay was 3 days (range 1–48 days) and there were two (2%) inpatient deaths.

Conclusion
This patient group are comorbid, suffer polypharmacy and are vulnerable as measured by the Edmonton Frail Scale. Many have cognitive impairment. This clinic has the potential to identify comorbidities and/or manage pre-existing conditions that pose perioperative risks to patients and to therefore put in place action plans to limit these. It provides an opportunity to support decision-making surrounding surgical intervention and also has potential wider effects with regards to the benefits of shared decision making with patients.

References

Cortical oscillations as seizure markers in photosensitive epilepsy

Authors: Sanchita Bhatia, Megan Godfrey and Khalid Hamandi

Introduction

Photosensitive epilepsy (PSE) is the most common reflex epilepsy, where seizures are triggered by a visual stimulus denoted by a ‘photoparoxysmal response’ (PPR) on an electroencephalogram (EEG). PSE provides a reproducible model to investigate the changes in neuronal oscillatory networks leading to interictal to ictal transition, and understand the pathophysiology of epilepsy overall. The aim of this study is to investigate the interictal to ictal transition in PSE using intermittent photic stimulation (IPS) by analysing cortical oscillations on scalp EEG.

Methods

Clinical EEG data with IPS, a common clinical procedure used for investigation of epilepsy, were collected for patients with genetic generalised epilepsies (GGE), and two groups were established: one with photosensitivity and another without. These data were signal processed in Matlab, epochs of IPS were extracted, PPRs were identified, and segments of EEG signal preceding the PPR were extracted from the photosensitive group. Corresponding segments from the non-photosensitive group were extracted. The various frequency components of the signal underwent a Herbert transform to produce time–frequency spectra, and average power at the stimulation frequency band and its harmonics was calculated for the frontal and occipital EEG channels. Then, the phase clustering index (PCI) was calculated to compare the phase synchrony of neurons in the photosensitive group and non-photosensitive group.

Results and discussion

The following patient groups were included:

1. GGE with photosensitivity, 28 patients (mean±SD age 18±12 years)
2. Juvenile myoclonic epilepsy (a type of GGE), 26 patients (mean±SD age 22±8 years). The average power at the stimulation frequency was increased for both the occipital and frontal channels in the photosensitive group vs non-photosensitive, indicating that there is a greater degree of entrainment or locking of neuronal oscillation to the visual stimulus, albeit not statistically significant (frontal: p=0.1187, occipital: p=0.0595, unpaired t-test adjusted for multiple comparisons). There was also significantly increased phase clustering for frontal and occipital channels (channel F4: p=0.0195, F7: p=0.0174, O2: p=0.0174, unpaired t-test adjusted for multiple comparisons).

Conclusions

The enhanced phase synchronisation and degree of entrainment of neuronal oscillations can be used as potential biomarkers of epileptic transition in PSE. These results help understand mechanisms of underlying perceptual processes involved in the pathophysiological changes that occur in brain networks in epilepsy, to improve diagnosis and develop effective treatment in the future.

References


Diagnosis of giant cell arteritis in a large urban district hospital

Authors: Maria Jasim\textsuperscript{A} and Tazeen J Ahmed\textsuperscript{B}

\textsuperscript{A}St George’s University of London; \textsuperscript{B}Croydon University Hospital

Background

Giant cell arteritis (GCA) is a rare disease and the commonest of the vasculitides. Given the risk of sight loss, it is also a rheumatological emergency. The 1990 American College of Rheumatology (ACR) classification guidelines\textsuperscript{1} are often used as a guide to diagnosis, with an emphasis on age, erythrocyte sedimentation rate (ESR) and new headache. With new diagnostic modalities such as ultrasound and CT-PET scanning and the introduction of tocilizumab as a new therapeutic agent, we felt it important to look at current clinical diagnosis of this condition.

Methods

Patient records coded with a diagnosis of giant cell arteritis, temporal arteritis or a temporal artery biopsy procedure over the period of June 2017 – June 2018 were identified from the electronic patient record. Forty-four patients were identified; of these, 24 were historical diagnoses. The data were collected retrospectively and analysed using Microsoft Excel 2010. The patients were classified into high- and low-risk categories using the local pathway criteria and a recently published gradation system.

Results and discussion

Twenty patients were identified in this 1-year period. The low number may be a reflection of local clinical coding. The average age was 72.6 years, 90\% were female and the commonest ethnicity was white British (30\%). Twenty-five per cent were seen by both neurology and rheumatology. Forty-five per cent were only seen by a neurologist. Fifteen per cent saw neither rheumatology nor neurology.

Only one patient had a positive temporal artery biopsy (17 out of 20 underwent biopsy), so diagnoses were made clinically. Eighty-five per cent presented with headache, 65\% had scalp tenderness, 50\% had an ESR over 50 and 100\% were aged over 50 on presentation. Fifty-five per cent had visual disturbance on presentation. Sixty per cent had myalgic symptoms (14 out of 20 documented). Thirty-five per cent had systemic symptoms (eight out of 20 documented). Fifty per cent without documentation of systemic symptoms and 83\% without presence of polymyalgia-like symptoms documented had also not seen a rheumatologist.

Using the local guidelines, seven were graded as high risk (of these, two were given a GCA diagnosis), one as low risk (not diagnosed with GCA) and 12 as ‘clinically possible’ (eight diagnosed with GCA). Using the literary guidelines, 14 were graded as high risk (seven diagnosed with GCA) and six as low risk. Thirteen would have been classified with GCA according to the 1990 ACR guidelines,\textsuperscript{1} of whom seven were diagnosed with GCA. Further analysis is limited by the small sample size.

Conclusion

The number of patients assessed for GCA in this time period is lower than would be expected for the catchment population. Patients were seen by a variety of specialties, with not all following the local GCA pathway. The grading systems gave varying outcomes, showing the need for clinical acumen and specialist rheumatological input in the diagnosis of GCA. This is shown to be especially important as the majority of biopsies did not rule out temporal arteritis.

Reference

Effect of yoga therapy on patients with chronic musculoskeletal pain: a prospective randomised wait list-controlled trial

Authors: Neha Sharma, A PJ John, B Naveen Meghwal, C Amanda Owen D and Vandana Mishra E

A Yog-Kulam, UK; B University of Rajasthan, India; C Ananda Yoga, Hong Kong; D Bespoke Yoga, Australia; E NMP Medical Research Institute, India

Background

Musculoskeletal conditions are one of the most common causes of chronic non-malignant pain in adults. Continuous pain significantly impacts patients physiologically and psychologically, lowering their quality of life as well as imposing a financial burden.

We examined the efficacy of yoga therapy on patients with mild to moderate chronic musculoskeletal pain.

Methods

This was a randomised wait list-controlled trial conducted between between June 2013 and April 2015 at multiple centres. Eligible patients were aged 18–60 years; clinically diagnosed with musculoskeletal conditions including osteoarthritis, rheumatoid arthritis, low back pain, or joint/muscle pain; or chronic non-malignant pain with mild to moderate intensity. The primary efficacy endpoint was the change in box scale-11 pain scores. Secondary outcome included sleep quality and quality of life. Patients’ satisfaction was reported through a scale of 0–10 at the end of the intervention.

Results

A total of 98 patients completed the analysis. The mean box scale-11 had statistically significant improvement from baseline to 8 weeks, which was maintained until the end of the study week 16 (p<0.0001). Sleep quality improved to ‘good’ in 67% of patients. By week 8, the mean levels of functioning for all quality of life domains improved (p<0.001), which continued to improve by the end of week 16 (p<0.0001).

Conclusions

Yoga therapy provides effective pain relief as a 16-week treatment for patients with chronic musculoskeletal pain. More studies are needed to examine the long-term efficacy of yoga therapy.

References

Fifteen-year follow-up of patients with critical limb ischaemia after local cellular therapy: the long-term positive effect is due to the presence of CD45⁻ CD34⁻ and CD⁺ cells in the inoculum

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¹L Hirszfeld Institute of Immunology and Experimental Therapy, Polish Academy of Sciences/Lower Silesian Center for Cellular Transplantation with National Bone Marrow Registry, Wroclaw, Poland; ²Lower Silesian Center for Cellular Transplantation with National Bone Marrow Donor Registry, Wroclaw, Poland

Introduction

Bone marrow constitutes a reservoir of progenitor cells which, being at different stages of differentiation, stay dormant until mobilised by signals coming from outside. It was postulated in the early 2000s that endothelial progenitor cells may leave the marrow under the force exerted by the hypoxia gradient to settle in ischaemic tissues. With that in mind, in 2003 we started a project of revascularisation of the limbs of patients suffering from non-option critical limb ischaemia. Since then, two cohorts have been enrolled, the first experimental (2003–2005, 13 patients, 16 cellular therapies (CT), two female and 11 male, age 32–64 years), and the second (2009–2011, 16 patients, 16 CT, four female and 12 male, age 34–64 years) to validate the primary cohort results.

Methods

On the day of the procedure, (i) the bone marrow was harvested from the posterior iliac crest in a volume of 500 mL, (ii) the cells were enriched in mononuclear cells using a Cobe Spectra separator; the obtained leukophoretic product (LP) was about 100 mL in volume (CT product), (iii) 70 mL of the cell suspension was injected in 0.7 mL portions into calf muscles of the affected limb.

Results and discussion

Outcome of the procedure: cohort 1 and (cohort 2) benefited with: pain reduction in 83% (88%), 67% (57%) and 28% (20%) of cases, and wound healing in 25% (38%), 42% (43%) and 50% (33%) of cases, when assessed 1, 3 and 12 months after CT, respectively. The similar outcome seen in the two cohorts led us to perform further analysis in both cohorts together. The follow-up of patients revealed that a long-lasting effect was present at 4 years after CT in more than 50% of patients.

In three patients, the CT was repeated with a beneficial effect. In six cases, amputation was needed between 3 and 9 years after therapy. Four patients died due to atheromatous lesions, but in two, limb ischaemia symptoms were still absent. Median observation time of the first cohort group was 14 years.

Leukophoretic product (LP) was enriched compared with the marrow (t-test for paired samples) in: CD45⁻ CD34⁺ (0.05 vs 0.02%, p<0.046), CD73⁺ CD34⁻ CD45⁻ (0.07 vs 0.04%, p<0.002), CD31⁺ CD34⁺ CD45⁻ (0.08 vs 0.03%, p<0.05).

A positive response seen 1 month after CT (the population of cells was analysed for clinical symptoms) was associated with a high proportion of CD34⁺ cells in LP (median: 1.53 vs 1.19%, p<0.03), but not with higher proportions of CD45⁻ CD34⁺ CD90⁺ and CD73⁺ cells compared with the failure group.

Muscles biopsied on the day of CT had significantly higher expression of the SDF-1 gene but lower of CXCR4 compared with the marrow cells.

Conclusions

(i) Bone marrow cells enriched in mononuclear cells with an endothelial progenitor phenotype are effective in non-option patients with critical limb ischaemia; (ii) unwanted effects were absent, and this observation is especially of note as nine cases were observed for longer than 10 years; (iii) the social effect was
impressive due to improvement in the quality of life, restoring normal social activity and cessation of painkillers including narcotics.
Machine learning methods in predicting chemotherapy-induced neutropenia in oncology patients using clinical data

Authors: Bryony Coupe, Mark Davies and Shangming Zhou
Swansea University, Abertawe Bro Morgannwg Health Board, Wales

Introduction

Chemotherapy-induced neutropenia (CIN) incidence varies depending upon diagnosis and treatment regimen; however, in patients with solid tumours it has been reported to be as high as 15–22%. The resulting dose adjustments or omissions can result in significant deviation from optimal treatment regimes, with the potential for failure to achieve expected rates of remission or duration of survival. Prophylactic granulocyte colony-stimulating factor (G-CSF) can effectively reduce the incidence of CIN in these patients; however, prescription of CSF to all patients is not cost effective.

Existing models of CIN risk are based primarily on treatment regimen with additional consideration of individual patient factors, including age, disease, and performance status. Prophylactic G-CSF is routinely recommended if the expected risk of severe neutropenia is ≥20%; however, individual risk is difficult to quantify in the absence of an agreed mechanism.

Due to the early adoption of electronic chemotherapy prescribing, a rich source of historical patient data has been developed relating to chemotherapy regimen and a subset of key variables. Modern data mining methods, incorporating machine learning approaches, can be utilised to analyse these data with the aim of producing more accurate, personalised predictions of the risk of neutropenia. We performed a comparison of several machine learning algorithms with a logistic regression of CIN risk in patients undergoing chemotherapy for solid tumours.

Methods

We performed a retrospective analysis of 15,119 patients aged 18 years or older with a diagnosis of cancer between 1 January 2000 and 31 December 2018 who were treated at the Singleton Cancer Centre in Swansea, South Wales, and whose data was recorded utilising the ChemoCare system.

Variables extracted included age, sex, cancer type, use of G-CSF, chemotherapy treatment regimen including dose and treatment date, total cycle number, history of prior chemotherapy, as well as several laboratory values (those from routine FBC, LFT and bone profile testing). Computed variables included presence or absence of neutropenia, defined as an absolute neutrophil count (ANC) of <1x10^9/L.

Utilising these variables, we trained logistic regression, random forest, support vector machine, artificial neural network, naive Bayes and K-nearest neighbour algorithms in classification utilising the cycle 1 data with the presence or absence of a neutropenic event as the outcome variable. Data normalisation, binarisation and discretisation were performed where necessary. All models were optimised utilising parameter tuning and variable selection where appropriate. Error estimation was performed utilising tenfold cross-fold validation with three repeats, with algorithm performance tested on an external test dataset.

Results and discussion

Each of the algorithms achieved a comparable level of accuracy in predicting a neutropenic event (Table 1). The best overall performance was achieved using the random forest algorithm (77.22% validation and 73.24% test). The random forest algorithm also had the lowest loss in performance when applied to the test dataset.
Conclusion

We have demonstrated that integrating data mining and machine learning approaches with routinely collected clinical data can be useful in developing classification algorithms that may aid clinical decision making. Utilising the best-performing algorithm, random forest, we have developed a web application that can offer individual risk predictions at point of care. With further improvements and validation, such a tool could be used to target G-CSF to those patients at greatest risk of neutropenia.

References


Table 1. Validation and test predictions by the different algorithms

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Patient discussions of glucocorticoid-related side effects within an online community health forum

Authors: Arani Vivekanantham, A Maksim Belousov, B Lamiece Hassan, B Goran Nenadic B and Will Dixon B

A Manchester University NHS Foundation Trust; B Manchester University

Introduction

Social media websites are an important, largely untapped source of data about patients’ experience of living with disease and its treatment. This includes information on drugs such as the occurrence, nature and impact of side effects. However, there are few published studies reporting drug safety profiles using such data.

Health Unlocked (HU), Europe’s largest social media network for health that supports patients and healthcare providers, hosts over 200 communities including the UK’s National Rheumatoid Arthritis Society (NRAS). Using the example of glucocorticoid (GC) therapy, this study aims to explore the potential of HU posts in providing information about the occurrence and nature of drug side effects.

Objectives

1 Evaluate the accuracy of a computerised system for automated suspected adverse drug reaction (sADR) detection from posts from HU compared with human annotation.
2 Explore themes of discussion about GC-related ADRs within posts from HU.

Methods

HU provided a dataset of de-identified posts from the NRAS community from December 2015 to December 2016. Posts mentioning GCs were processed by automated natural language processing software, which identified the drug and health issues, mapped them to the Medical Dictionary for Regulatory Activities (MedDRA®) and categorised as an sADR or not. A sample (n=50) of sADR posts were randomly selected and manually reviewed to determine whether they were true ADRs. Additionally, a sample (n=50) of the posts that included GC and were labelled as having a health issue, but not thought to have an ADR, were also assessed for true ADRs.

Posts identified as containing GC ADRs from manual analysis were reviewed to identify themes.

Results

Of the 35,904 posts from 1,998 users, 2,409 posts mentioned GCs, of which 324 posts were identified as containing information representing an sADR.

After manual review of the 50 sampled sADRs, only 36% (18/50) of these posts contained a true ADR. Of the 50 sampled posts that included a mention of GCs and a health issue but were not an sADR, 28% (14/50) were found to contain true ADRs.

Thematic analysis of the 32 posts containing true GC ADRs found that the most frequently mentioned ADRs were fractures (n=6), infection (n=5), headaches (n=3) and weight gain (n=3). Posts included rich descriptions about the nature of side effects (‘my weight tripled in size with steroids’). This included experiences of how side effects changed with time (‘huge mood swings settles after a while’). Users also described how ADRs impacted on their quality of life (‘with steroid-induced diabetes, I lost a stone in 3 days, it was grim’), and their value judgements about the importance of side effects (‘my taste buds are making everything taste strange, either salty, metallic, or plain awful … but I cope with it, as hardly any pain with steroids’). Posts also described frustrations about how well informed they were about side effects (‘I had two eye ops for cataracts, no one told me steroids caused cataracts’). Within posts where ADRs were discussed, patients also commented on the benefits of treatment (‘my pain subsided with steroids’) and the
difficult balance between benefits and harms (‘wonderful to not feel like I had RA in the first month of having [pred], but now I have more acne then when I was a teenager’).

**Conclusions**

Current machine learning models for ADR detection in social media still need further improvements to identify sADRs in health forum data. Nonetheless, manual review shows there are important themes relating to patients’ experiences and perceptions of using GC that may not be obtained using traditional methods such as analysis of health records or spontaneous pharmacovigilance. With improved automated ADR detection, this rich data source may be useful to identify the ADRs most important to patients and the impact on quality of life.
Pattern of cardiac remodelling of the left ventricle in patients with essential hypertensive disease and concomitant diabetes mellitus type 2

Authors: Aloysius Ikwuka and Natalia Virstyuk
Department of Internal Medicine, Ivano-Frankivsk National Medical University, Ukraine

Introduction

The aim of this research was to study the pattern of cardiac remodelling of the left ventricle in patients with essential hypertensive disease (EHD) and concomitant diabetes mellitus type 2 (DM2).

Methods

Sixty patients (36 female and 24 male) were examined for 3 months, their average age being 58.8(±4.2) years and their age range from 40–70 years. Fifteen patients had EHD degree 1–2, stage II, treatment-compensated (group I / GI); 15 patients had DM2 treatment-subcompensated (glycated haemoglobin (HbA1c) from 7.0% to 11.0%) (group II / GII); and 30 patients with EHD degree 1–2, stage II, treatment-compensated and concomitant DM2 treatment-subcompensated [HbA1C – from 7.0% to 11.0%] (group III / GIII). The control group consisted of 20 healthy volunteers. Groups examined were randomised in age, sex, body mass index, duration of EHD and DM2. Research was conducted with strict adherence to Helsinki declarations concerning human research.

Echocardiography was used to determine the pattern of cardiac remodelling of the left ventricle according to the criteria of Ganau et al.1 Types of cardiac remodelling of the left ventricle:

- normal left ventricular geometry = normal index of myocardial mass of left ventricle (iMMLV) and RTLVW <0.44 (iMMLV = MMLV/TBSA, where TBSA is total body surface area calculated according to Mosteller’s formula with the aid of a scientific calculator; relative thickness of left ventricular wall (RTLVW) calculated according to formula)
- concentric left ventricular hypertrophy (concentric LVH) = presence of LVH and RTLVW ≥0.45
- eccentric LVH = presence of LVH and RTLVW <0.45
- concentric remodelling of left ventricle = normal iMMLV and RTLVW ≥0.45.

Results and discussion

According to the results of the echocardiography, normal left ventricular geometry was detected in three (20.0%) GI patients (p<0.05), in six (40.0%) GII patients (p<0.05) and in three (10.0%) GIII patients (p<0.05); concentric LVH in 10 (66.7%) GI, in eight (53.3%) GII and in 14 (46.7%) GIII patients (p<0.05); eccentric LVH in one (6.7%) GII and in two (6.7%) GIII patients (p<0.05); and concentric remodelling of the left ventricle was detected in two (13.3%) GI and 11 (36.7%) GIII patients (p<0.05).

Conclusion

Concentric LVH was detected most frequently and eccentric LVH was detected in rare cases –<7.0% in patients with EHD and concomitant DM2.
Reference

Real-time confidence of clinical decision-making: a systematic review

Authors: Myura Nagendran\textsuperscript{A} and Yang Chen\textsuperscript{B}

\textsuperscript{A}Imperial College London; \textsuperscript{B}University College London

Introduction

Good decision-making is at the core of providing high-quality healthcare to patients. Of the many cognitive biases that can warp decision-making, under- or overconfidence are particularly insidious threats, given their universality and ability to anchor or prime individuals to choosing erroneous management strategies.\textsuperscript{1} A recent opinion piece highlighted the broader point that confidence does not always equal competence and this has also been reported in a survey of junior doctors.\textsuperscript{2,3} Given the difficulty of standardising experiments in this field, most studies tend to administer questionnaires that suffer from recall bias or assess confidence in structured vignettes away from the clinical shop floor. We sought to establish to what extent decision confidence has been measured in real time and whether confidence or lack thereof correlates with important outcomes.

Methods

We searched Medline, Embase and PsycINFO with synonyms for clinical decision-making, meta-cognition and physicians on 1 February 2019. Two reviewers independently selected studies for inclusion if they assessed the confidence of clinical decision-making (eg diagnosis or treatment decisions) by healthcare practitioners in real time. Vignette studies and surveys were excluded.

Results and discussion

The search retrieved 2,288 studies of which 10 initially seemed includable. Four studies and one conference abstract remained after full-text review. The Acute Abdominal Pain (AAP) study group prospectively assessed trainee and senior surgeon confidence at the point of diagnosing abdominal pain in ED.\textsuperscript{4} Diagnostic accuracy between the two groups was comparable at 44% and 43% respectively, but trainees were less confident than seniors (seven versus eight out of 10). Boots \textit{et al} found that diagnostic confidence for pneumonia was higher with more classical presentations or when pneumonia was considered ‘life-threatening’.\textsuperscript{5} Bruyninckx \textit{et al} assessed GP referrals for chest pain and reported an odds ratio (OR) for referral of 11.6 when GP diagnosis was certain versus 3.0 when uncertain.\textsuperscript{6} Davis and colleagues investigated confidence in emergency department ultrasound-guided diagnosis and found that accuracy, sensitivity and specificity were 6%, 7% and 4% higher when confidence scores were 9 or 10.\textsuperscript{7} Nguyen \textit{et al} asked physicians to predict the likelihood of readmission for patients on the day of discharge along with their confidence in the prediction. Physicians were more confident when they deemed readmission to be high risk versus low risk.\textsuperscript{8}

Conclusion

The literature on real-time assessment of decision confidence is notably sparse and existing studies are small. Confidence among both trainees and seniors was surprisingly high in one study, despite only moderate diagnostic accuracy. Physician confidence in the primary care setting may have an impact on referral patterns. Further research in this area should establish the associations between decision confidence and other physician and patient factors in a larger sample, with a view to generating hypotheses for testable interventions that can better calibrate confidence with clinical decision-making.

References


The acceptability and utility of different diagnostic tests and sample types for the surveillance of trachoma in the Bijagos Islands, Guinea Bissau

Authors: Ramandeep Sahota and Emma Harding-Esch
London School of Hygiene and Tropical Medicine

Introduction
Trachoma is the leading infectious cause of blindness worldwide and until recently was hyperendemic in the Bijagos Islands, a remote archipelago of islands off the coast of Guinea Bissau. Once elimination of trachoma has been achieved in the Bijagos Islands, it is imperative that a successful surveillance programme is put in place. The aim of this study was to determine the acceptability and utility of different diagnostic tests and sample types that could be used for trachoma surveillance.

Methods
Semi-structured interviews of community members and key stakeholders, followed by focus group discussions, explored views on experiences with trachoma, examining the eye for clinical signs, taking a conjunctival sample with a cotton bud, taking a blood sample, laboratory testing, health preferences within the community, and the challenges that may be faced by surveillance programmes.

Results and discussion
Community members expressed dissatisfaction with their healthcare experiences in relation to trachoma and, in some cases, were keen for different procedures that would be more acceptable and useful. In general, community members and stakeholders indicated a preference for the collection of samples that can be tested in the laboratory to detect trachoma infection. Despite this, stakeholders articulated their contentment with best current practice, with a trend among community members to ultimately be happy with whichever intervention would give them good health.

Conclusion
In this setting, diagnostic tests and sample types used for trachoma surveillance are accepted by communities to a degree. Appropriate sensitisation of communities prior to the implementation of a trachoma programme is crucial.
To study the maternal and fetal outcome in obese pregnant mothers compared with non-obese pregnant mothers in an urban population

Authors: Rajeev Upreti\textsuperscript{A} and Ram Shankar Mishra\textsuperscript{B}
\textsuperscript{A}George Eliot Hospital, Nuneaton, UK; \textsuperscript{B}Max Hospital, Saket, India

Introduction

The objective of this study was to assess the maternal and fetal outcome in obese mothers (body mass index (BMI) >27.5 kg/m\textsuperscript{2}) compared with non-obese mothers (BMI <27.5 kg/m\textsuperscript{2}) and to observe the persistence of abnormalities in mother and newborn for 6 weeks post-partum.

Methods

This was a prospective case–control study comprising pregnant women attending the outdoor or indoor services of the Department of Obstetrics and Gynaecology at Max Hospital, National Capital Region, and fulfilling the inclusion criteria. This study was conducted from October 2013 to December 2014. The sample size was calculated by using n-Master (2.0) software and 200 women were enrolled. Data were analysed by using the chi-square test and Pearson’s correlation coefficient.

Results and discussion

Higher incidence of the following conditions was observed in the obese group than in non-obese group: pregnancy-induced hypertension (PIH) (10.4%, p=0.041), PIH as a statistically significant contributing factor for surgical interference during delivery (24.1%, p=0.005), non-progression of labour (NPOL) (14.3%, p=0.542), fetal distress (16.9%, p=0.346), preterm delivery (20.8%, p=0.016), post-partum diabetes mellitus (DM) (9.1%, p=0.006) and hypertension (3.9%). More neonatal intensive care unit (NICU) admissions were seen in the obese group (26.0%, p=0.614) and more infants had feeding problems at 6 weeks post-partum in the obese group (2.6%, p=0.639).

Conclusion

Obesity is a leading cause of both maternal and fetal complications. BMI screening and counselling should be done pre-conception for all women to make them aware of possible obesity-related complications during and after pregnancy. It is advised that BMI cut-off is kept at <27.5 kg/m\textsuperscript{2} for women in pregnancy (and the general population), as suggested by the World Health Organization (WHO) Regional Office (International Obesity Task Force).\textsuperscript{1} Comorbid screening should be early and more intense in pregnant obese women.

Reference

EDUCATION, TRAINING AND PROFESSIONALISM

With a national restructuring of physician training to include critical care, what is the educational value of intensive care for physician trainees?

Authors: Maria Paes\textsuperscript{A} and Thomas Williams\textsuperscript{B}
\textsuperscript{A}Arrowe Park Hospital; \textsuperscript{B}Wirral University Teaching Hospital NHS Foundation Trust, Liverpool, UK

Introduction

Radical restructuring of physician training has been proposed from 2019 that will see core medical training replaced with the internal medicine (IM) stage 1 training programme, which will include a compulsory critical care component.

Few posts currently exist for core medical trainees (CMTs) in critical care, so there is little evidence to support how best to train physicians of this grade in the critical care environment. This study provides insight into this area, examining the educational experiences of CMTs during their intensive care unit (ICU) / high-dependency unit (HDU) placements at a large teaching hospital over a 2-year period.

Methods

A mixed methods approach of questionnaires and interviews was used. All CMTs who completed an ICU post during the 2-year study period were included. Participants were CT2 at the time of the placement, thus CT2, ST3 or staff-grade specialty registrar equivalent during the study. Fifteen of 16 trainees completed questionnaires.

Inductive thematic analysis was used to analyse open question data and produce an interview guide. Semi-structured interviews explored these questionnaire themes further with eight trainees. A hybrid inductive and deductive thematic analysis method, utilising a coding framework produced from the questionnaire data, was used to structure the analysis while also coding for emergent themes. Closed questionnaire data were used to support the themes that emerged.

Results and discussion

Increased understanding of intensive treatments was a key outcome from the study and was reported to be the most valuable learning experience relevant to the CMT curriculum. CMTs were better able to understand levels of care, escalation and patient suitability and had improved awareness of negative patient outcomes following intensive intervention. Increased understanding of ICU treatments informed referral decisions on return to CMTs’ general medical roles, with trainees better able to understand that reversibility and clinical need for a specific level 2 or 3 treatment were key admission criteria. Trainees already working at registrar level placed greater emphasis on targeted and appropriate referrals as a key learning outcome of their placement.

Understanding of intensive treatments was supported by situated learning and by the multidisciplinary team via a community of practice. Trainees felt that they worked more closely with both seniors and the multidisciplinary team (MDT), easily integrating into the community due to its small size. High consultant presence led to an apprenticeship style of teaching, with juniors learning alongside their consultants.

The value of learning in a senior-led environment was a further study outcome. This was reported to be the primary difference in trainees’ learning experiences when asked to compare their ICU post with their learning on the general medical wards. Trainees were able to learn alongside an expert, allowing rapid development beyond baseline capabilities. Similarities to an anaesthetic approach of one-to-one teaching, grounded in a cognitive apprenticeship approach, were noted. The improved teacher–student relationship, compared with general medical experiences, facilitated teaching better aligned to learners’ needs and
opportunity for feedback. High senior presence was, however, associated with negative features of decreased autonomy and circumvention of juniors’ opinions.

While structured handover, procedures (e.g., central line insertion), bedside teaching, and ward work on ICU/HDU were felt to be valuable learning experiences, the key learning opportunities identified for CMTs were medical emergency team (MET) calls and taking referrals. Trainees gained experience of managing high-acuity patients in these settings. Confidence, communication, and prioritisation skills in particular were felt to develop as a result. MET calls allowed trainees the opportunity to learn a systematic approach to assessing the acutely unwell patient, observe a range of medical registrar peers and lead calls. Immediate, targeted, and constructive feedback was provided through discussion of each MET call and referral with an ICU consultant. Trainees then had the opportunity to apply and test learning from feedback rapidly due to the volume of MET calls and referrals received daily, with learning enhanced by this experiential learning cycle. Supported learning was valuable, but autonomy with referrals and MET calls allowed testing and reflection.

This study showed that ICU experience supported CMTs in their transition to their medical registrar roles. Key areas of relevant development included improved complex decision making, for example regarding end of life and escalation of care, confidence and experience with managing high-acuity patients, improved referrals to ICU and experience with MET calls.

Conclusions

Critical care placements were perceived to be beneficial to core medical training. The key advantages identified were an increased understanding of intensive treatment, learning in a senior-led environment and experience of working with high-acuity patients. All three were felt to provide skills valuable in supporting transition to specialty medical registrar training.

This study provides insight into provision of training for internal medicine trainees in critical care under the proposed restructuring of medical specialty training.
Reflect and rehydrate: improving junior doctor wellbeing and promotion of coping skills through peer-led education and support

Authors: Alexandra Shields and Inayah Zaheen

University Hospitals Coventry and Warwickshire; South Warwickshire Foundation Trust, Warwickshire, UK

Introduction

Research in 2017 by the Royal College of Anaesthetists identified that junior doctors feel their work has a direct negative impact on their mental health. Research including by Balint et al., and more recently the King’s Fund, has repeatedly shown that reflection circles and Balint groups improve healthcare professionals’ mental health outcomes. The foundation programme provides supervisor support, but there is no formal peer-based support platform.

Our goal was to identify whether formal reflection circles named ‘Reflect and rehydrate’ (R&R) sessions could improve and aid development of coping mechanisms for foundation doctors in a structured, confidential environment.

Methods

We created questionnaires to assess FY1 anxieties and approaches to coping, and disseminated them to current FY1 doctors and final-year medical students.

Structured R&R sessions were chaired in a confidential, peer-supported setting. Chairpersons presented reflection-based cases, encouraging participants to share experiences, allowing spontaneous reflection. Topics ranged from difficult patient encounters to unexpected death. After sessions, feedback was gathered via questionnaires. A proforma was created to encourage the model to be replicated elsewhere.

Results and discussion

Final-year students reported that support from current foundation-year (FY) doctors would be the most helpful to prepare for coping with foundation-year one (FY1). Current FY1 doctors reported that they felt the best wellbeing support came from their peers. Participant feedback from R&R sessions was excellent, improving as the sessions developed.

Recurrent feedback themes included participants feeling at ease in the confidential, relaxed setting, comfortable to share experiences. Participants learned from the shared experiences of others and felt encouraged that others had had similar experiences, while the sessions directly improved their coping strategies. The impact has been huge: the sessions are now a regular fixture in the FY1 schedule at South Warwickshire Foundation Trust, with interest from several other groups including newly qualified nurses, administration teams and allied health professionals.

Conclusion

We acknowledge that factors contributing to mental wellbeing are multifactorial and complex. However, there is evidence of improvement in coping abilities through R&R sessions. We believe that further propagating this model nationwide can only be beneficial overall to wellbeing and, importantly, impacting on clinical practice and improving patient safety, as healthy junior doctors make for efficient and safe patient care.
**Fig 1. R&R development timeline**

![R&R Development Timeline](image)

**Fig 2. How to set up an R&R**

**How to set up Reflect & Rehydrate**

1. **Identify a Theme & Find Cases**
   - Identify a theme that can add structure to the session. Examples can be dealing with mistakes or ‘my first’... Ask PTs to volunteer to share their story.

2. **Arrange the Session**
   - Make sure everyone knows well in advance. Ensure there is a plan - allow each person to speak for 5 minutes and open up to QA and open reflections/discussion.

3. **Don’t Forget the Second R: Rehydrate. Make sure to provide plenty of snacks/tea/coffee**

4. **Make Sure to Signpost**
   - Remember, the purpose of R&R is not to replace the role of a professional - group reflection can certainly improve coping strategies but make sure to signpost where they can get more help.

5. **Gather Feedback**
   - Understanding what went well and what could be improved is very important because it gives a sense of the purpose of the sessions as a whole.
References


Raising awareness of cognitive biases in clinical medicine: a pilot engagement study

Authors: Yang Chen\(^{A}\) and Myura Nagendran\(^{B}\)
\(^{A}\)University College London, UK; \(^{B}\)Imperial College London, UK

Introduction

Decision making in medicine is the final common pathway for all evidence-based treatments and interventions. There are over 30 recognised cognitive biases described in the literature.\(^1\) However, the phrases ‘clinical decision making’ and ‘bias’ appear only twice each in the 145-page postgraduate curriculum for general internal medicine.\(^2\) Given the paucity of explicit competency measures and teaching in the area, and the potentially low-hanging fruit offered by improvements in decision making, we sought to deliver a multifaceted intervention to increase the awareness and understanding of this subject among our profession.

Methods

We developed a 30-minute talk on cognitive biases after previously piloting the idea across 12 lectures at five NHS trusts. We used the feedback and experience gained to refine our content and presenting style. Our talk was pitched to be salient for the entire breadth of the medical profession and consisted of a rationale behind the importance of appreciating cognitive biases, a clinical case to illustrate such biases and specific debiasing strategies. The aim is for this grand round to be delivered at all 34 acute NHS trusts in London.\(^3\) We have deliberately split this task into phases, to ensure ongoing refinement of our intervention (Table 1).

Feedback was sought in real time at the end of the grand round and focused on two factors: the change in audience familiarity with cognitive biases and whether they would appreciate more teaching on this topic. All three questions were rated on a 5-point Likert scale, ranging 1 to 5 from very unfamiliar / strongly disagree to very familiar / strongly agree. Optional free-text qualitative comments were collected separately, along with the opt-in choice to join a clinician interest group, coordinated by email.

Results and discussion

At the time of writing, our talk has been presented at four grand rounds (North Middlesex, Newham, Whipps Cross, Whittington). Thirty-eight responses were received (range 6–15 per hospital). Post-talk familiarity (median 4, interquartile range (IQR) 4–5) was significantly higher than pre-talk familiarity (median 3, IQR 2–3), p<0.001. The proportion of the audience that agreed or strongly agreed that there should be more teaching on this topic was 95% (36 of 38 respondents). Sixty per cent of respondents, including trainees and consultants (23 of 38 respondents), have signed up to be part of the interest group.

Conclusion

Cognitive bias in clinical medicine is a topic that clinicians feel unfamiliar with. Familiarity is improved after a tried and tested teaching session, and the majority of respondents in this study are keen for further teaching on the topic.
References


Table 1. Intended sequence of grand round delivery

<table>
<thead>
<tr>
<th>Phase</th>
<th>Number of grand rounds</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>8*</td>
<td>February 2019 – May 2019</td>
</tr>
<tr>
<td>II</td>
<td>10†</td>
<td>June 2019 – September 2019</td>
</tr>
<tr>
<td>III</td>
<td>16†</td>
<td>October 2019 – March 2020</td>
</tr>
</tbody>
</table>

*Chosen due to previous clinical footprint of either author being leveraged

†Pitched to grand round organising committees with evidence of ongoing positive feedback and support from consultant colleagues.
Promoting less-than-full-time (LTFT) training in your local trust: a workshop in conjunction with your champion of flexible training

Authors: Shairoz SamjiA,B and Helen CattermoleB

AYorkshire Regional Junior Doctor Committee; B Hull and East Yorkshire NHS Trust, Yorkshire, UK

Introduction

Recent RCP data have shown a continued increase in the proportion of trainees working less than full time (LTFT) to 15%.1 Despite this increase, the latest GMC survey data have shown that only about 15% of LTFT medical trainees feel very supported in their decision to train flexibly, versus 33% of GP trainees.2 What can be done at the grass roots level to improve LTFT training for all and to support trainees positively in their decision to work LTFT?

As part of the new junior doctor contract in 2016, flexible champions were put forward as a local point of contact for LTFT trainees.3 Guidelines have been provided by NHS Employers and the British Medical Association (BMA) for how this role should be implemented,3 but within my role as the LTFT representative to the Yorkshire regional Junior Doctor Committee (YrJDC), I have often found that most trainees tell me that they do not know who their champion is. There is no openly available list of flexible champions for trainees to access and, as such, knowledge of your flexible champion is often passed on through word of mouth.

Methods

The flexible champion and the trust have been looking to find new ways of improving LTFT training in Hull and East Yorkshire NHS Trust (HEY). As the LTFT rep to the YrJDC, I offered to run a workshop about topics which are particular to LTFT training. We know that there are 54 trainees working LTFT in this teaching hospital. A workshop was run in February 2019 in the Medical Education Centre inviting all trainees (full time and LTFT) to learn more about LTFT pay and rostering. This included a presentation from the HEY medical staffing team, which resulted in the creation of a new post within their department to support LTFT trainees and their specific rota needs. In order to widen access to the information, the workshop was filmed and will be available for all trainees on the trust intranet. Feedback forms were completed in order to judge the trainees’ perception of the workshop.

Results and discussion

Feedback forms were completed by over 75% of the 20 attendees. Participants included senior management (n=2) and trainees (n=17), as well as one rota coordinator. The workshop was attended by trainees from many specialties, of whom 14 completed the feedback form (Table 1). Three foundation trainees and three GP trainees attended. The majority (57%) were specialty trainees.

When asked whether the trust is supportive of LTFT training, 27% of participants felt that the trust scored the highest score on a Likert scale. Eighty per cent of those who completed the feedback form rated the workshop excellent to good.

Conclusion

Trainees found that the workshop met their needs. The concept of the workshop is being promoted nationally through a blog on the BMA website4 and steps are being taken on a national level to improve information about flexible champions to all trainees by the national lead in LTFT training. A further workshop will be held in HEY in May 2019. Topics will include maternity, paternity and shared parental leave.
References


Table 1. Specialty trainees attending the workshop

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Number of trainees (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic</td>
<td>1 (7.1)</td>
</tr>
<tr>
<td>Anaesthetics</td>
<td>1 (7.1)</td>
</tr>
<tr>
<td>Emergency Medicine</td>
<td>2 (14.3)</td>
</tr>
<tr>
<td>GP</td>
<td>3 (21.4)</td>
</tr>
<tr>
<td>Oncology</td>
<td>1 (7.1)</td>
</tr>
<tr>
<td>Paediatrics</td>
<td>2 (14.3)</td>
</tr>
<tr>
<td>Radiology</td>
<td>3 (21.4)</td>
</tr>
<tr>
<td>Unnamed</td>
<td>1 (7.1)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>
Medical registrar preparation course improves candidate confidence in key aspects of the medical registrar role

Authors: Andrew Redfern, A Mohamed NaeemB and Rakesh PanchalB
A Northampton General Hospital NHS Trust, Northampton, UK; B Glenfield Hospital, University Hospitals of Leicester NHS Trust, Leicester, UK

Introduction

The transition in responsibility from core medical training (CMT) to being a medical registrar can be daunting and many trainees feel unprepared.1,2 To tackle this, we piloted a ‘medical registrar preparation course’ focused on take management and specific knowledge areas (eg escalation planning), rather than focusing on the more curriculum-driven requirements of the CMT programme.

Methods

The course involved a generic session given to all core medical trainees on the above topics, followed by small group sessions. Each candidate then spent a day shadowing the acute registrar. They were encouraged to reflect on the experience and were asked to complete a pre- and post-course questionnaire.

Results and discussion

The course was offered to six senior core medical trainees in respiratory medicine in our hospital. Four took up the offer, of whom one did not complete the shadowing. We achieved confidence improvements in all the taught areas (escalation planning, DNACPR, discharging and organ failures), of which four areas reached statistical significance (the rest are likely to have not reached statistical significance owing to the small sample size). The feedback from the trainees was very positive. The specifics of these improvements are seen in Table 1.

Conclusion

We think this is a basic structure that could be rolled out more widely to support trainees by delivering more focused training prior to their starting in this new role, preferably in the post-ARCP period prior to the StR transition.

References

Table 1. Results of pre- and post-course questionnaires regarding confidence in aspects of the medical registrar role

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Pre-course average (out of 7)</th>
<th>Post-course average (out of 7)</th>
<th>Difference</th>
<th>t-test (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence in general for becoming a medical StR</td>
<td>2.88</td>
<td>5.00</td>
<td>2.12+</td>
<td>0.024</td>
</tr>
<tr>
<td>Confidence in escalation planning / establishing ceiling of care</td>
<td>3.75</td>
<td>5.75</td>
<td>2.00+</td>
<td>0.046</td>
</tr>
<tr>
<td>Confidence in initiating DNACPR orders for acutely unwell patients</td>
<td>4.63</td>
<td>5.50</td>
<td>0.87+</td>
<td>0.240</td>
</tr>
<tr>
<td>Confidence in providing advice over the phone to juniors</td>
<td>4.63</td>
<td>5.38</td>
<td>0.75+</td>
<td>0.159</td>
</tr>
<tr>
<td>Confidence in whether to discharge a patient</td>
<td>3.75</td>
<td>6.00</td>
<td>2.25+</td>
<td>0.059</td>
</tr>
<tr>
<td>Confidence in leading a cardiac arrest</td>
<td>4.25</td>
<td>5.25</td>
<td>1.00+</td>
<td>0.211</td>
</tr>
<tr>
<td>Confidence in respiratory failure (eg PaO₂ &lt;8 on 15 L or T2RF)</td>
<td>4.50</td>
<td>5.88</td>
<td>1.38+</td>
<td>0.005</td>
</tr>
<tr>
<td>Confidence in CVS failure (eg systolic BP of 85 after fluid resus)</td>
<td>2.75</td>
<td>5.75</td>
<td>3.00+</td>
<td>0.035</td>
</tr>
<tr>
<td>Confidence in renal failure (eg an indication for acute dialysis)</td>
<td>4.25</td>
<td>5.50</td>
<td>1.25+</td>
<td>0.071</td>
</tr>
</tbody>
</table>
Medical students raising concerns about staff members

Authors: Abhishek Kakkar and Damien Lynch
East Lancashire Hospitals NHS Trust

Introduction

Raising concerns is a fundamental responsibility of professional medical practice and plays an important role in ensuring patient, trainee, staff and organisational safety. The Francis Report and Bawa-Garba case highlight the importance of trainees being empowered to raise concerns.

Medical undergraduates are doctors in training. Education and training around raising concerns is a vital part of their professional development. Medical clinical educators (MCE) also act as role models for their students. There are occasions when MCE act unprofessionally. Anecdotal evidence suggests that there are barriers to medical students raising concerns in such instances. Very little is published about these perceived barriers. Lastly, there is little published experience around supporting undergraduate clinical educators dealing with concerns raised about them.

Aims

1. Obtain feedback from students and MCE about the current ‘raising concerns’ process at East Lancashire Hospitals NHS Trust (ELHT) Department of Undergraduate Education.
2. Identify features of a process to support students raising concerns.
3. Identify features of a process to ensure MCE support when a concern is raised about them.
4. Use the findings to develop an effective ‘raising concerns’ system for students and MCE alike, which is supportive and enables self-reflection and learning.

Methods

An anonymous online survey comprising multiple choice and white space questions was developed and sent to clinical students attending ELHT from Lancaster (LMS) and University of Central Lancashire (UCLan) medical schools, and ELHT MCE.

Questions related to barriers facing medical students when raising concerns about MCE and what the important features of a specific process would be. The responses were used to develop a specific ‘raising concerns – MCE’ flowchart to support students and educators. This was then implemented as a pilot.

Results and discussion

26/79 MCE responded (34% response rate). Five out of 26 were aware of incidents of concerns about staff members reported by medical students, of whom three were directly involved. Of the 66 medical students from UCLan and 84 from LMS, 49 responded (33%). Thirteen out of 49 were aware of, and seven were directly involved with, such incidents.

The results confirmed the findings of previous work on barriers facing students, namely fear of repercussions, undermining hierarchy, unsure of the process involved, and the perception that nothing would be done about it. There was scope for improvement in all cases that had arisen previously. Both MCE and students (92% and 96% respectively) agreed the need for a consistent and systematic process. The suggestions from both groups as to what features a proposed system should have were identical; namely it should be fair, timely, supportive and should incorporate feedback for both the student and the MCE.

Conclusion

Concerns raised about MCE must be dealt with promptly and sensitively in order for both parties to understand and reflect on the circumstances leading to that complaint. The process we developed was
designed in response to feedback from students and MCE. It is timely, with an aim to deal with the issue within 2 weeks. To address student worries about how to raise a concern, issues with hierarchy and the possibility of repercussions, we created a clear, consistent and fair framework which supports both parties. To aid learning, understanding and self-reflection, the process incorporates detailed feedback for both parties. A further quality improvement project studying the usefulness of this new system is currently being developed.

References


Introducing a local careers fair to help support foundation year 2 doctors with their career choices: a quality improvement project

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Introduction

The number of foundation year 2 doctors (FY2s) entering specialty training straight after the Foundation Programme is decreasing each year. One reason for this is trainees’ dissatisfaction with training; many feel that their work predominantly centres on service provision, with minimal opportunities for training. This, combined with FY2s expecting to make choices about future specialties after only 18 months of clinical experience, means that there is a need for effective and early career advice to be integrated into the Foundation curriculum.

Methods

Over a 4-month period, an online questionnaire was designed and distributed to the FY2s to find out about their experiences of the FY2 teaching programme and level of careers advice/support received.

Results

The overall response rate was 40\% (44/111). Seventy-four per cent felt that the Foundation teaching programme had not given them sufficient careers guidance and 81\% wanted more advice about careers. Moreover, 60\% felt that the careers sessions currently in the curriculum were given at the wrong time of year, eg after application deadlines. In response to this feedback, a local careers fair, with representatives from a variety of medical and surgical specialties, was introduced to help support FY2s in their career choices.

Feedback assessing the FY2 trainees’ satisfaction, particularly with regards to the amount/quality of careers guidance received and how this informed their future career choices, was collected before and after the careers fair in the form of an anonymised, voluntary form consisting of Likert-based and free-text responses. The feedback showed a significant improvement in trainees’ satisfaction; the majority reported that the careers event helped them to decide their future career and recommended that this event to be run for future cohorts. Specific comments included ‘it was really helpful to be able to talk to doctors who have gone through the same process and to find out from them what the experience was like’.

Conclusion

Introducing a careers fair at a local hospital helped to guide and inform FY2s’ career choices, and significantly improved their satisfaction with the careers guidance they received. There are plans for this intervention to be repeated for future cohorts of doctors, both locally and nationally. Further work is planned to assess the impact of the careers fair on the choices and number of FY2 doctors applying for training.
It’s all fun and games until somebody gets hurt: using a scavenger hunt game to teach human factors to junior doctors

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Introduction

Human factors are extremely important in healthcare. It is now a requirement that all junior doctors demonstrate understanding of human factors in medical error. Feedback from previous teaching to foundation doctors on human factors in South Tyneside NHS Foundation Trust included comments such as ‘just not relevant to us at this level of our training’.

Methods

A session entitled ‘Introduction to human factors’ aimed to meet the outcome as expected in junior doctors’ Foundation Programme curriculum: ‘Describes the role of human factors in medical errors and takes steps to minimise these’.

The foundation doctors were divided into teams. They were given 15 minutes to collect items from a scavenger hunt list and complete bonus tasks. Points were awarded and deducted for adherence to task rules, items collected and tasks completed. Tasks required them to negotiate with education centre staff members, manage and prioritise their time, work as a team, and manage distractions. There were enough tasks and items to collect to create significant time pressures. Loud, repetitive music with a countdown timer was played. On completion they were asked to evaluate in pairs, then the wider group, what made the scavenger hunt difficult to complete, and what they did as a team that helped. As a group they then sorted their suggestions into two categories: human factors and non-technical skills. Definitions were given for both.

At the end of the session, the foundation doctors were asked if they were to redo the scavenger hunt, what processes could improve their performance, and how these might be applicable to clinical work. They were asked to reflect on an error they had witnessed in clinical practice and apply the lessons they had learnt to this.

Results

33 foundation doctors attended the teaching over two sessions. Confidence in describing and identifying human factors, as well as taking steps to minimise them, increased by an average of 37%. One hundred per cent of attendees felt that the session was relevant to their clinical practice and training. One hundred per cent listed the scavenger hunt as their favourite part of the session. Free text comments included: ‘Really powerful and informative’; ‘Interactive, fun, and backed up by relevant cases and information’; ‘Turned a dry topic into something interesting and useful for our clinical practice’; and ‘Good that we all had to get involved, learnt a lot more by the practical demonstration in the scavenger hunt that I have in previous sessions on the topic’.

Conclusions

Previously, junior trainees had found the topic of human factors dry, uninteresting and difficult to relate to their own practice. The scavenger hunt method allowed them to find the topic relatable and relevant. All attendees could describe the role of human factors in medical errors and take steps to minimise these, as per their curriculum, by the end of the session. A scavenger hunt game is a valuable method to introduce the topic of human factors and to demonstrate their practical application.
Reference

Junior doctor-designed induction booklet to improve future junior doctor experience in a new post

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Introduction

Starting your rotation as a junior doctor on an unfamiliar ward can be challenging, regardless of your grade. There is evidence showing increased mortality of 4.3–12% and 0.3–7.2% longer lengths of stay around changeover dates.¹ High quality of induction was one of the recommendations by the Academy of Medical Royal Colleges for safe trainee changeover.² Our project by a team of junior doctors was aimed at improving the initial experience of the future junior doctors on the same ward at a university hospital. The tool used was an induction booklet that the doctors could refer to from the first day and re-refer to it as the rotation progressed.

Methods

PDSA Cycle 1: Informal discussions were held and we conducted a survey of the junior doctors to assess needs. The results from the survey were analysed and a solution suggested was a brief induction booklet by junior doctors. This booklet of 4 pages was designed and written by junior doctors from the ward.

PDSA Cycle 2: The new induction booklet was trialled in December 2018 with the new cohort of junior doctors, who were then surveyed in January 2019. The results were analysed and the booklet was modified further. The new version will be trialled in April 2019.

Results and discussion

Seven junior doctors took part in the first survey and five in the second. Each cohort was asked nine questions and to score from seven grades, namely a) very easy, b) easy, c) somewhat easy, d) neither easy nor difficult, e) somewhat difficult, f) difficult, and g) very difficult.

In the first survey, 28% of respondents found it somewhat difficult to understand ward timetable (MDT meetings, consultant ward rounds etc) prior to the introduction of the booklet, but this reduced to 0% after the intervention, with 80% rating the ward timetable as easy or very easy to understand.

Prior to the intervention, 14% of respondents found it difficult and 28% found it somewhat difficult to understand their role in an acute stroke thrombolysis alert; after introduction of the booklet, this reduced to 20% who found it somewhat difficult. Pre-intervention, 42% found it somewhat difficult to request the right investigations and post-intervention, this improved to 100% finding it somewhat easy to very easy. Before the intervention, 14% said it was difficult and 28% said it was somewhat difficult to find frequently used phone and bleep numbers, but after the introduction of the booklet, this improved to 100% finding it very easy to somewhat easy. Fifty-six per cent found it difficult or somewhat difficult to refer to stroke-related specialist teams (vascular surgery, neurology, nutritional team etc) before the booklet was introduced; afterwards, this figure improved to 60%. One hundred per cent of the new cohort of junior doctors answered in the survey that they found the induction booklet helpful.

Conclusion

There was a clear and definite improvement in the trainee experience after the introduction of the induction booklet. This proves that junior doctors are in an excellent position to improve the experience of other junior doctors and this was done on this occasion with an induction booklet.
We hope to replicate this success on other wards in the hospital, ensuring that the information is local, relevant and up to date.

References

Improving medical student preparedness for practice in line with the General Medical Council’s outcomes for graduates: a pilot study

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Introduction

The 2018 Outcomes for Graduates\(^1\) highlight non-technical skills as an important part of what should be expected of an F1 (foundation year 1) doctor. However, studies show that medical school graduates have a relative weakness in these areas.\(^2-4\)

There is a growing body of evidence for simulation as a learning tool in recent years;\(^5\) however, greater benefits are observed when simulation environment aligns with clinical practice.\(^6\)

Studies have experimented with applying simulation to non-technical skills\(^7-9\) with great success; however, application of prolonged and repeated simulation to non-technical skills in medical students has not been studied in detail.

Methods

Each student was asked to self-assess confidence for the eight outcomes from the Outcomes for Graduates\(^1\) domain 9b on their first day placed at South Tyneside District Hospital. They will then be asked to further self-assess confidence after each intervention designed to meet these outcomes: at the end of the Preparation for Practice module, at the end of their assistantship on the wards, and following a simulated ‘day in the life of an F1’ session.\(^10\) This will allow comparison of which interventions helped most to achieve each outcome and whether the combination has allowed all students to increase in confidence for all outcomes.

The Preparation for Practice module involves a prolonged (3-week), low-fidelity simulation in the form of a virtual ward, and the ‘day in the life’ session is a high-fidelity immersive simulation. This will allow us to also compare simulation with clinical experience as a method to improve final-year preparedness for practice.

Structured interviews will be conducted on completion of the self-assessment survey to gain further qualitative information to help identify reasons behind students’ scoring at each stage.

Students completed the low-fidelity virtual ward simulation in December 2018 and completed their assistantship and ‘day in the life’ simulations in February 2019.

Results

The results from the low-fidelity Preparation for Practice block in December 2018 have been encouraging. We saw an increase of confidence in all of the eight outcomes from Outcomes for Graduates 9b, with the mean confidence increase across all eight outcomes being 44.5%. One student reported a 250% increase in their confidence for one particular outcome.

The results for further points of questioning regarding their confidence in the outcomes are pending. We hope to observe further increases in confidence at each stage and compare the difference in increase between simulated interventions and clinical experience. Structured interviews will allow us to explore why some interventions were perceived to increase confidence more than others.

Discussion and conclusions

Our findings so far suggest that students have engaged deeply with the subject material and feel equipped to put lessons learnt into practice in the ward environment over the next few months. It appears that
further innovation and research could explore this method of framing educational courses to improve students’ understanding and ability in the skills and attributes required for clinical practice, in particular non-technical skills. We hope this study will provide evidence that specifically targeting these areas significantly improves students’ self-assessed preparedness for practice against the Outcomes for Graduates and encourage further work and study in this domain.

References

Improving clinic attendances for core medical trainees at a busy district general hospital

Authors: Pooja Mithani and Leila Bafadhel
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Introduction
Attending clinics is large part of completing the core medical training competencies. The minimum number of clinics required has now increased from 12 to 20 per annum. Core medical trainees (CMTs) often struggle to attend owing to busy medical wards, on-calls and staff shortages. This quality improvement project aimed to improve attendance with simple measures.

Methods
We collected data to assess the number of CMTs attending clinic during their time off. A clinic rota was devised which allocated weekly afternoon clinic sessions for trainees. The first plan–do–study–act (PDSA) cycle included uploading the clinic rota onto the online on-call roster. The second PDSA cycle consisted of sending out clinic timetables for each specialty. The third PDSA cycle involved sending out more detailed timetables, including named consultants and themes of the clinic, to provide trainees with choice. We collated data by sending anonymous surveys to ten CMTs. We monitored the percentage of trainees who were attending clinics in their own time and how many were on track to meet their Annual Review of Competency Progression (ARCP) requirements.

Results and discussion
Initial data suggested that 70% of trainees had to come in on off days and during annual leave to complete their clinics. Following the first PDSA cycle, 57% had seen an improvement in their attendances, with 14% attending all their allocated clinic sessions. The second PDSA cycle showed 25% of trainees had attended all their allocated clinics and that 100% of them found an improvement in being able to organise which clinic to attend. None of the CMTs attended clinics in their own time and 88% of trainees were on target to meet their ARCP requirements. Seventy-five per cent of trainees found ward duties the biggest barrier to attending clinics.

Having a given day of the week set in advance for clinic meant that arrangements could be made to provide adequate cover on the wards.

Access to clinic schedules makes organising attendance much more efficient. Ward duties remained the biggest hurdle to obtaining mandatory attendances.

Conclusion
Allocating clinic afternoons on the online on-call roster eliminated the scheduling constraint of fitting in clinics around daily duties. The implementation of the rota provided an overall improvement in the clinic attendances.
How do we train healthcare professionals to integrate genomics into their practice? MSc in genomic medicine, Swansea University, Wales

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Introduction

Genomic medicine is transforming the way in which we understand health and disease, particularly rare diseases and cancer. Rapid advances in DNA sequencing are having major implications for patients in terms of diagnosis, treatment and prognosis, provoking a shift from a traditional ‘one size fits all’ approach to strategies tailored to the individual, known as personalised medicine or precision medicine.1 The UK is investing heavily in genomic medicine, with NHS England becoming the first health service in the world routinely offering genomic testing,2 and all healthcare professionals will soon be expected to have an understanding of genomics and integrate this into their practice. In recognition of these advances, in 2017 the Welsh Government introduced the Genomics for Precision Medicine Strategy, aimed at developing genetics and genomics to improve health and healthcare provision in Wales.3

Methods

To help fulfil the Genomics for Precision Medicine Strategy,3 Swansea University Medical School launched an MSc in genomic medicine in May 2018. It is currently the only university in Wales to provide this opportunity to multidisciplinary healthcare professionals, imparting the skills and knowledge necessary to interpret genomic data and understand its impact on patient care. Based on the indicative curriculum of Health Education England and Genomics England, this 2-year part-time master’s course integrates lectures, workshops, tutorials, interactive group learning and guest lectures, while encouraging and facilitating workplace learning. Modules include bioinformatics, genomics of common and rare inherited diseases, ethics, genomics techniques and optional modules such as pharmacogenomics. Module assessments are summative and students must complete a dissertation describing an applied genomics project, research or literature review.

Results and discussion

Eight students completed their first year of study in January 2019. A variety of healthcare professionals enrolled (laboratory-based microbiologists, geneticists, pathologists, general medics, oncologists and paediatricians), which fostered collaborative work and learning. The formal and informal feedback for all modules has been excellent, with students ranking all aspects as ‘highly satisfactory’. Students have attended conferences and workshops related to genomic medicine and have disseminated knowledge to their allied healthcare professionals. Their varied dissertation proposals range from integrating new genomics techniques into current NHS practice to facilitating improved patient access to genomics-related healthcare.

Conclusion

With the future direction of care set out by the NHS and rapidly advancing genomics technology, the need for education and training in the field of genomic medicine is irrefutable. The MSc in genomic medicine at Swansea University School of Medicine plays a vital role in educating healthcare professionals in Wales seeking knowledge and skills in this emerging discipline.
References


Gamification of dermatology: Stud2yBuddy, a novel game to facilitate dermatology revision for final-year medical students

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Introduction

Medical students are subject to high levels of stress and anxiety during revision and assessment periods. Literature supports game-based learning in higher education, improving motivation to learn and interactive peer assessment. ‘Serious games’ have a pedagogical design. Games can help to develop analytical skills and increase retention through active learning. Also, compared with traditional pedagogical methods, educational games result in less stress and anxiety. Games in education additionally help to promote team building and develop professional skills, offering an alternative method to teaching these valuable skills.

We present the board game Stud2yBuddy, a novel approach to facilitating dermatology revision.

Our aim was to develop an effective interactive resource to improve confidence in dermatology and encourage peer feedback and self-assessment in finals revision.

Methods

We identified through questionnaire responses that students find dermatology difficult and stressful to learn; gamification of dermatology could overcome this. We designed a card-based board game with four categories, incorporating different learning styles. Learning outcomes were blueprinted against a British university medical school curriculum. A prototype board game was trialled with junior and senior medical educators, and subsequent feedback and quality assurance resulted in further game development.

Final-year medical students (n=65) attended facilitated revision workshops featuring the Stud2yBuddy board game, in addition to a traditional pedagogical lecture. Quantitative and qualitative data assessing learning styles and confidence in dermatology were collected before and after the session using Likert response questionnaires and open-ended questions.

Results and discussion

Likert responses showed an increase in mean confidence levels from pre-session to post-session across various aspects of dermatology (mean ± standard deviation): diagnosis 3.26±0.70 to 3.88±0.57 (p<0.001), investigation 3.02±0.72 to 3.47±0.64 (p<0.001), management 3.25±0.72 to 3.52±0.61 (p=0.016), recognition of dermatological lesions 3.07±0.74 to 3.97±0.55 (p<0.001), description of describing dermatological lesions 2.98±0.86 to 3.82±0.58 (p<0.001).

Students agreed that gameplay was interactive (100%), motivational (97%), achieved learning goals (80%), identified weaknesses (88%), incorporated sufficient feedback (91%), facilitated learning through teamwork (91%) and was less stressful than traditional methods of teaching (86%). Qualitative themes included group participation, variation of topics and learning styles, knowledge application and enjoyment.

Conclusion

The Stud2yBuddy board game gamifies dermatology to create an interactive learning and revision resource. The game incorporates peer feedback and self-assessment which students found beneficial for learning, and it increases confidence in revising dermatology. Our game is enjoyable and less stressful than other revision methods; this is in line with current research into game-based learning.
Novel revision methods such as board games provide a wealth of opportunity for improving student engagement, reducing stress and anxiety while improving content understanding. Further evaluation into the efficacy of educational impact is an exciting area to be explored. This is easily applicable to other medical specialties and could be developed as a revision tool for specialty examinations.

References

Factors influencing task prioritisation by clinicians in hospital during out-of-hours periods

Authors: Sophie Middleton, Sarah Martindale, Matt Ryan, Dominick Shaw, Sarah Sharples, Alexandra Charnock and John Blakey

Introduction

The number of admissions to acute hospitals is rising, yet average length of stay has fallen. The range and complexity of tests and treatments for the multimorbid inpatient population are growing. The Hospital at Night team of junior doctors, senior nurses and clinical support workers delivering ‘out-of-hours’ care are therefore faced with an increasingly large and complex workload. Effectively prioritising tasks is therefore a key ability for these clinicians, but relying on development of this ability through experience risks the delivery of safe and timely care while skills are acquired. This study aimed to investigate which factors affect task prioritisation by clinicians, and to contextualise these findings with published experimental data around task prioritisation.

Methods

Semi-structured interviews around a recalled situation that tested task management skills were undertaken with 25 clinicians at two UK teaching hospitals. The interviews were then transcribed and coded into themes.

Results and discussion

Most participants selected a primarily task prioritisation issue as their scenario for discussion, indicating that clinicians find this a challenging management situation. Key factors in task prioritisation decisions included perceived urgency, task and general contexts, time pressure, location/routing and their own clinical skill set and preferences. Few participants reported specific task prioritisation training.

Conclusion

Task prioritisation is important and challenging for clinical staff working out of hours. This study highlights aspects of task prioritisation that could potentially be modified by alterations in the working environment and specific training.

References


Evaluating the effectiveness of using near-peer tutors in teaching first-year medical students

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Introduction

Innovation plays a major role in professions that require constant change and improvement, especially medicine. This is recognised by statutory bodies globally, yet research demonstrates that UK-based medical schools have not integrated the teaching of innovation as much as their US counterparts.

A recent example of innovative practice by medical schools is the introduction of near-peer teaching (NPT), where senior students teach junior students with the advantage of social and cognitive congruences.¹ For junior students, NPT reportedly shows similar or better qualitative and quantitative outcomes than teaching by academics.² For senior students, delivering NPT allows the development of greater proficiency in the topic and improvement of professional and communication skills.³

Aim

To establish effectiveness in using NPT to introduce medical innovation to first-year medical students.

Methods

Under the Student Selected Component scheme, three senior medical students led and delivered eight weekly sessions on topics of medical innovation, including education, technology and entrepreneurship.

Qualitative data from semi-structured focus group interviews, led by an academic, conducted on the near-peer tutors and first-year medical student tutees were coded and analysed thematically using NVivo. Structured evaluation questionnaires for tutees, completed at the end of the module, were also used to evaluate the effectiveness of the course.

Results and discussion

Teaching sessions are currently ongoing, with formal data to be collected and analysed before the end of March.

Informal feedback shows that tutees recognise the importance of learning innovation to supplement their core curriculum. Tutees also appreciate being taught by near-peers, and report development of transferable skills. Similarly, tutors describe greater confidence, improved teaching competence and increased understanding of the subject matter.

Conclusion

There is insufficient research to suggest negative implications of using NPT as a teaching method, especially on medical innovation. We believe that our findings on NPT will encourage senior students to take on teaching roles and prompt medical schools to support these endeavours.
References


Embedding acute physicians in the emergency department to improve medical registrar training and morale

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Introduction

Much has been written about the effect that increasing workload during medical on-calls has on the medical registrar\textsuperscript{1,2} as they try to juggle safe patient treatment, their own training, supervision of their team, and often education and supervision of other doctors within the hospital, particularly on night shifts. Multiple rota gaps have negatively affected their work–life balance, as medical registrars are relied on to cover extra shifts (due to the scarcity of locum doctors), as well as the adverse effects on their training, particularly in the craft specialties (ie those with a significant amount of time performing practical procedures, eg endoscopy in gastroenterology). In places that are particularly busy, such as at East Surrey Hospital, changes in consultant working patterns to address patient flow and early senior review have inadvertently worsened the teaching and training opportunities for registrars by having multiple post-take ward rounds happening throughout the day, often simultaneously, and with different consultants taking part. These factors have colluded to create a system where our registrars are often exhausted, severely cognitively overloaded, lacking in opportunities to acquire work-based assessments (WBA) and with low morale.

Methods

To address this, and also the need to improve the time to senior review for all admitted patients towards the end of the ‘day shift’, a new system was devised whereby acute physicians became embedded within the emergency department\textsuperscript{3} (where the majority of the ‘take’ took place) to be easily available for support and advice, with predictable hours (8am–10pm weekdays), easy to contact, flexible to taking referrals or early review of patients, to debrief during or following the shift, and to complete WBAs. The 12 medical registrars on the on-call rota were surveyed at the end of the first 2 months to assess the impact that the change had had on their on-calls.

Results and discussion

- All 12 registrars responded to the survey.
- 92% of respondents were aware of the change of hours.
- 75% felt that the workload had improved; none felt that it was worse.
- Most felt that the extended consultant presence had improved available support during on-calls (Fig 1).
Fig 1. Responses to the survey question ‘Have you experienced a change in the level of support for the admissions shifts from the AMU consultants since the change in hours?’

- 75% were very positive or positive about access to the acute physician at the end of the night shift.
- Disappointingly, only 45% felt that it was easier to get supervised learning events performed following a night shift than under the old system.
- Most approved of AMU consultants helping to take referrals during the day shift, but 9% disapproved as they liked being ‘in control’ of the take and that it contributed to training (Fig 2).

Fig 2. Responses to the survey question ‘Is it useful to have the AMU consultants help take referrals during the take?’

- However, 92% felt better supported than in the previous system.

Registrars’ ideas for other actions that would improve training and morale included improving the staffing at busy periods, finding methods of post-take ward round that do not slow the take down, ensuring that the registrars always have a lunch break and that it is bleep free, giving immediate feedback on performance, access to non-bleep ways of communication like WiFi phones, and seeing the registrar’s patients first on the take.
Conclusion

Overall this study demonstrated a very positive result, showing that embedding acute physicians outside their usual environment can be beneficial to the medical team. Work is ongoing to assess the impact on the emergency department and on patient flow.

References

Career intention at the end of core medical training

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Introduction

In 2018, 38% of foundation trainees proceeded directly into specialty training, down from 71% in 2011.1 It is estimated that 50% of core medical trainees (CMTs) go directly onto higher training. Common reasons for career breaks include travelling, parental leave, non-training clinical work and ‘health and wellbeing’.2

Here we present an exit survey of CMTs in Yorkshire and the Humber (Y&H), exploring career intentions and reasons behind choices.

Methods

All CMTs in Y&H expecting to complete core medical training in summer 2018 were invited to complete an online survey in June/July 2018. Participation was voluntary, with no identifying information collected.

Question style was selected for appropriateness to each individual question, with multiple styles used. Free-text responses were categorised during analysis, with no pre-defined categories. Subgroup analysis looked at influence of demographic factors on decisions.

Results

Fifty-seven trainees (45% of those eligible) responded, with 42 (74%) expecting to complete core medical training that summer. Of those completing core medical training, 28 (67%) were proceeding directly into higher training; 13 (31%) were taking time out and then planned to continue in higher training; and one planned to take time out, reassess plans later but not necessarily continue into higher specialty training. None planned to leave physicianly or UK training in the long term.

Twelve respondents taking time out were questioned regarding their plans, and could select more than one response. Nine (75%) were gaining further experience prior to being a medical registrar, nine were working patterns that were not possible in training, seven were gaining experience to help decide on specialty, and four were developing their CV for competitive applications.

Seventeen (61%) of those aged under 30 planned to continuing training directly, compared with 11 (79%) of those aged over 30. Sixteen (64%) women were continuing directly, compared with 12 (71%) men. Nineteen (61%) who had obtained their primary qualification in the UK planned to continue immediately, compared with eight (80%) who obtained it outside the European Economic Area.

Discussion and conclusion

This survey has two significant results: upon completion of core medical training, almost all trainees want to pursue physicianly careers in the long term, and the decision to take time out of training is multifactorial, with 12 trainees selecting 31 reasons. Three reasons were common: working a pattern that was impossible in training; gaining experience prior to being a medical registrar; and to aid competitive selection.

Two of the common reasons are addressed by the internal medicine curriculum,3 which should widen experience and prepare trainees better for senior roles. Increased flexibility was highlighted in the 2016 contract negotiations4 and much is being done to address this, with the RCP and Health Education England (HEE) introducing ‘flexible portfolio training,’ HEE piloting opening up less-than-full-time training and exploring ‘step-on, step-off’ training.5,6 This survey should be repeated after these changes.
References


Barriers to the implementation of exception reporting at a busy district general hospital

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Introduction

One change implemented with the 2016 junior doctor contract was the advent of a system of exception reporting. This enables doctors to report either loss of educational opportunities or breaches of safe working hours (including working extra hours, inability to take breaks and unsafe conditions). The outcomes of exception reporting could include compensation (with time or pay), with the process enabling unsafe working conditions to be flagged up to relevant stakeholders.

The novelty of exception reporting means that there is a paucity of data regarding uptake or improvement outcomes. One recent study from Barts Health NHS Trust explored this issue. The authors surveyed junior doctors within the trust and found that 35% had submitted an exception report, with 29% of respondents reporting being told not to exception report by their seniors.

Following discussions with junior doctors, it was observed that the numbers of submitted exception reports might not reflect those anticipated, given known issues with staffing levels and rota gaps.

Therefore, this study was designed to establish what percentage of eligible shifts are exception reported by junior doctors in a busy district general hospital, and the reasons behind any discrepancies in the observed pattern of exception reporting.

Methods

An online survey consisting of multiple-choice questions and free-text answers was created. This was run ‘live’ at two separate junior doctor teaching sessions (from foundation to core medical trainees). In addition, the survey was sent electronically to the same cohort (a total of 86 junior doctors) to enable completion outwith these sessions.

Results and discussion

There were 61 respondents in total. Ninety per cent of those surveyed did not submit all eligible exception reports, with 43% of these doctors having submitted none. Eighty-five per cent reported fear of negative repercussions by seniors as a reason for not completing reports, with 50% saying that this influenced their willingness to exception report to a moderate to significant degree. Seventy-eight per cent of respondents would be more likely to exception report if their anonymity could be maintained.

Conclusion

Low compliance is a significant barrier to implementing service improvement through exception reporting. The causes of low compliance in exception reporting are multifactorial, but discouragement from seniors and fear of repercussions was a recurrent and substantial theme.

Ensuring safe working hours is crucial to safeguarding staff wellbeing and, consequently, promoting good patient care. Exception reporting is key to promoting safe working, and therefore addressing barriers to exception reporting is critical. A number of suggestions have been identified based on this study:

- Firstly, improving the fundamentals of the exception reporting infrastructure (including addressing issues of anonymity).
- Secondly, changing supervisors’ understanding of exception reporting to promote a culture of acceptance and encouragement, rather than guilt and determent.
• Thirdly, educating junior doctors on the function and system of exception reporting, as a means to providing a safe channel to raise important workplace concerns.

Reference

Bedside buddies – an educational and pastoral teaching programme for year 2 medical students

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Introduction

Junior medical students often find starting clinical attachments daunting. Understandably, they lack confidence and are new to the hospital environment. For this reason, they may not get the most out of clinical placements. At Lancaster Medical School (LMS), year 2 students undergo their first clinical attachments at both Royal Lancaster Infirmary (RLI) and East Lancashire Hospitals NHS Trust (ELHT). The General Medical Council states that teaching doctors and students is important for the care of patients.\(^1\) Near-peer teaching (NPT) is increasingly recognised as an effective method for teaching and learning within medical education.\(^2\) A buddy system was designed and the impact of this educational strategy was evaluated by surveying near-peer learners before and after the sessions.

Aim

We aimed to create a structured, informal ‘buddy system’ for the year 2 LMS students rotating through ELHT as well as RLI. This would address the educational and potential pastoral needs of the year 2 medical students, as well as supporting them in their early clinical experiences.

Methods

Before the launch of the buddy system to the region, it was first trialled at RLI. Students were given a pre-programme survey using a five-point Likert-based scale. This was used to evaluate their overall confidence levels within the hospital environment, as well as their examination and procedural skills.

A structured teaching programme was then created. Guidance in terms of the teaching topics was given to the educators. A post-teaching survey was also conducted.

Following on from this, the buddy system ‘Bedside Buddies’ was launched at both RLI and ELHT. It has two arms – namely, bedside teaching and pastoral guidance. Two junior doctors, who were interested in teaching and therefore volunteered, were paired up with two medical students, allowing continuity if one doctor was unavailable. A booklet highlighting the roles, teaching topics and pastoral guidance, with clear routes for accessing help from the Department of Undergraduate Education, was created for the educators. They were asked to meet at least once every 2 weeks, with the content of their teaching and discussion being relatively non-prescriptive and tailored to the students’ needs within the year 2 curriculum.

Results and discussion

The initial survey results at RLI showed that 69% of the students found the buddy system to be useful or very useful. Confidence on the ward, in examination skills and in history taking all saw a significant increase (p<0.05). On average, the students and doctors met up fairly regularly; however, this could have been improved. The students reported less anxiety and were keen for a similar programme to run at ELHT.

Taking lessons from the trial at RLI, a new ‘Bedside Buddy’ near-peer system was created. It was rolled out to RLI as well as ELHT in order to create a consistent teaching and support platform for the year 2 students throughout the year, regardless of where their clinical placement was.

Furthermore, a pastoral side was also incorporated. This allows the year 2 medical students to have another potential source to seek help or raise concerns, which is part of their professional responsibility. While we are still collecting results from the first cohort of ‘Bedside Buddies’, we anticipate it to be very successful. A post-teaching survey is currently underway.
Conclusion

This system is structured and tailored to the year 2 curriculum and logbook. It allows the educational needs of the students to be met on a regular basis and in a less ad hoc manner, with familiarisation to the clinical setting in a supported fashion.

The ‘Bedside Buddies’ system creates consistency for the LMS students rotating within the region. Students are able to receive regular feedback, with personal and focused teaching. Students may feel more comfortable being taught by junior doctors, as near-peers may be able to relate better to the anxiety of starting clinical attachments.
An assessment of peer-led teaching sessions for final-year medical students in a district general hospital in the UK

Authors: Avraneel Talapatra, Ha Phuong Do Le, Helen Craggs and Yasmeen Hayat
Royal Bolton Hospital, Bolton, UK

Introduction

A peer teaching programme was designed by foundation year one doctors (FY1s) at a district general hospital to help final-year medical students with preparation for their final-year examinations and for their life as doctors. The aim of the teaching programme was to provide a friendly and accessible learning experience for students, taught by recent medical graduates.

Methods

A programme of once-weekly OSCE (objective structured clinical examination)-style teaching sessions was organised over a 6-week period, outside normal working hours. FY1s designed original but realistic OSCE-style stations across a wide range of specialties. FY1 tutors were invited to facilitate these teaching sessions, which were attended by final-year medical students. Feedback was collected from all FY1s and medical students.

Results and discussion

We involved the majority of the FY1 cohort at the hospital in the teaching. This ensured that a wide breadth of experience was available. Each session consisted of three individual 20-minute stations. This enabled students to complete the required tasks and receive immediate feedback.

It has been shown in similar programmes that students appreciate teaching from those who have had recent experiences of medical school and understand the struggles they go through. The students in our programme particularly praised the relevance of the stations to their final exams and the quality of the feedback that was provided. The mean score across all sessions when asked about both domains was 4.96 out of 5 (99.2%), on a scale where 1 is poor and 5 is excellent. The mean score for the level of organisation of the sessions was 4.88 out of 5 (97.6%). Students were given advice on how to augment their clinical skills, including history taking and examination. The students praised the focus on novel scenarios such as SBAR (situation, background, assessment and recommendation) handover, patient prioritisation and dealing with acutely unwell patients. Students appreciated the open and supportive nature of these sessions and felt that they could ask relevant questions, as necessary.

Adams et al showed that peer teaching helps to hone the knowledge and skills of tutors. The tutors in our programme praised the opportunities to support and mentor final-year students. They enjoyed being able to collaborate with and learn from their peers who have experience in other specialties. They felt more confident in providing constructive feedback.

Conclusion

Peer teaching benefits not only the tutees, but also the tutors. The students praised the relevance of the scenarios to their exams and the personalised feedback that was provided. There was a focus on maintaining an open and supportive nature to the sessions. Newly qualified FY1s were able to share their valuable skills and experience from transitioning into working life to the final-year students. We will continue to provide peer-based teaching in this format in the forthcoming years.

References

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Addressing the burden of cancer and neurological disorders in East Africa: the Royal College of Physicians Medical Training and Fellowship (METAF) programme

Author: Jennifer Eastin
Royal College of Physicians, London, UK

Introduction

The Medical Training and Fellowship (METAF) programme is a 4-year project (2016–2020) that aims to increase the early detection, research and treatment of cancer and neurological disorders in East Africa, especially in communities and areas where access to qualified professionals remains a challenge. Through the delivery of a series of clinical training courses, participating physicians will be better equipped to diagnose and manage their patients with common neurological disorders, undertake acute triage of cancer presentation and manage symptoms of cancer within district/regional hospitals.

The programme is a collaboration between the Royal College of Physicians (RCP; technical partner) and the British Council (programme administrator), and is sponsored by the East African Development Bank (EADB).

The METAF programme and partnership are heavily aligned with the United Nations’ 2030 Agenda for Sustainable Development and the associated Sustainable Development Goals, recognising non-communicable diseases as a major challenge for sustainable development and supporting the use of partnerships and collaboration across countries and organisations to tackle these challenges and to meet these goals.  

Methods

Following a partnership agreement between the RCP and the British Council, funds were secured from the East African Development Bank. Within Year 1 (2016), a needs assessment was carried out in Kampala, bringing together medical leaders in oncology and neurology from Kenya, Tanzania, Uganda and Rwanda. During Year 1, course conveners were recruited, curricula were developed and four intensive training courses were delivered, with RCP volunteers teaching alongside local faculty.

In Year 2 (2017), seven training courses were delivered, including the first round of oncology ‘cascaded’ courses, facilitated by trainers who participated in the previous oncology Training of Trainers (ToT) workshops, with support from course conveners and RCP faculty. In Year 3 (2018), 11 training courses were delivered, including a refresher oncology ToT for trainers to regroup and share experiences from the cascaded courses held, and to discuss the impact of the programme on the trainer’s practice and how to improve future trainings. Quantitative feedback to evaluate learning was gathered in the form of multiple-choice tests at the beginning and end of training, with test scores compared to evaluate the knowledge change. Qualitative feedback was gathered in the form of written evaluations at the end of each course. Course content is continually amended based on country-specific needs, participant and faculty feedback.

Results and discussion

Since the launch of the programme in 2016, 22 clinical training activities have been delivered: nine neurology training courses, four oncology ToT workshops and nine oncology cascaded training courses. Within Year 3, 244 doctors have completed the clinical training courses, bringing the total of doctors trained from across Kenya, Uganda, Tanzania and Rwanda as part of the METAF programme to 448.

Participant feedback suggests that over 3,000 clinical staff will benefit from the knowledge gained on the clinical courses through mentoring by course participants at home facilities.
Conclusion

The first 3 years of the METAF programme registered significant strides in addressing the capacity challenges around oncology and neurology in East Africa. Beneficiaries of the training programme came from a wide geographical spread in each country, to ensure that improved diagnosis and treatment in cancer and neurological disorders could be deployed outside the urban teaching hospitals.

Feedback from course participants, course conveners, local and RCP faculty indicates significant gains in learning and that valuable partnerships have been formed. The unique METAF training model, with curriculum design and delivery teams drawing expertise from both the RCP and East Africa, has guaranteed both world-class approach and content while still ensuring contextual relevance. The ToT and a cascade model of training courses has allowed for rapid dissemination of information, maximising reach and increasing teaching capacity. The methodology may be applicable to similar needs in other low- and middle-income countries.

Reference

A self-management education programme for adults with asthma

Authors: Hamad Dailah, Alison Brettle and Paula Ormandy
University of Salford, Manchester, UK

Introduction

Globally, asthma is one of the major non-communicable diseases, with 235 million people currently suffering from the condition. In Saudi Arabia, there is a 4% prevalence of asthma among the adult population. This study aimed to develop an adult asthma patient self-management education programme that took into account the Saudi context and culture.

Systematic review

A systematic review was conducted to determine the most effective way of delivering asthma self-management education programmes. It was shown in the review that asthma was more prevalent in individuals with less education, and that nurses had an important role in educating patients with this disease. Following analysis of this evidence alongside the Saudi context, small-group education programmes delivered by nurses were selected as the most appropriate means of delivering education, which considered patient individual needs and cultural values to improve their health outcomes in terms of self-management.

Methods

An explanatory sequential complementary mixed-methods design was adopted. This design encompassed a quasi-experiment using a pre- and post-test comparative study, followed by a qualitative part using face-to-face interviews with patients. The intervention was an educational programme that included topics selected based on patients’ needs in the review and following the Saudi Initiative for Asthma (SINA) guidance. The programme was tested to determine whether it provide patients with the necessary knowledge and skills to self-manage their asthma and consequently reduce their visits to emergency departments. Further, the programme was approved and co-designed with nursing staff who provide care for patients with asthma in the selected hospital and following consultation with patients. The programme was delivered by nurses and other professionals who were trained to ensure the quality of delivery. Data were collected pre-, post- and at 3 and 6 months following the intervention and included topics related to asthma, Asthma Control Test, Asthma Self-Management Questionnaire, the Asthma Knowledge Questionnaire and the Patient Activation Measure (PAM) instrument. Prior to data collection, instruments were all translated to Arabic, the language of participants, and validated to assure the validity of patients’ responses. Patients in the control group were able to receive the intervention after 6 months, the last data collection point in the study.

Findings

Analysis of the responses between the pre- and post-tests demonstrate that patients with higher levels of knowledge had higher PAM scores. Patients’ scores in all datasets in phase 2 were higher than those in phase 1, which indicated that the education was effective and increased confidence in patients’ self-management of their asthma. Results to date suggest that the bespoke education is relevant and provides the necessary knowledge to increase confidence and patient activation towards disease self-management and reducing complications.
Study progress

Longer-term follow-up data and qualitative interviews will be completed in late February 2019. It is anticipated that these results will confirm that the educational programme is suited to the Saudi Arabian context, improves knowledge and increases confidence in the self-management of asthma.

Reference

Developing a simulation programme in line with the internal medicine curriculum

Authors: Lucy Baxter and Simon Panter
South Tyneside District Hospital, Tyne and Wear, UK

Introduction

South Tyneside District Hospital had an underutilised simulation facility. Patient safety initiatives, Shape of Training and the subsequent development of the internal medicine (IM) curriculum\(^1\) demonstrated that expansion of our simulation offering was necessary. The IM curriculum encourages use of simulation for training throughout the 3 years: for emergency presentations, for clinical skills and for non-technical skills.

Method

We developed three training days each mapped to the IM curriculum. In all three years of IM training, a clinical skills day covering the core procedures will be offered. South Tyneside has a number of part task trainers available for this.

In IM year 1, a simulation day covering the emergency scenarios will be offered and in IM year 2, a ‘skills for registrars’ day covering the non-technical skills required to be an on-call medical registrar will be offered. We developed and trialled these days with current core medical and acute care common stem–acute medicine (ACCS-AM) trainees.

Results

A simulation training day for all core medical trainees across South Tyneside and Sunderland Hospitals has been developed to meet their learning outcomes for the emergency presentations in their curriculum: shocked patient, unconscious patient, cardiac arrest and anaphylaxis. The scenarios incorporate the clinical presentations and management, alongside some human factors that they may find themselves managing as medical registrars.

Sixteen core medical training doctors (years 1 and 2) attended over four sessions. Feedback was universally positive, with 94% rating the day as excellent and 6% as good. Written feedback included:

- ‘Useful to be able to practise management of emergency scenarios in real time with human factors’
- ‘Human factors aspect of scenarios were really useful, I’ve never had that in SIM before’
- ‘I will definitely recommend to colleagues’

A second simulation training day was developed to cover the non-technical skills required to be an on-call registrar. This took the format of a night shift where participants had to manage the acute take, clinically unwell patients, cardiac arrest, junior colleagues, handover and leadership of the team.

Three core medical and ACCS-AM trainees attended. Feedback was positive, with 100% rating the course as excellent. A second day will be offered to six further trainees. Written feedback included:

- ‘I liked the theme of “a night shift” with interlinked cases/scenarios’
- ‘I think this was probably cleverer than we realised; there was lots of hidden learning’
- ‘Really useful discussions around end of life, capacity and cardiac arrest. And we could relate it to real-life scenarios about how we could improve our practice’

A clinical skills day is under development and will be trialled late this year.
Conclusions

This simulation programme has been well received by core medical and ACCS-AM trainees, with feedback showing that they found it useful and relevant. It is mapped to the IM curriculum in order to meet their simulation requirements and curriculum outcomes. We plan to share it regionally and to integrate it into the IM programme when it launches this year.

Reference

QUALITY IMPROVEMENT AND PATIENT SAFETY

Transformation of a gastroenterology inpatient service

Authors: Suraj Pathak and Ajay Verma

University Hospitals of Leicester; Kettering General Hospital

Introduction

Numerous studies have demonstrated that consultant delivered care can lead to: increases in productivity, reduction of length of stay as well as increasing patient satisfaction. The Gastroenterology Inpatient (IP) Service at Kettering General Hospital was reconfigured to implement NHS Improvement’s SAFER patient flow bundle.

Materials and methods

The incumbent arrangements were on Deene C Ward (DCW): 29 patients under the care of three consultants conducting twice weekly ward rounds not prospectively covered, newly admitted and unwell patients reviewed by any ward round as a safety net arrangement.

This was transformed to a Digestive Diseases Unit (DDU): bed base reduced from 29 beds (three side rooms, three x six-bedded bays, a five-bedded bay, and a three-bedded bay), to 20 beds, achieved by reducing six-bedded bays to four beds, and converting the three-bedded bay to a nurse-led Gastroenterology Treatment Area (GTA) for daycase ambulatory patients. This allowed the introduction of a consultant of the week (CotW) model in November 2017.

The CotW, for 2 weeks (prospectively covered), is responsible for daily DDU ward rounds of all 20 patients under their care, review of inpatient referrals, in-reach into urgent care wards, and support of GTA. There is minimal outpatient commitment during this period (no endoscopy lists or outpatient clinics). These arrangements were analysed after 12 months to assess the impact on patient care.

A retrospective observational study was conducted to benchmark and evaluate changes in consultant-led care subsequent to the structural reorganisation of the ward, and introduction of the CotW rota. Patients were identified through electronic records. Data was collected from both electronic discharge letters and paper notes. Statistical analysis was performed using Matlab and Microsoft Excel.

Results

<table>
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<th>DCW</th>
<th>DDU</th>
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<th>P value</th>
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<tbody>
<tr>
<td>Median length of stay</td>
<td>141</td>
<td>104</td>
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<tr>
<td>(hours)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Discharges per week</td>
<td>0.79</td>
<td>1.06</td>
<td>+34.2%</td>
<td>&lt; 0.01</td>
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<td>per bed</td>
<td></td>
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<tr>
<td>Consultant reviews</td>
<td>0.63</td>
<td>1.16</td>
<td>+84.1%</td>
<td>&lt; 0.01</td>
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<tr>
<td>per week</td>
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</tr>
<tr>
<td>Complaints (2 weeks)</td>
<td>12</td>
<td>11</td>
<td>-8%</td>
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</tr>
</tbody>
</table>

GTA treating >90 patients and generating >£35K each month.
Gastroenterology inpatient services are now SAFER compliant.

Conclusion

The transformation of gastroenterology inpatient services has been a great success. A reduction in bed base by nine beds has allowed a CotW model of care to be implemented. This has made the inpatient service SAFER compliant while being cost-neutral. Length of stay has been significantly reduced by 26.2% (p<0.01). Discharges per week per bed and consultant reviews per week have significantly increased by 34.2% (p<0.01) and 84.1% (p<0.01) respectively. In addition, GTA is an income-generating unit, treating >90 patients per month, preventing admissions, facilitating earlier discharges, and freeing capacity in the
pressured main hospital ambulatory unit. This reconfiguration confirms that a CotW model of care is optimal and SAFER compliant, even if a bed base reduction is required to facilitate this.

References


Using Clinical Utilisation Review and QI methodology improves patient flow in the acute hospital setting

Authors: Emma Vardy, Debbie Meehan, James Barham, Imogen Lyons and Hilary Richardson
Salford Care Organisation

Introduction

Clinical Utilisation Review (CUR) is an evidence-based tool that identifies if a patient is cared for at the correct level of acuity at the time of assessment. The tool identifies internal delays which are occasioned by delays inherent in the acute setting; it identifies external delays which are outside the control of the acute hospital. CUR identifies delays to discharge and individual patient journeys. It identifies themes and areas where resource may be better placed to affect high-quality care. We present a project in which CUR data was used to improve patient flow on an acute geriatric medicine ward.

Methods

Ward L4 is a 24-bedded inpatient geriatric medicine unit. The nursing team input CUR data daily for patients selecting an appropriate reason delay code. Data was collated by the CUR project team and in October 2018 was presented to the ward multidisciplinary team showing the top 10 reasons for delay to discharge. A driver diagram was developed, focusing initially on three delay codes: fast track referral, best interest meetings and intermediate care (IMC) referrals. These delays were deemed within the remit of the multidisciplinary team to change.

The ward QI team met regularly to review data, identify potential changes and plan PDSA cycles. Where relevant, the ward team engaged other teams to support. For example, process mapping of fast track referral with a member of the continuing healthcare team was used to identify issues resulting in delays and potential improvements. As the project progressed, the top reasons for delay shifted and additional themes were incorporated.

Results and discussion

Over a quarter, the project resulted in a 10% reduction in mean proportion of beds occupied by patients who were categorised as non-qualified (ie not requiring the level of care provided on the ward). Ward transfers increased from an average of 97 per month to 144 in January 2019. There was no compromise of friends and family feedback or concomitant increase in 28-day readmissions.

A reduction in delays from all three delay code categories was observed. This was estimated to save approximately 35 bed nights when compared with the previous quarter. The project resulted in a new streamlined process for referral to IMC across the trust with associated time and cost savings, particularly for the therapy team.

The project showed that delay in discharge is multifactorial and requires persistent focus of the multidisciplinary team to show improvement. The top 10 delays changed over the study period and new delay codes are being studied as part of an ongoing project.
Conclusion

We showed that CUR, combined with quality improvement methodology, is an effective tool to help ensure patients receive the appropriate level of care in the correct environment at the correct time and can be used to improve inpatient flow.
The Blackburn handover – an innovative development to support patient, trainee, staff and organisational safety

Authors: Junaid Aamir, Suzanne Gawne and Damien Lynch
East Lancashire Hospitals Trust

Background

High-quality medical handover (MH) of patients is essential in helping to deliver effective care. Current literature encourages hospitals to adopt formalised handover structures to enhance patient safety and team working. Furthermore, shift handovers can be utilised as a learning tool for the medical team. East Lancashire Hospitals NHS Trust (ELHT) was placed in special measures by HEENW (Health Education England North West) for its postgraduate medical training. The lack of a formal MH system was highlighted as a particular area of concern. It was not effective and had no educational value. There was a need to develop and implement an effective MH to support patient, trainee, staff and organisational safety.

Materials and methods

An operational and educational lead was appointed to oversee MH development and implementation. The approach was ‘bottom up’ with multiprofessional stakeholder engagement primarily from trainees.

The MH at ELHT was redesigned and implemented. It was designed to be multiprofessional, timely, pragmatic, educational, meaningful and pastoral. It aimed to:

1. engage learners to produce an educational environment facilitated by a consultant
2. develop leadership, team working, and promote pastoral support for attendees
3. create a culture to support the raising of concerns with a non-blame professional approach
4. address organisational and safety issues
5. disseminate MH information to a wider audience to encourage organisational learning and reach those able to facilitate prompt change
6. fulfil the RCP criteria for MH.

A set agenda comprised sections to address patient handover, staffing and system issues, raising concerns, team wellbeing and an educational component. Chaired by an ST3+ to develop leadership skills, a consultant facilitator was present to encourage reflection in a supportive environment.

Outcome measures comprised ELHT trainee, GMC National Trainee Survey and HEENW feedback.

Results and discussion

Trainee response to an online feedback questionnaire demonstrated >90% approval (agree/strongly agree) with regard to trainee education, raising concerns and supporting patient safety. Qualitative responses included the following:

‘Very responsive to feedback, timely responses (usually same day), excellent, first time I have worked in a trust that has been this responsive to trainees/on-call issues.’

‘Allows urgent patient safety issues from wards to be rapidly addressed.’

‘Raising concerns is welcomed in the meeting and they are taken on board. They are also actioned.’

‘Professional but supportive atmosphere – feel able as an FY1 to ask if unsure or hand over perhaps less important issues without scorn!’
Trainees have stated that working relationships within the trust have improved as a result of feedback they have received from the MH.

Following the new MH introduction the GMC National Trainee Survey demonstrated a year-on-year increase in trainee satisfaction in a number of domains, particularly, ‘handover’, ‘educational supervision’, ‘levels of feedback’ and ‘supportive environment’. Reported as ‘Excellent’ by JDAT (2016), HEENW (2018) described it as an exemplar with regard to the level of education and support offered to trainees.

The MH stakeholders comprise all trainees and senior colleagues working medical shifts. Handover also involves nursing and allied health professionals, clinical support and diagnostic services including IT, radiology and laboratory services, and middle and senior trust management. The format is under continual development based on feedback from all members of the workforce. This is a truly multiprofessional activity.

The MH lasts an average of 14 minutes, in keeping with a timely approach allowing outgoing teams to leave promptly. A pastoral section is dedicated to trainee welfare and wellbeing including appreciative inquiry and ensuring rest facilities are available following a shift. Feedback is provided at the end of the MH by the attending consultant to support trainee development. E-teaching on clinical issues occurs following the MH and challenging clinical or ethical incidents experienced by trainees highlighted at the MH are used as topics for discussion at the medical grand round attended by different professional groups to support broader learning. Trainees learn the importance of teamwork, leadership and professionalism in a supervised environment. A seating plan supports the MH effectiveness.

The identification of IT and medical systems issues throughout the shifts and prompt contact with relevant departments has allowed problems to be rectified as soon as possible. This has resulted in minimal delays with hospital systems and improved levels of patient care.

There have been numerous improvements in patient safety following concerns raised at the MH including clinical pathway development, out of hour emergency communications and effective patient handover. The MH also acts as a platform for QI projects.

Conclusion

The ‘Blackburn Handover’ has helped promote patient, trainee, staff and organisational safety at ELHT and supports the broader development of trainees. There is potential for it to have a wider application across healthcare organisations.

References

Seasonal variation in pressures on trauma services and in deaths following hip fracture

Authors: Catherine Grose, Elizabeth Fagan, Tim Bunning and Antony Johansen

A University Hospital of Wales; B Royal College of Physicians; C Crown Informatics Limited

Introduction

Seasonal variation in numbers of patients presenting with hip fracture is well recognised, and the potential implications of this for trauma and orthogeriatric service are significant. We set out to examine whether increased pressures in the winter months might lead to poorer outcomes for the frail people who typically suffer this injury.

Method

The National Hip Fracture Database (NHFD) has been reporting data for all patients presenting in England, Wales and Northern Ireland since 2007, and monthly data for over 175 hospitals are made freely available on the Crown Informatics website www.nhfd.co.uk. We analysed this published data for the 450,754 people who presented during the 7 years from April 2011 to March 2018 (Fig 1).

Results

We found the previously described seasonal variation in the numbers of people presenting: 8.0% more people presenting in the winter months (December–February) than in the summer (June–August). However, the total number of people dying within 30 days of hip fracture was 30.5% higher among those presenting in the winter (Fig 2).

In total, 33,649 people (7.46%) died within 30 days of presenting with hip fracture, but this figure varied significantly (p<0.001, chi-square test); ranging from just 6.66% in July to a peak of 8.65% (29.9% higher) in January.
Fig 2: Admissions and deaths from hip fracture by month

Conclusions

The public health impact of these findings is significant: an 8% increase in hip fractures during the winter would equate to 1,250 additional fractures during these months each year.

Patients average over 20 days in hospital, so these additional cases will compound the stresses on hospital services over the Christmas and New Year holiday period. Such factors must be taken into consideration when organising trauma and orthogeriatric services if we are to try and avoid the additional 325 deaths that we found to occur each winter.

Reference

Physical health assessment and medicines reconciliation on admission to an acute mental health unit: a quality improvement project

Authors: Arani Vivekanantham, Abdur-Raoof Sheikh, Hisham Omer, Patrick Elder and Samuel Amis

Introduction

Patients with mental health disorders are at high risk of concomitant physical health problems. Also, medicine reconciliation can help reduce prescribing errors. The aim of this project was to increase the completion rate of physical health assessments and medicines reconciliations at an acute mental health day hospital in accordance with local/national standards.

Methods

Patient clerking documentation was audited for completion of physical assessments and medicines reconciliation on four occasions: baseline, 2 months after the first intervention, 2 months later (following the trial of an online record-keeping system), and, finally, prior to a third intervention (twice-weekly ‘board round’ and dedicated weekly ‘physical health’ clinics) being implemented.

Results

At baseline (n=33), 16 (49%) had a physical examination, 15 (46%) had an electrocardiogram (ECG), 17 (52%) had baseline bloods and four (12%) had a completed medicine reconciliation form. After the second and third intervention (n=31), these figures increased substantially to 81%, 81%, 74% and 74% respectively.

Conclusions

Physical health assessments and medicines reconciliation are important components of clerking in psychiatry. The interventions introduced so far have improved the completion rate, thereby improving patient care.

References

Modern hip fracture care still involves nearly 3 days of bed rest – findings of the national Physiotherapy ‘Hip Sprint’ Audit in 2017

Authors: Elizabeth Fagan, James Hannaford, Meghan Liddicoat, Ruth ten Hove and Antony Johansen

Introduction

Modern anaesthesia and surgery are now so successful that nearly all patients with hip fracture receive prompt effective repair of their injury. This condition is an excellent test of the challenges faced by all frail and older hospital inpatients and by the multidisciplinary teams who seek to restore their previous mobility, independence and quality of life.

Methodology

The National Hip Fracture Database (NHFD) at the Royal College of Physicians collects data on all patients presenting with hip fracture in England and Wales. In May–June 2017 the Chartered Society of Physiotherapy led work by over 580 physiotherapists; supplementing NHFD data with detailed information about the rehabilitation provided to 5,989 (78.6%) of the 7,621 people who presented to 127 participating hospitals.

Results

On average each patient received 2 hours of physiotherapy (118 minutes) in the week after operation. 68.4% were mobilised out of bed by the day following operation. When added to the time spent waiting for their operation this meant that a typical patient still faces nearly 3 days of bed rest (2.66 days) before they can get out of bed after hip fracture. The ‘Hip Sprint’ Audit found significant variation in performance; nine hospitals (7%) achieved this for fewer than half of patients. 9.4% of patients were unable to get up as a result of pain or hypotension; factors which might have been anticipated and avoided by clear perioperative protocols and closer working with surgical and anaesthetic colleagues.

Discussion

Patients should be helped to get up as soon as possible after surgery – this is key to their wellbeing and avoidance of complications such as delirium. Collaborative multidisciplinary working is needed to ensure that pain, hypotension and delirium do not delay the start of rehabilitation. Individual teams should review the picture of their hospital’s immediate postoperative management provided at www.fffap.org.uk/phfsa.
Fig 1: Patients start their hip fracture recovery with nearly 3 days in bed

Fig 2: Reasons for being unable to get up
Improving patient safety through an emergency call safety huddle

Authors: Shuaib Quraishi and Claire Rowley
Surrey and Sussex NHS Trust

Introduction

Communication among members of the emergency team is integrally linked to patient safety.\(^1\) The need to promptly identify and manage the acutely unwell patients is key towards preventing harm to patients. A short daily meeting can help save lives by helping emergency teams to work together more effectively.

At Surrey and Sussex NHS Trust (SASH) we have approximately five to eight emergency calls in a 24-hour period. These are composed of Medical Emergency Team (MET), which is composed of the medical registrar, senior house officer, foundation doctor and a critical care outreach nurse (CCOT). A cardiac arrest team is composed of the MET team as well as an anaesthetist. In the past the emergency team would initially meet over an unwell patient unaware of who each other was, what role they played and what was expected of them. It is known that there is a 1 in 400 million chance of the same team working together again.\(^2\)

The Safety Huddle has been a part of the culture of improving patient care at SASH since October 2016. Members of the cardiac arrest and medical emergency teams meet each other, roles are allocated every morning and learning from previous emergencies is discussed. Roles and training needs are documented through a standardised checklist on a daily basis. This is in order to create effective teamworking and improve patient safety.

Methods

At SASH we wanted to elicit whether the safety huddles were actually serving their purpose. A qualitative survey was sent via SurveyMonkey to medical and nursing staff who had attended the safety huddles. We had 29 responses from Nurses (CCU and CCOT), medical registrars, and junior doctors (SHO and foundation). A thematic analysis of free text comments was undertaken and the following themes were identified.

Results

1. **Structure of the team.** 100% of respondents found the huddle to be a useful. It identified and allocated roles and created familiarity between team members
2. **Improve team working.** 100% felt the huddle improved team working.
3. **Patient safety.** 91% of respondents felt patient safety was improved. This is through increased efficiency during emergencies, effective team working, better organisation and early involvement with critical care.
4. **Identification of learning needs.** 87% felt learning needs that were identified at the safety huddle had been addressed.

The questionnaire also asked where improvements could be made and these were as follows.

1. **Night safety huddle.** 72% would like to introduce an emergency huddle for the night team.
2. **Debriefing.** A debrief session would be useful for feedback on learning from emergencies.

Conclusion

Our Medical Emergency Team audit for 2018 has demonstrated that we have made an improvement in patient outcomes by an increase in patients who made an immediate improvement (79% in 2018 from 61% in 2017) versus the patients who made no improvement immediately post MET call (4% in 2018, 21% in 2017).
This suggests that by implementing the safety huddle we may be working more effectively as a team, resulting in improved patient outcomes.

References


Improving the prescription of secondary prevention medications in patients with acute coronary syndrome in acute assessment unit: a quality improvement project

Authors: Zia Mehmood, Hafiz Nazir and Alan Webb
Hull and East Yorkshire Hospitals NHS Trust

Introduction

The European Society of Cardiology recommends secondary prevention medications in patients with acute coronary syndrome (ACS). 1 This not only includes antiplatelet and antithrombotic drugs, but also statins, angiotensin converting enzyme inhibitor (ACEi) and beta blockers, the latter two of which have to be up titrated daily until the maximum tolerable dose is achieved before discharge.

In this particular project, we identified the perceived suboptimal practice of prescribing ACEi, beta blockers and statins in patients with confirmed ACS in the acute assessment unit (AAU). Stable patients with ACS stay in Hull Royal Infirmary for 1–2 days due to the bed situation in cardiology wards at Castle Hill Hospital before transfer for coronary angiogram (PCI). After percutaneous coronary intervention the majority are discharged the following day if stable. We identified that such patients could potentially be discharged on a much higher tolerable dose of these medications if started in AAU at Hull Royal Infirmary instead of cardiologists having to rely on GPs to up titrate in the community.

Our objective was to improve secondary prevention prescription to ideally 100% or at least 80% in line with our trust audit departmental cut-off for good practice. Diagnostic uncertainty, acute renal insult, hypotension, heart blocks, acute heart failure, drug allergy and pre-admission intake of these medications were among the exclusion criteria.

Methodology

PDSA* 1: Current practice feedback to AAU workforce via trust email (foundation trainees, core medical trainees, ACCS trainees, registrars, consultants). Baseline prescription for ACEi, beta blocker and statin was 50%.

PDSA 2: Educational session was conducted about society recommendations in ACS during handovers. We disseminated our local secondary prevention prescription guideline via a trust email to all AAU workforce.

PDSA 3: Educational posters disseminated across the department for reminder.

PDSA 4: Re-education and reinforcement, targeting a weekend cohort of the workforce.

*PDSA = Plan, Do, Study, Act.

Results and discussion

A total of 27 patients had confirmed diagnosis of ACS during the course of this project. We nearly achieved the objective of achieving 100% prescription after three PDSA cycles in 3 weeks. We learned that constant reminder, education and prompting did improve the performance level of our junior medical team for the betterment of patient care. Changing the cohort of junior doctors on AAU was an identified barrier in sustaining the good practice. Therefore, we recommended continuous surveillance, education and feedback by registrars and consultants during post-take ward rounds and handovers.
Conclusion

Maintaining good clinical practice in acute assessment unit can be challenging due to the constant changing nature of the workforce. Foundation and core trainees with no prior experience of specialised medical rotation are not always aware of society guidelines when managing specialised cases. Our methodology was centred on education and feedback targeting the workforce. Within 3 weeks, nearly every patient with ACS was appropriately commenced on secondary preventive medications. This project supports further development and spread of this approach, encouraging all physicians at registrar and consultant level to supervise such small but effective teaching sessions during post-take ward rounds and daily handovers.

Reference

Improving the quality of handover: implementing SBAR

Authors: Zeinab Ruhomauly, Kathryn Betts, Katherine Jayne-Coupe, Luciné Karanfilian, Megan Szekely, Anu Relwani, Joel McCay and Zahra Jaffry

King’s College London; Darent Valley Hospital

Introduction

Effective communication is essential in the provision of safe patient care. Use of structured communication tools, such as the Situation, Background, Assessment and Recommendation (SBAR) format of handover have been shown to improve patient safety, especially for telephonic handovers. SBAR has widely been recommended as a standardised method of handover. We undertook a quality improvement project to increase SBAR awareness across two wards in a district general hospital. This study describes the effect of our interventions and the challenges of implementing quality improvement (QI) methodology to measuring safe communication and handover.

Materials and methods

A baseline audit was conducted to assess awareness and understanding of SBAR. Additionally, structured interviews were conducted with senior nurses and simulation training officers to understand barriers to SBAR use. One nurse on each ward was appointed as an ‘SBAR champion’. We implemented 10-minute ward-based teaching sessions, which the champions then continued. Posters and telephone cards were implemented to reinforce teaching.

Outcomes measured included:

- % of nurses reporting exclusively using SBAR as their method of handover
- % of nurses aware of SBAR
- Perceived effectiveness of giving telephonic handovers (self-reported)

Results and discussion

Implementation of SBAR champions, teaching sessions and visual aids on the wards demonstrated the following results:

- 54.4% improvement in the proportion of nurses reporting using exclusively SBAR as their method of handover
- 100% of nursing staff were aware of SBAR (improved from a baseline of 87.5%)
- 44% average improvement in the self-reported perceived effectiveness of telephone handovers

Although the results demonstrate a clear improvement in awareness and understanding of SBAR, the use of subjective data presents limitations. Objectively assessing the quality and effectiveness of SBAR handovers requires controlled, simulated environments, which are difficult methods to replicate in real-world settings using QI methodology. Despite this, our interventions demonstrate an improvement in SBAR awareness and can easily be replicated across other wards. Additionally, our interventions were well-researched and were developed following the identification of key barriers to SBAR use, from questionnaires and through structured interviews. Engaging senior nursing staff across the trust proved successful in appointing SBAR champions across the wards, ensuring that the teaching intervention remains sustainable.

Conclusion

Ward-based teaching sessions and visual aids may offer effective and scalable methods of increasing awareness and understanding of the SBAR communication tool for handovers. Ultimately, strengthening communication requires engaging senior staff members to promote good handover culture. Our methods demonstrate the difficulties in objectively measuring handover outcomes and adverse patient outcomes.
Although good communication represents a crucial component of patient safety and ensuring good quality care, therefore forming an important aspect of QI, lack of objective measures may present difficulties in applying sound QI methodology.

References

Improving the quality of kidney transplant recipient discharge summaries

Authors: Kerry Hall, Christopher Patrick Uy, Rupert Bright, Michelle Willicombe, and Philip Webster
Imperial College Healthcare NHS Trust

Introduction

Hammersmith Hospital transplants around 200 kidneys per year and follows up around 300 transplant patients per week in the outpatient department. Upon discharge from hospital, the immediate postoperative period as an outpatient is crucial as clinicians make key decisions regarding management in order to maximise transplant success. These decisions are tailored to a patient’s individual factors such as donor type, donor age, histoincompatibility (Human Leukocyte Antigen (HLA) mismatches) and ischaemia times. This information is obtained from many sources in the pre-, peri-, and postoperative periods – for example, from the organ retrieval team, from the on-call tissue typist, and from the transplant surgery team.

Following the transition to Cerner Powerchart, data is more accessible to the teams involved in managing the patient. However, the data can be fragmented across several different Cerner entries. Unless a succinct discharge summary is written, the key details can take time to search for in the outpatient setting. Feedback from the renal consultants suggests that information gathering at the first outpatient visit can significantly prolong the appointment. This can therefore slow down the busy transplant clinics and impact upon management decisions if any information is unavailable. Making all of this information readily available upon discharge streamlines the outpatient process and allows for timely and informed decisions to be made in clinic. The aim of this project was to improve kidney transplant discharge summary quality by improving the documentation of risk factors that impact transplant survival.

Materials and methods

Using Plan-Do-Study-Act (PDSA) quality improvement methodology, the current guidelines for transplant recipient monitoring were reviewed, and with guidance from the renal consultant cohort, a discharge summary template was designed that included all pertinent risk factors impacting transplant survival. The inpatient journey of transplant recipients was analysed and key areas were identified where risk factors became available (Table 1). We also identified the key individuals required to implement the template successfully, and specifically targeted them via various communication strategies when introducing it. The discharge summary template was launched to the renal team in January 2019 and served as a self-audit tool for a complete summary. To assess the change, data was collected retrospectively from the discharge summaries from August 2018 to October 2018 and compared with those written in January 2019 to February 2019. The discharge summaries were tallied for the presence of each risk factor.

Table 1: Clinical document risk factors

<table>
<thead>
<tr>
<th>Clinical document</th>
<th>Risk factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical clerking</td>
<td>End stage renal disease (ESRD) cause, dry weight, transfusion history</td>
</tr>
<tr>
<td>Organ offer notes</td>
<td>Type of transplant, donor age, donor creatinine</td>
</tr>
<tr>
<td>Tissue typing report</td>
<td>HLA mismatch, presence of donor specific antibody</td>
</tr>
<tr>
<td>Operating notes</td>
<td>Date of transplant, transplant anatomy, cold ischaemic time, warm ischaemic time</td>
</tr>
<tr>
<td>Drug chart</td>
<td>Immunosuppression induction and maintenance</td>
</tr>
<tr>
<td>Blood results</td>
<td>Discharge creatinine</td>
</tr>
</tbody>
</table>
Results

The presence of discharge summary risk factors increased by an average of 43.81% overall after the launch of the template. Prior to the template, the most commonly omitted risk factors were donor creatinine (83.33%), recipient dry weight (87.50%), and blood transfusion history (91.77%). The most improved risk factors were immunosuppression induction agent (increase of 72.92%), donor creatinine (increase of 69.04%), and delayed graft function (increase of 68.75%) (Fig 1).

Conclusion

PDSA methodology can improve the quality of transplant discharge summaries to include important risk factors. The success of this project has improved the availability of information for transplant recipients’ risk factors to all clinicians in the renal team.

References

Improving the secondary prevention of ST-elevation myocardial infarction

Authors: Diarmuid Chevalier, A Yen Jei Chen, B Gary O’Reilly, C Kenneth Wong, D Billal Patel D and Alison Seed D

A Guy’s and St Thomas’ Hospital Trust; B Blackpool NHS Foundation Trust; C Liverpool Medical School; D Blackpool NHS Foundation Trust

Introduction

Secondary prevention medications following ST-elevation myocardial infarction (STEMI) have been established with NICE and European Society of Cardiology guidelines. In practice, while most patients with STEMI are discharged with the correct secondary prevention medications, titration advice to primary care physicians can be lacking and the dosage of ACE inhibitor and beta blocker at discharge may be subtherapeutic.

Medication titration is essential post-MI to prevent future cardiac events. Prognostic benefits have largely been shown in studies which used these medications in high doses. As such, NICE gives a five-point guideline on the information to be included in every discharge summary.

We set up a three PDSA cycle quality improvement project in Lancashire Cardiac Centre by using a combination of education and a new unified STEMI discharge letter form.

Materials and methods

Data was collected from the Coronary Care Unit (CCU) STEMI primary percutaneous coronary intervention (PPCI) list, with the following inclusion criteria:

- Admitted through PPCI pathway
- Confirmed STEMI on discharge
- Admission <5days
- Discharged alive

Discharge summaries of patients within the inclusion criteria were reviewed. For the purpose of this QIP, a correct discharge of STEMI patient following PPCI included the following:

1. Beta blocker including dose and dose titration advice
2. ACEi/ARB including dose and dose titration advice
3. Aldosterone antagonist – where clinically appropriate
4. Statin – unless contraindicated
5. Dual antiplatelet therapy (DAPT)

Baseline data was collected in 2013 when 42 consecutive patients fitting the inclusion criteria were reviewed. Three separate PDSA cycles (Fig 1) were then implemented between 2017 and 2018. Consecutive patients’ notes were reviewed 2 weeks after the introduction of each change. Each cycle was completed only after the previous’ data had been analysed and discussed with senior nurses and doctors.
Results and discussions

**PDSA cycle 1 (n=33)**
Percentage number of discharges with appropriate secondary prevention planning improved from 26% to 33% when compared with 2013. However, this was not statistically significant (p=0.513).

**PDSA cycle 2 (n=26)**
There was a vast improvement to 70% adherence with national guidelines (p=0.005).

**PDSA cycle 3 (n=32)**
This GP letter strategy (see Fig 2) achieved a 75% correct discharge. Compared with PDSA cycle 2, the improvement is statistically insignificant (p=0.684). However, when compared with baseline 2013 data, the improvement is clearly significant (p=<0.001).
Conclusion

PDSA cycles 2 and 3 appeared most successful in achieving correctly discharged patients. Compared with the educational week for PDSA cycle 2, the STEMI discharge letter was less labour intensive. Furthermore, it is clearer for patients and primary care practitioners. Its introduction requires only a 5-minute presentation and its supply was maintained by the ward clerk, costing around £30 for a booklet of 50. The information is easily reproducible and requires reduced senior input for its maintenance, making it more sustainable as a long-term quality improvement. As such, the STEMI GP letter was unanimously accepted by the cardiology department to be introduced for new teams to use.

References

Improving venous thromboembolism risk assessment rates in a tertiary ear, nose and throat department

Authors: Manjit Dhamret and Rebecca McKnight
University Hospitals of North Midlands

Introduction

Venous thromboembolism (VTE) is a significant cause of mortality and morbidity among hospitalised patients. A VTE risk assessment reduces this through facilitating correct prophylaxis. VTE accounts for approximately 25,000 in-hospital deaths in England annually. The cost to the NHS is estimated at £640 million/annum. Many of the risk factors are well known, such as advanced age, immobility, surgery, and obesity. The most important element of the VTE risk assessment strategy in England is to risk assess all patients for VTE on admission.

The aim of our quality improvement programme (QIP) was to explore the current practice of venous thromboembolism (VTE) prophylaxis within the Ear, Nose and Throat (ENT) Department. In addition to the accuracy and completion rates, we wanted to reduce the risk of VTE for ENT inpatients, and ultimately to educate healthcare professionals regarding VTE.

Materials and methods

Our standards were based on the 2018 NICE and UHNM guidelines which state that all admitted patients must have a completed VTE assessment form within 24 hours of admission and receive appropriate VTE prophylaxis. The audit and re-audit were conducted over a period of 5 months. We utilised a proforma to randomly assess the VTE forms of adult ENT inpatients. We individually analysed each section for completion, and also looked at whether VTE was prescribed correctly in lieu of patient presentation.

Our intervention included various teaching presentations individually targeted towards nurses, pharmacists and doctors. We presented the audit and re-audit findings at the ENT departmental meeting. We have since also presented the findings within the county AMU (Acute Medical Unit).

Results and discussion

Phase 1 results demonstrated that we were generally good at signing each section (95.5%) but not at completing the VTE in full (38.6%). One particular area of concern was the completion of the VTE re-assessment at 24 hours which was 13.6%. Phase 2 results demonstrated 100% completion in four areas, and >90% completion in 9 out of 11 areas. Completion of the VTE in full improved to 72.2% and the re-assessment rates improved to 61.1%.

Conclusion

We analysed the potential barriers to VTE completion and discovered three themes: initiative barriers, individual barriers and organisational barriers. More works needs to be done to educate staff members, especially those new to a trust. We also discussed measures such as checking the VTE on ward round and highlighted the need for re-assessment post-operatively. We have highlighted the difficulties in driving change in an established routine and will continue to develop teaching sessions to spread the word. We have been invited to speak at the UHNM VTE steering group.
References


Intravenous fluid prescribing for medical inpatients: are we getting it right?

Authors: Agrima Ghosh and Carlos Maltez
Peterborough City Hospital

Introduction

Intravenous fluids (IVF) are commonly prescribed for hospital inpatients by junior members of the medical team. There is significant morbidity and mortality associated with inappropriate IVF prescribing secondary to iatrogenic fluid, electrolytes and glucose derangement. The National Institute for Health and Care Excellence clinical guideline (NICE CG174) defines the amount of water and electrolytes patients should receive during IVF administration for routine maintenance to prevent biochemical derangement. We aimed to assess our adherence to the guideline.

Materials and methods

Over 5 days, patients on a single ward who required intravenous fluids for routine maintenance only were included in this study. Patients who were pregnant, critically unwell, had diabetes, severe renal or liver impairment, or abnormal gastrointestinal loss were excluded from this study. The daily amount of IVF and constituents (sodium, potassium, chloride and glucose) provided to the patient was calculated. This was compared with that advised in the NICE guideline.

Results and discussion

Twenty-three patients were identified during the 5 days that satisfied the inclusion criteria. The data for the IVF each patient received was collected over 24 hours. There were 15 males and eight females with an average (range) age of 67 (23–91) years and average (range) weight of 72.3 kg (44.8–100.2 kg). Sodium chloride (0.9%), Hartmann’s fluids, dextrose-saline, sodium chloride plus Hartmann’s, and dextrose-saline plus Hartmann’s were used in 65.2%, 13.0%, 4.3%, 13% and 4.3%, respectively. The average (range) delivery of water was 33.48 (14.7–46.2) ml/kg/day; sodium: 4.63 (2.21–6.67) mmol/kg/day; potassium: 0.15 (0.05–0.23) mmol/kg/day; chloride: 4.54 (2.24–5.94) mmol/kg/day; glucose: 70 (59–80) g/day. Fifteen patients were given more water than recommended, all patients were given more sodium and chloride than recommended, and all were given less potassium than recommended. Only two patients were given glucose and these were as recommended.

Conclusion

This study demonstrates that we are not providing our patients with the right amount of water and electrolytes over 24 hours when prescribing IVF for routine maintenance. Extensive education is required to improve the thought process during IVF prescribing among junior doctors. This is especially important during the early years of training, as it is the foundation for future clinical practice. The points that can be highlighted during teaching sessions include advising prescribing fluids required for the full 24 hours to avoid the on-call team to be called, daily urea and electrolytes to be checked while the patient is on IVF, and potentially using input/output charts to monitor fluid balance for such patients. The importance of an IVF specialist team cannot be overemphasised.

Reference

Impact of nursing staff and patient education in improving inpatient heart failure care: a closed audit cycle

Authors: Zia Mehmood, Abdullah Abdullah and Andrew Clark
Hull and East Yorkshire Hospitals NHS Trust

Introduction

The most cost-effective method of delivering heart failure care is by managing patients on cardiology wards with close monitoring of patient’s renal functions, weight and fluid balance during diuretic therapy. Better inpatient heart failure care improves patient outcomes. In 2017, a retrospective audit of daily biochemical profile (BCP), weight and fluid balance was undertaken for patients admitted with decompensated heart failure for diuretic therapy to the cardiology department in Castle Hill Hospital.

Methodology

Data sources included fluid balance charts, weight charts, heart failure charts and our electronic system to check BCP. To assess the quality of fluid balance recorded, a scoring system was designed. The fluid balance chart was scored out of 5, with a point for each component ie accurate date and patient details, running input, running output, totals added up accurately at the end of each day, and documented fluid balance from last day. A fluid chart score of at least 4 reflected a high standard of documentation. We also looked at the nursing documentation compliance on our separate departmental heart failure chart for these variables.

Results

Cycle 1 results and discussion

Between January and March 2017, 606 days of heart failure care was administered. Daily weight was recorded on 79% of the days, BCP on 70%, and fluid balance on 69%. Only 49% of fluid charts had a score 4 or above. Documentation compliance on our separate departmental heart failure chart was suboptimal at 59%. The results were presented in weekly departmental teaching sessions with cardiology consultants, registrars, business manager, ward sister and auxiliary nurse in attendance.

Interventions

Issues such as nurse short staffing and inadequate phlebotomy cover were raised. Interestingly, lack of patient compliance for output monitoring/catheterisation was pointed out by the nursing team to be an issue more often than one would think. The following recommendations were put forward and implemented:

1. Patient pamphlets were designed with the importance of fluid restriction, compliance with output monitoring, and bed rest clearly laid out. Images of various sized cups with labelled volumes were included to aid patients to accurately control their daily input to 1.5 litres during intravenous diuretic therapy.
2. Small teaching sessions were organised for ward staff and auxiliary nurses to revisit the rationale of monitoring these variables.
3. Auxiliary staff were designated at the beginning of each shift to ensure bloods were drawn.

Cycle 2 results

The re-audit was undertaken in December 2018. Fluid balance monitoring improved from 69% to 81%, biochemical profile monitoring improved from 70% to 73%. Percentage of fluid chart score of 4 or above increased from 49% to 77% reflecting more than 50% improvement and high standard of fluid balance.
recording. The compliance with data recording on separate heart failure charts improved significantly from 59% to 79% of the days. Despite a dip, the weight monitoring standard remained reasonably good at 72%.

**Conclusion**

Education, constructive feedback and teamwork are cost effective and impactful tools in bettering inpatient heart failure care, a condition best treated with a patient-centred multidisciplinary approach.
Implementation of structured ward round proformas on an acute frailty unit

Authors: Sam Kleeman, Zainab Khan, Joanna Brecher, MD Mofijur Rahman, Nihethana Jegatheeswaran, Hannah Costelloe, Sharose Shiraz, Christopher Chung, Jonathan Graff and Benjamin Jacobs

Barking, Havering and Redbridge University Hospitals NHS Trust

Introduction

Guidance from the Royal College of Physicians and the National Institute for Health and Care Excellence (NICE) recommends the use of structured approaches to ward rounds. There is evidence that such approaches increase staff satisfaction, reduce adverse events and reduce length of stay. The aim of this project was to implement a structured approach to ward rounds in an acute frailty unit at a busy district general hospital in the UK.

Materials and methods

Using a Plan-Do-Study-Act (PDSA) approach, a structured ward round proforma was implemented over a 4-week pilot period. Each week, we reviewed notes of ten randomly selected patients to monitor adoption of the proforma as well as utilisation of specific proforma components (safety checklist, Gold Standard Framework (GSF) status, treatment escalation plan (TEP)). We used this data alongside feedback from the multidisciplinary team (MDT) to iteratively improve the proforma design. MDT members were sent a survey to assess perception of the ward round documentation before and after the pilot period.

Results and discussion

Baseline survey data (n=13) showed that MDT members felt that clear ward round documentation was important for the functioning of the MDT (9.46 ± 0.32/10) and that existing documentation was poor (5.0 ± 0.58/10). 13 out of 13 responses (100%) indicated that they felt a structured ward round proforma would improve the quality of ward round documentation. At week 1, proforma adoption rate was 50% (5/10), of which 40% (2/5), 60% (3/5) and 60% (3/5) included use of safety checklist, GSF status and TEP respectively. At week 2, adoption rate was 100% (10/10), of which 50% (5/10), 70% (7/10) and 40% (4/10) included use of safety checklist, GSF status and TEP respectively. At week 3, adoption rate was 100% (10/10), of which 70% (7/10), 80% (8/10) and 80% (8/10) included use of safety checklist, GSF status and TEP respectively. Results from a repeat survey of MDT members are awaited.

Conclusion

There is evidence of an unmet need for improved ward round documentation in our acute frailty unit. In this setting, it is feasible to introduce and rapidly adopt a structured ward round proforma reflective of national guidelines. We aim to institute sustainable change through ongoing education and development of an electronic record-based proforma.

References


Implementing nurse telephone follow-up clinics for monitoring parenteral osteoporosis treatment – a service evaluation

Authors: Sethu Mani-Babu and Rita Abdulkader
Ipswich Hospital, East Suffolk and North Essex NHS Foundation Trust

Background

Parenteral osteoporosis treatments including yearly intravenous zoledronate infusions and 6-monthly denosumab subcutaneous injections are increasingly used in patients unable to tolerate oral bisphosphonates. These treatments are generally delivered and monitored in a secondary care setting. In Ipswich Hospital this occurs mainly through the rheumatology department. Traditionally, patients receiving these treatments were followed up in the outpatient clinic by a consultant. This meant that the patient had to attend two hospital appointments a year for zoledronate treatment and four for the monitoring and administration of denosumab.

Aims

The aim of the quality improvement project, which started in 2016 as a pilot, was to improve the efficiency of the service by reducing reliance on consultant face-to-face follow-up appointments and the impact of unnecessary hospital visits on patients while continuing to deliver a high-quality and safe service. We present an evaluation of the service and its impact.

Methods

In 2016, we implemented the new pathway which still requires a first consultant rheumatologist appointment to assess the suitability of parenteral treatment. But rather than organising consultant follow up, the patient is followed up in a nurse practitioner telephone clinic supported by the consultant in charge of care. The nurse works through a safety checklist and provides advice and support to the patient. If all checks are satisfactory the patient only re-attends to receive the treatment in the hospital day unit, and for a repeat bone density scan at the end of treatment course, if applicable.

Using the rheumatology day unit database, we obtained the number of consultant follow-up appointments saved by implementing this service and calculated cost savings.

Results

Table 1 shows the number of face-to-face consultant follow-up appointments saved by implementing the new pathway.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of follow-up appointments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>157</td>
</tr>
<tr>
<td>2017</td>
<td>186</td>
</tr>
<tr>
<td>2018 (up till August)</td>
<td>107</td>
</tr>
</tbody>
</table>

- These changes have led to cost savings to the trust of over £10,000.
- The new pathway reduced the need for patients to attend the clinic saving them a journey to the hospital (especially when considering the county’s size and rural setting), reduced stress related to parking and possible delays in the clinic.
There have been no safety issues during this period, thanks to the strict adherence to the checklist and the provision of consultant support. In fact, utilising this pathway reduced the risk of delay in the provision of treatment when there are long consultant follow-up waiting lists.

Feedback from patients and carers has been very positive.

**Conclusion**

We have presented the Ipswich Hospital experience in implementing nurse telephone clinics to improve the efficiency of the parenteral osteoporosis pathway. The benefits of the pathway include a reduction in hospital attendances for outpatient appointments, reducing consultant follow-up waiting lists and reducing the impact of multiple hospital visits on patients (who are commonly of older age and may have multiple comorbidities) while continuing to deliver a safe and high-quality service.

Other possible benefits include the environmental impact of the fewer numbers of car journeys, reduced pressure on hospital car parking and the impact on carers.

Maintaining the success of this pathway requires continuous investment to support the nursing and administration team and the provision of consultant support.

**Reference**

Improving fixed rate insulin infusion prescriptions in patients admitted with diabetic ketoacidosis in Basildon Hospital – a local quality improvement project

Authors: Uwais Dudhiya,¹ Lagzouli Nora,¹ Doreen Ko,¹ Karolina Kapellar² and Alan Choo-kang¹
¹Basildon University Hospital; ²Norwich Hospital

Background

Diabetic ketoacidosis (DKA) is a life-threatening complication of type 1 diabetes and some cases of type 2 diabetes. Intravenous fluids and fixed rate insulin infusion (FRII) remain the mainstay of treatment for this condition.¹ However, given the complex nature of the treatment regime of this serious condition, there is considerable variation on how treatment is prescribed for these patients. Our quality improvement project aimed to improve the number of correctly prescribed FRII at Basildon Hospital over the course of 14 months.

Aims

1. To determine the number of patients admitted into Basildon Hospital with diabetic ketoacidosis.
2. To investigate the proportion of correctly prescribed fixed rate insulin in patients admitted with diabetic ketoacidosis.
3. To introduce interventions in the form of a quality improvement project to improve the proportion of correctly prescribed fixed rate insulin infusion prescriptions

Methods

A prospective database of patients admitted under the medical team at Basildon Hospital was used to identify patients who were admitted with DKA between April 2017 and May 2018. We subsequently retrieved and analysed the prescription charts of these patients and recorded whether the patient had fixed rate insulin prescribed correctly. After recognising the need for interventions to improve the results, we planned to improve education for doctors with regards to the prescribing of correct treatment in the form of emails and education posters.

Results

Our aim was to have 100% correctly prescribed insulin prescriptions for patients who were admitted with DKA. Prior to us starting our quality improvement project, the percentage of correctly prescribed insulin in April 2017 was 12.5%. We then sent an email to our colleagues in Basildon Hospital as our first intervention. The email was sent to all doctors, including those who are involved in seeing patients on admission. This initially improved the percentage to 100% over the coming month; however, subsequently the percentage of correctly prescribed insulin dropped significantly to 60%. Over the next few months our target was not reached so we sent a repeat email to our colleagues in October 2017. This initially had our desired effect; however, the percentage dropped again after November 2017. We then displayed a poster within the acute medical unit to attempt to improve our rates, unfortunately this did not improve them to the desired level.

Conclusion

We recognise the need for continuous education to ensure the percentage of correctly prescribed FRII remains satisfactory. Our aim in the future is to introduce a local formal proforma, which allows for easy prescription of FRII and avoid prescribing errors.

Reference
Gastrointestinal side effects of cancer treatment: are we making any progress?

Authors: Anum Faisal, Waqaar Baber, Zain Rana and Jervoise Andreyev
Lincoln County Hospital

Introduction

In 2012, the British Society of Gastroenterology, the Association of Coloproctology of Great Britain and Ireland, the Association of Upper Gastrointestinal Surgeons, the College of Radiologists and Macmillan Cancer Support published guidance on the optimal management of acute and chronic gastrointestinal (GI) toxicities of cancer treatments. The ORBIT trial, hailed as a landmark study, showed that targeted interventions, based on the principles in the published guidance delivered by a nurse or a gastroenterologist, can make a significant difference to those with chronic toxicity.

The largest single group of people at risk of moderate/severe long-term side effects are those treated for colorectal cancer. Follow-up after colorectal cancer treatment is increasingly devolved to junior or paramedical staff and historically has largely focused on possible recurrence. This study investigated how toxicity after colorectal cancer is assessed and managed in a large district hospital.

Methods

Outpatient clinic letters and inpatient discharge letters of a random selection of patients diagnosed with a new primary colorectal cancer over 1 year, treated with curative intent and with at least one follow-up appointment were audited retrospectively.

Results

A total of 462 patients were discussed at the colorectal MDT in 2017. Notes of 252 patients, 54% men (n=136) were scrutinised. Of these, 54% (n=145 age range 26–98 years) were treated with curative intent. The site of the primary cancer was anus 1% (n=2), rectum 34% (n=49), sigmoid 16% (n=23), left colon 5% (n=7), transverse 8% (n=11), right colon 35% (n=51) and appendix 1% (n=2). 79% (n=114) had a 1-year follow-up. 65% (n=94) were treated with surgery alone. 26% (n=37) underwent surgery and adjuvant therapy (chemotherapy and/or radiotherapy). 5% (n=8) had surgery and neoadjuvant therapy (chemotherapy and/or radiotherapy). 3% had chemotherapy and radiotherapy but no surgery (n=5) and 1% (n=1) were treated with polypectomy alone.

19% were readmitted with complications of surgery (n=28) – mean length of stay, 10 days. Only 50% (n=73) of follow-up letters documented a conversation about side effects; GI 39% (n=56) psychological 6% (n=8); sexual 1% (n=1); tiredness 12% (n=17); quality of life 8% (n=11); urinary incontinence 8% (n=12).

GI problems included frequency, urgency, loss of appetite, abdominal pain, weight loss, diarrhoea, rectal bleeding, faecal incontinence and nocturnal defecation. Only 22% of patients (n=16) were offered investigations other than to rule out recurrent cancer, 41% (n=30) were offered advice and only 22% (n=16) were offered follow up to see if this advice helped.

Conclusions

Survival after colorectal cancer is improving rapidly. However, it is associated with frequent and predictable side effects. In our busy hospital trust, there is little evidence of systematic enquiry about side effects of cancer treatment or appropriate investigation and effective treatments being offered at follow-up. The lessons learnt during the UK's National Cancer Survivorship Initiative launched in 2007 and jointly run by the Department of Health and Macmillan Cancer Support, have not impacted clinical practice.
References


Giant cell arteritis (GCA) is the most common form of systemic vasculitis with an incidence of 41 to 113 cases per 100,000 people aged over 50 years in North American and European populations, affecting women approximately 1.5 times more frequently than men. GCA is characterised by ischaemic complications including acute-onset visual loss in approximately 20% of patients. Late recognition and treatment of GCA increases the risk of such adverse events, hence the need for prompt diagnosis. High dose corticosteroids, given over a prolonged period, remain the mainstay of GCA treatment, despite the recent National Institute for Health and Care Excellence (NICE) approval of the IL-6 inhibitor tocilizumab for refractory cases. Such treatment is itself associated with significant morbidity, including increased risk of osteoporosis, diabetes, infection and cardiovascular disease, hence the importance of avoiding overdiagnosis and inappropriate treatment. Both of these perils emphasise the need for safe and effective systems of referral, triage and assessment of suspected GCA.

Introduction

While temporal artery biopsy remains the gold standard diagnostic test for GCA, there is a high rate of false negative results due to the discontinuous distribution of large vessel inflammation and following steroid treatment. Temporal artery ultrasound is increasingly being used to support diagnosis given its non-invasive nature and superior sensitivity to biopsy prior to steroid treatment, as well as in detecting relapse of GCA. Its performance as a diagnostic test is highly operator dependent and its sensitivity falls rapidly with treatment, hence is best used in a high volume centre by expert sonographers, as early as possible after treatment is initiated, or prior to treatment where feasible. Alternative imaging options include PET-CT, MR angiography or CT angiography, all of which are usually favoured for extra-cranial disease. EULAR guidelines now recommend that where a high pre-test probability for GCA exists and high quality imaging findings support that diagnosis, there is no need to perform further tests. Equally, a low pre-test probability and negative imaging is felt to be sufficient to exclude the diagnosis, though in all other cases, further efforts should be made towards establishing a definitive diagnosis, such as a temporal artery biopsy.

The Royal National Hospital for Rheumatic Diseases (RNHRD) in Bath is a tertiary rheumatology centre and is staffed by a team including (but not limited to) consultants, trainee doctors and nursing staff, with a vast amount of experience in managing rheumatological conditions. RNHRD has a fast track referral pathway, which can be accessed by local GPs, in order to facilitate the rapid assessment of suspected giant cell arteritis urgently on the day case unit by a specialty registrar, aiming for review within 3 working days of referral, always performed in normal working hours Monday to Friday. Newly suspected GCA referrals are not therefore seen in routine outpatient appointments and there is no formal capacity limit on the number of referrals seen. Where appropriate and capacity allows, the assessing registrar may request a temporal artery ultrasound from the vascular imaging team at the nearby Royal United Hospital in Bath, and/or a temporal artery biopsy to be performed as day case surgery by the local ophthalmology team, in order to support diagnosis. Patients diagnosed with GCA are subsequently followed up in general outpatient clinics as there is no dedicated clinic for GCA.

The aim of our study was to evaluate the quality of the RNHRD GCA service by measuring against agreed quality standards, patient and GP feedback, in order to identify any areas which could be further improved.
Materials and methods

Four separate prospective data collection exercises were performed concurrently over a 2-month period from 24 September 2018 to 23 November 2018: a) an audit of all newly suspected GCA patients attending for initial assessment at RNHRD as day cases; b) an audit of all patients with an established diagnosis of GCA attending for outpatient follow-up appointments at RNHRD; c) a satisfaction questionnaire of patients attending for their initial day case assessment; d) an online survey of local GPs.

Parts a and b were collected using standardised data collection forms, which was designed after team consultation and review of the relevant NICE, Royal College of Physicians, European League Against Rheumatism (EULAR) and British Society of Rheumatology (BSR) recommendations.

Part c was a paper-based questionnaire which asked patients whether they felt they had received a clear explanation of the diagnosis and management plan, would know who and when to contact if their symptoms changed and asked for any suggestions for service improvement. This survey was issued to all patients being assessed for suspected GCA by the ward clerk of the RNHRD day case unit, not only those given a GCA diagnosis.

Part d was a GP survey issued electronically through the ‘Survey Monkey’ website to 64 local general practices, allowing one response per practice. This asked GPs four questions: whether they were aware of the fast track GCA assessment service at RNHRD; whether they knew how to access this service; whether they felt the discharge summaries from these assessments provide the right amount of information; whether there is any other aspect of the GCA service that they feel could be improved.

Results and discussion

During the 2-month period of data collection, 30 patients were newly assessed for suspected GCA on the day case unit at RNHRD, of whom 15 were diagnosed with GCA based on clinical assessment, ie pre-ultrasound (50%). The mean and median delay from referral by the GP to assessment at RNHRD was 2 days, even allowing for fallow days eg on weekends. In 21 (70%) cases a temporal artery ultrasound was requested, which occurred on average 0.4 days after being requested and 3.5 days after steroid treatment had been initiated. The ultrasound demonstrated findings consistent with GCA in eight cases, though in five of these GCA had not been deemed the most likely cause of symptoms on clinical assessment. None of these patients subsequently received a temporal artery biopsy in order to clarify the diagnosis, despite EULAR recommendations. In one case where there was felt to be a high clinical suspicion for GCA but negative ultrasound findings after 2 days of treatment, a temporal artery biopsy confirmed a GCA diagnosis.

Over the same period, 34 patients were followed up in various RNHRD outpatient clinics for a primary diagnosis of GCA. The time from diagnosis to this assessment ranged from 6 to 587 weeks. Of these, 16 (47%) had either a confirmatory biopsy or consistent imaging to support the clinical diagnosis. Only 9 patients had received follow-up appointments at all the time intervals recommended by BSR guidelines.6

Fifteen patients provided feedback on their care. All were satisfied with the explanations offered to them and felt well enough informed about how to escalate any subsequent concerns. One patient commented that they were assessed in a chair as the day case unit lacked sufficient beds at that time. Anecdotally this is a fairly common experience, though no other patients commented on this issue. Seventeen GP surgeries completed the electronic survey of the 64 invited. 13/17 (76%) were aware of the existence of the RNHRD fast track GCA assessment service, of whom 10/17 (59%) answered that they’d know how to refer to it. Some of the suggestions for improvement mentioned that more could be done to ensure GPs were given the correct information about how to refer these cases, including by the hospital appointments team.

These results demonstrate that whilst RNHRD provide a good level of service which allows timely assessment of patients with suspected GCA, supported by vascular ultrasound, more can be done to eliminate some of the inconsistencies in the care provided; to ensure sufficient bed space, nursing and medical capacity; and to inform local GPs about how to access the service in order to avoid inappropriate
over and under diagnosis. To this end, the following improvements should be considered prior to re-evaluation of the GCA service:

1. Education sessions for trainee rheumatology doctors, GPs, ophthalmologists, vascular team and other relevant clinicians about the most recent evidence base in GCA, including the importance of obtaining a timely temporal artery ultrasound and how this should be interpreted.
2. Supporting business cases for the vascular imaging and ophthalmology teams to ensure adequate capacity for timely temporal artery ultrasound and biopsies.
3. Ensuring all administrative staff involved in booking outpatient appointments can appropriately re-direct GCA referrals from GPs to the fast track assessment pathway instead.

Conclusions

RNHRD currently offer a fast track assessment service for newly suspected GCA, including access to vascular ultrasound where appropriate, with a mean delay from referral to assessment of 2 days. This helps facilitate prompt and accurate diagnosis in order to avoid the pitfalls of both under and over treatment of this condition. This audit demonstrates that most patients referred receive high quality care, with broadly positive feedback from patients and GPs, though more needs to be done to highlight this service to some local GPs and to secure the capacity of both the rheumatology and vascular imaging services to cope with future demand.

References

Evaluation of inhalation technique in patients using a dry powder device (DPI) at chest clinic in Dhulikhel Hospital – Kathmandu University Hospital, and the effect of patient education on it

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Dhulikhel Hospital – Kathmandu University Hospital

Introduction

The mainstay of chronic obstructive pulmonary disorder (COPD), asthma and ACOS treatment is by inhalational medication(s). Delivery of drugs directly into the airways, achieving higher local concentrations with significantly less risk of systemic side effects are the major advantages of the therapy.\(^1\) The delivery of inhaled medication in the airway tract is dictated by a complex interaction between the device, the aerosol formulation and patients' inhalation technique.\(^2\) The correct use of an inhaler device involves a series of steps, which need to be performed. Failing to perform one or more steps correctly can substantially reduce delivery and effectiveness, leading to poor disease control.\(^1\)

Previous studies have reported that up to 94% of the patients used incorrect method of inhalation of the medication.\(^3,4,5\) The factors associated with poor inhalational technique include age, sex, education level\(^6\) and severity of obstruction.\(^7\) Improvement of patient's inhalation technique could be attained by educating the patients about proper use of device being used. Poor inhalation techniques are associated with decreased medication delivery and poor disease control in chronic lung diseases. The data in regards to the proportion of patients correctly using inhalation devices and the effect of patient education is currently lacking in Nepalese population.

This study hence intended to analyse the prevalence of patients using inhalation devices via incorrect technique and access the adherence of patients to correct inhalation technique when taught along with their subjective improvement of symptoms.

Materials and methods

This was a one group pre-test/post-test study design conducted in Dhulikhel Hospital – Kathmandu University Hospital, Dhulikhel, Nepal from March 2017 to May 2017. Patients presenting to the Chest Clinic in Dhulikhel Hospital, who were diagnosed with having either COPD, asthma or asthma-COPD overlap syndrome and using inhalational bronchodilators in the form of dry powder inhalers (DPI) via Rotahaler were included in the study.

The inclusion criteria were age >18 years, patients diagnosed of having of asthma or COPD or ACOS and those using dry powder inhaler (DPI) therapy with Rotahaler device. On the other hand, exclusion criteria included patients newly started on dry powder inhalation therapy or patients who had recently received face-to-face training program on inhalation technique within the past one month, patients in acute exacerbation and patients failing to give consent.

Enrolled patients were assessed for inhalation technique at their routine medical (pre-training) visit by a physician in the chest clinic. The use of each dry powder inhaler device (Rotahaler) was evaluated in a practical manner by asking the patients to demonstrate their inhalation technique. They were asked to mention each step as they performed them. An observation checklist measuring essential steps required for adequate drug delivery for Rotahaler as instructed by the manufacturer and from previous studies was developed. The number of required steps is seven:

1. Insert the Rotacap capsule, with transparent end first, into the raised square hole of the Rotahaler.
2. Press the Rotacap firmly, such that the top end of the Rotacap is level with the top of the hole

3. Rotate the base of the Rotahaler device, such that the separated two ends of the Rotacap can be seen through the transparent body of the Rotahaler

4. Breathe out slowly, away from the device mouthpiece

5. Grip the mouthpiece gently between the teeth, seal the lips around it tight and take a deep breath

6. Tilt the head slightly backwards and breathe in through the mouth as deeply as possible

7. Remove the device from the mouth, holding the breath for as long as the patient can do it comfortably, before breathing out.

Correctness of the seven-step inhalation technique was measured by giving a score of 0 for incorrect action and 1 for correct action. Each of the seven steps were scored 1 or 0, giving a total score of 0–7. The total scores were then calculated. It was considered unlikely that a significant amount of medicine would be inhaled when one or more errors were made during these necessary steps. In these cases, the inhalation technique was defined as incorrect. The physician observed each step of inhalation technique and recorded each incorrect step. After assessment, instructions were given with demonstrations regarding the correct use of Rotahaler until the patient could use the device correctly. One month later (post-training visit), all patients were re-evaluated with regard to their inhalation technique.

Informed consent was taken from patients and the study was approved by the Institutional Review Committee of Dhulikhel Hospital – Kathmandu University Hospital (No. 73/17) and registered in ClinicalTrials.gov Identifier: NCT03275935.

Descriptive and inferential statistical analyses were used for the evaluation of data using Statistical Package for Social Sciences (SPSS 21.0) (SPSS Inc., Chicago, IL, USA). Continuous data with normal distribution were expressed as mean ± standard deviation. Categorical data were described by absolute number and percentage of subjects per category. The potential risk factors for an incorrect inhalation technique were calculated via univariable logistic regression analysis. The results were displayed as odds ratios with 95% confidence intervals. Comparison percentages of incorrect inhalation technique between pre-training and post-training visits within groups were analysed using the Chi-square test. Paired t-tests were used for paired data comparison. Statistical significance was accepted at p=0.05.

Results

A total of 307 patients were included in the study. Patient demographics and clinical characteristics are presented in Table 1. More than half of the patients (55%) were female. The most common diagnosis was COPD (69.1%), followed by asthma (20.8%) and ACOS (10.1%). Nearly two-thirds of them (59.9%) had a low level of education; ie had not completed their Grade 5).

More than half (58.3%) of the patients were not given instruction on inhalation technique with a DPI device in the last 12 months. Upon examination of the device, six (2%) participants were found to have non-functional device which was either clogged or broken. Three (1%) participants were found to be taking the Rotacap orally.

The percentage of correctly performed steps before and after the training is shown in Table 1. Initially, 88.6% of the participants performed one or more of the steps incorrectly. Step 4 (Breathe out slowly, away from the device mouthpiece before inhalation) was the most frequently incorrectly performed step (71.3%) followed by step 7 (Remove the device from the mouth, holding the breath for as long as the patient can do it comfortably, before breathing out), which was 69.7%.
Table 1: Results of inhalation steps before and after training

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Step details</th>
<th>Visit 1 Correct n (%)</th>
<th>Visit 1 Incorrect n (%)</th>
<th>Visit 2 Correct n (%)</th>
<th>Visit 2 Incorrect n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Insert the Rotacap capsule, with transparent end first, into the raised square hole of the Rotahaler.</td>
<td>304 (99.0)</td>
<td>3 (1)</td>
<td>254 (100)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>2</td>
<td>Press the Rotacap firmly, such that the top end of the Rotacap is level with the top of the hole.</td>
<td>300 (98.4)</td>
<td>7 (2.3)</td>
<td>252 (99.2)</td>
<td>2 (0.8)</td>
</tr>
<tr>
<td>3</td>
<td>Rotating the base of the Rotahaler device, such that the separated two ends of the Rotacap can be seen through the transparent body of the Rotahaler</td>
<td>279 (91.5)</td>
<td>28 (9.1)</td>
<td>253 (99.6)</td>
<td>1 (0.4)</td>
</tr>
<tr>
<td>4</td>
<td>Breathe out slowly, away from the device mouthpiece</td>
<td>88 (28.9)</td>
<td>219 (71.3)</td>
<td>205 (80.7)</td>
<td>48 (18.9)</td>
</tr>
<tr>
<td>5</td>
<td>Grip the mouthpiece gently between the teeth, holding seal the lips around it tight and take a deep breath</td>
<td>159 (52.1)</td>
<td>148 (48.2)</td>
<td>231 (90.9)</td>
<td>23 (9.1)</td>
</tr>
<tr>
<td>6</td>
<td>Tilt the head slightly backwards and breathe in through the mouth as deeply as possible.</td>
<td>150 (49.2)</td>
<td>157 (51.1)</td>
<td>213 (83.9)</td>
<td>41 (16.1)</td>
</tr>
<tr>
<td>7</td>
<td>Remove the device from the mouth, holding the breath for as long as the patient can do it comfortably, before breathing out.</td>
<td>93 (30.5)</td>
<td>214 (69.7)</td>
<td>135 (53.1)</td>
<td>119 (46.9)</td>
</tr>
</tbody>
</table>

Thirty-five patients who performed all the steps of inhalation correctly, along with 18 who did not attend follow up, were excluded from post-training analysis. Hence at the post-training visit, 254 of patients performed the DPI inhalation demonstrations and had their inhalation techniques reassessed. Overall, the proportion of patients performing incorrect steps of inhalation was 67.4%. Assessment of formal training resulted in a statistically significant increase in inhalational score before and after training among the patients (4.24 ± 1.28 pre-training and 6.07 ± 0.81 post-training, p<0.001).

On bivariate analysis, incorrect inhalation technique was found to be significantly associated with low education level (< 5th grade), age (>60yrs), and (FEV₁ <50%).

Comparing the two visits, the patients responded to their subjective improvement in their symptom control. Almost three-quarters (74.01%) of patients reported that they had had improvement in their symptoms after being taught the correct technique. Of these, 101 (39.8%) reported that they had partial improvement; 58 (22.8%) had marked improvement and 29 (11.4%) had negligible improvement.

Discussion

This study shows that 88.6% of patients using dry powdered inhaler (DPIs) devices used their inhaler incorrectly by performing at least one essential step for drug delivery in the wrong way. The figure is comparable with previous studies. However, a study carried out in the same hospital in 2009, revealed that 63% of the patients with COPD used their Rotahaler device incorrectly. The difference in the figures could be attributed to the fact that only outpatients were enrolled in our study, whereas both inpatient and outpatients were part of the 2009 study. Out of the seven steps, the most common error was made while ‘breathing out slowly away from the mouthpiece before inhalation’ and ‘removing the device from mouth and holding the breath for as long as the patient comfortably could, before breathing out’. These errors were also consistent with the errors found in earlier studies. These high rates of poor DPI usage may be a result of inadequate training by medical professionals on the appropriate use of inhalation devices. Previous studies have shown that medical professionals, including physicians, nurses and pharmacists, may not be acquainted with appropriate device handling.

The study also revealed a significant improvement in symptom control after face-to-face training.
This study confirms a significant increase in the percentage of improvement in inhalation technique after demonstrations and training. However, although the inhalation technique significantly improved post-training in follow up, the percentage of those using their device in a correct manner was still under 50%. These outcomes advocate that patients should bring their inhaler devices to each appointment. Moreover, given that inhalation technique can deteriorate again after education, inhaler technique must be rechecked, and education must be regularly reinforced to maintain correct technique. Regular review and reinforcement of correct inhalation technique is essential for effective inhaler use.

Our study is one of the first in Nepal to evaluate the prevalence of patients using inhalation devices via incorrect technique and assess the adherence of patients to correct inhalation technique when taught. It confirms a significant improvement in inhalation technique after a simple face-to-face demonstration and training about the appropriate use of the device. In addition, the proper teaching translated well in terms of better symptom control.

The study has some limitations. The steps may not contribute equally to the proper delivery of medication; therefore the scoring may not truly denote the quality of drug delivery. Also, as the participants were already aware of having enrolled in the study, the technique demonstrated by them in the outpatient department may not be representative of the method usually followed at home. In addition, being conducted in a single centre, the study results cannot be generalised to the entire nation. The study population could be seen as insufficiently heterogeneous. Furthermore, despite being an academic centre, the inhalation technique of patients is still largely unsatisfactory. It might be assumed that the correct inhalation technique in non-academic centres and general practice clinics without face-to-face training is less satisfactory. Lastly, our study is limited to evaluation of dry power inhalers, which were commonly used in our region owing to its low price and relatively easy usage.

Conclusion

Inhalation technique is mostly unsatisfactory, especially in older patients with low education level and severe obstruction. Regular review and reinforcement of the correct inhalation method is essential for effective inhaler use and better symptom control.

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Doctors as institutional entrepreneurs – leading quality improvement in clinical contexts

Authors: Michael Page A and Michael Smets B
A Queen Mary, University of London; B The University of Oxford

Introduction
Implementing quality improvement (QI) in clinical contexts is notoriously challenging, with many initiatives delivering little or no improvement in practice. 1,2 While the reasons for this are likely to be complex, Easton highlights the role of established organisational culture in frustrating clinicians’ efforts to improve healthcare processes. 3 Thus, unlike in manufacturing contexts, where process improvement typically involves operating more efficiently within ‘the rules of the game’, 4 QI in healthcare is typically a countercultural activity, which challenges existing rules, norms and beliefs. We were interested, therefore, in how doctors function in order to deliver quality improvement in clinical contexts.

Materials and methods
Given our interest in leadership of QI as a social phenomenon, an interpretivistic methodological approach drawing on the principles of grounded theory 5 was chosen. Key informant interviews 6 were conducted with a purposive sample of doctors, including former RCP chief registrars, Darzi fellows and doctors with strategic QI roles locally and nationally.

Results and discussion
Results
It was apparent from interview data that there are cultural norms operating in healthcare settings that make successful leadership of QI initiatives challenging. There was a strong sense of individual professional autonomy amongst doctors, and it was also clear that powerful individuals could exert significant influence over their colleagues.

Doctors who had led QI used a number of strategies to tackle established cultural norms, with networking activity often proving the most successful approach. At times this involved them developing their own networks as a means of building social and political capital, whilst at other times it meant acting as a network broker on behalf of others and/or between powerful individuals and groups.

Discussion
Doctors who sought to implement QI in healthcare settings typically found that they were engaged in a largely counter-cultural activity. They therefore operated as institutional entrepreneurs – actors who display institutional agency by instigating change. Institutional agency denotes ‘episodic forms of power’ 7 in which agents ‘mobilise resources, engage in institutional contest over meanings and practices, develop, support or attack forms of discourse or practice – all involving discrete, strategic acts of mobilisation’. 8 Networking was a commonly-used strategic act. Yet, quality improvement methodologies, not least Langley et al’s Model for Improvement, 9 often describe a model that treats the organisational context as apolitical or culturally inert. Theorising QI as a countercultural activity gives greater insight into the challenges with which QI leaders are faced than do traditional, technical-rational models of QI, and is more likely to indicate useful approaches to leading QI in these settings.

Conclusion
Currently, doctors who successfully implement quality improvement often do so within a cultural context that is not ready to embrace QI, and powerful individuals and groups can act to derail their efforts.
Consequently, these doctors exhibit considerable agency and function as institutional entrepreneurs in seeking to change the rules of the game.

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Educating non-cardiologists improves the initial management of patients with non-ST elevated myocardial infarction

Authors: Rebecca Clifford, Ramesh Nadarajah, Shankar Patil, Peysh Patel, Sanjay Gupta

Introduction

European Society of Cardiology (ESC) guidelines recommend treating patients presenting with suspected non-ST elevation myocardial infarction (NSTEMI) with aspirin, ticagrelor and fondaparinux in the absence of contraindications. However, most admissions are via the emergency department (ED) or acute assessment unit (AAU) where the initial consultation is with a non-cardiologist. We speculated whether this resulted in poor adherence with guideline-directed treatment and potential adverse outcomes.

Purpose

To assess if patients diagnosed with NSTEMI in the AAU and ED are treated as per ESC guidelines. To improve the implementation of guideline-directed therapy by education.

Methods

A retrospective review of consecutive patients referred to the cardiology unit with NSTEMI was conducted over a 6-week period at a busy district hospital (Group 1). Data was collated on baseline demographics, fulfilment of diagnostic criteria, pharmacotherapy and origin of referral. Cases were additionally interrogated for adverse outcomes, including thrombolysis in myocardial infarction (TIMI) bleed and cardiovascular mortality. A subsequent intervention was conducted with the creation and distribution of a poster accompanied by outreach teaching sessions to physicians and advanced nurse practitioners (ANPs). A repeat prospective study was carried out using similar methodology (Group 2). Differences between groups were analysed using a two-tailed t-test or chi-squared test, with p-values <0.05 considered statistically significant.

Results

There were 66 patients in Group 1 and 60 patients in Group 2. There were no significant differences in age or gender. ESC criteria for NSTEMI were met in 27% in Group 1 (18/66) and 28% in Group 2 (17/60). Among NSTEMI patients not already on an anticoagulant the intervention produced an improvement in the number of patients treated with aspirin, ticagrelor and fondaparinux (Group 1: 4/11 (36%), Group 2: 10/12 (83%), p=0.06). In addition, while previously not a single NSTEMI patient on anticoagulation was treated with the addition of antiplatelet therapy (Group 1: 0/7 (0%)), post-intervention this improved (Group 2: 4/6, (66%)) and met statistical significance (p=0.006). Most worryingly, one patient in Group 1 on anticoagulation received loading with each of aspirin, ticagrelor, clopidogrel, fondaparinux and apixaban. There were no deaths or TIMI major or minor bleeds in either group.

Conclusions

In this small, single centre study, targeted education produced a significant increase in the number of patients receiving appropriate NSTEMI treatment. This was especially the case in patients who were admitted with a NSTEMI on anticoagulants, a group that is theoretically at the highest risk of adverse bleeding events.

Reference

Do junior doctors at the Manchester Royal Infirmary know how to refer inpatients to medical specialties?

Authors: Sabine Jamal, Catriona Boyd, Basim Ali, Elinor Shuttleworth
Central Manchester Foundation Trust

Introduction

Due to the structure of training posts, junior doctors frequently rotate through different trusts. Although most trusts conduct induction periods to mitigate this, many junior doctors struggle to perform everyday tasks such as referring their patients to other medical specialties. This was particularly problematic at the Manchester Royal Infirmary (MRI) where no formal information was provided outlining the referral system. The problem was exacerbated by the fact that each inpatient specialty has a unique method of referrals. All these systems, combined with a lack of information provided, meant that doctors were wasting significant amount of time every day trying to find out how to refer their patients. The aim of this project was to highlight the problem faced by junior doctors when trying to find out how to refer their patients and come up with a simple, yet effective, solution.

Materials and methods

Phase 1: Junior doctors from FY1 to pre-registrar levels were surveyed and asked whether they knew how to refer to inpatient medical specialties at MRI. We asked them to specify whether this information was sourced formally through trust systems or informally via their colleagues.

Intervention: A formal document outlining how every medical specialty at MRI was produced and disseminated to all doctors within the trust via email, intranet and physical copies on both medical and surgical wards.

Phase 2: Junior doctors of the same grades were then re-surveyed and asked whether or not they knew how to refer to inpatient specialties. Again, they were asked how this information was gathered. We also assessed any time saving benefits to the document.

Results and discussion

During Phase 1 it was found that, not only did 91% of junior doctors surveyed agree that figuring out how to refer their patients to other specialties wasted a significant amount of time, but 98% agreed that a formal document outlining the referral pathways would save them time during the working day.

Phase 2 (post-intervention) results showed that 96% of junior doctors surveyed were aware of the intervention (formal document), with the same amount agreeing that it saves them a significant amount of time during their day. Additionally, all junior doctors audited said that they would use the document in the future.

Conclusion

As we can see from the results, it was clear that, prior to any intervention, junior doctors from a range of grades and specialties were either not aware of how to refer or had gathered this information informally. This confirmed our hypothesis that there was an issue in this area.

Following the intervention, Phase 2 results showed that the majority of junior doctors now knew how to refer their patients. Additionally, they were aware that a formal document outlining the process existed and agreed that it saved them significant amounts of time.
In conclusion, referrals are an important part of a junior doctor’s daily role. This project not only highlighted a major issue in performing this task but successfully implemented an intervention, which alleviated the problem in the Manchester Royal Infirmary.
**Doctor, can I drive? A quality improvement project to improve driving advice given to patients in our cardiology unit**

**Authors:** Simon Pearse, A Patrick Savage

A Kingston NHS Trust; B Kingston Hospital NHS Foundation Trust

**Background**

Many cardiac conditions confer a restriction on driving as laid out by the Driver and Vehicle Licensing Agency (DVLA). As doctors, it is our duty to ensure that patients are correctly informed of these restrictions. We noted a paucity of information documented and given to patients on discharge in addition to a lack of awareness among staff with respect to the latest DVLA guidance. Using a Plan-Do-Study-Act (PDSA) model, we designed a quality improvement project to address this issue in the cardiology department at Kingston Hospital.

**Methods**

Baseline data were collected by first auditing a selection of patients discharged over a period of 2 weeks with either acute coronary syndrome (ACS), syncope or requiring pacemaker insertion. Using a questionnaire, we then evaluated our doctors’ knowledge of current DVLA guidance. We then re-audited this data across two cycles of change with the following interventions:

- **Cycle 1:** Introduction of DVLA guidance posters to the ward with information specific to our patient group. Dissemination of quick links to full guidance online and staff education with respect to this guidance.

- **Cycle 2:** Further consolidation of cycle 1 interventions and introduction of patient information leaflets. Introduction of DVLA guidance lanyards with clear, succinct information relevant to our patient group.

**Results**

Prior to implementing change, we found that driving advice given to patients was poorly documented in both discharge letters and patient notes (0%, n=15). This improved to 40% (n=15) after one cycle then to 67% (n=12) after the second cycle. Questionnaire scores improved from 20% (n=6) at baseline to 80% (n=5) after cycle two.

**Conclusion**

Cardiac conditions often restrict patients’ ability to drive and we often don’t advise our patients appropriately. We have demonstrated a sustained positive change using simple interventions delivered across two cycles of change which has led to better knowledge of DVLA guidance among our doctors and a dramatic increase in appropriate advice given to our patients on discharge.

**References**


Combined clerking – streamlining emergency admissions

Authors: Holly Gilbert, Dominic Reynish, Dan Richter, Ian Neville, Kamy Thavanesan, Mark Sopher, David Martin, Robert Willington, Richard Byrom, Imran Ghafoor, Alyson O'Donnell
Royal Bournemouth Hospital

Introduction

Conventional clerking by the emergency department (ED) followed by specialty clerking involves duplication of information. Having multiple documentation lengthens clerking time, slows patient flow and takes longer to review during the admission. The Royal Bournemouth Hospital is a district general hospital on the south coast. The trust sought to improve the efficiency by reducing duplication as part of a quality improvement (QI) team focusing on the first 24 hours of the patient journey.

Methods

Our group was formed by open invitation. The QI team organised weekly open meetings and included consultant representatives from the ED, surgery, acute medicine, elderly care, stroke and cardiology. It also consisted of a chief registrar, core medical trainee, quality improvement manager, nurses, pharmacists, physiotherapists and occupational therapists. By agreeing and analysing a process map for our admission process, we highlighted areas of potential improvement, and then focused our priorities using an Ease-Impact (PICK) matrix.

Our aim was to contribute towards the trust’s plan for winter pressures, and we organised our plan on a Gantt chart accordingly. It was agreed that we should aim to work collaboratively and that documentation is part of a continuum of care. We designed and implemented combined admission documentation for both ED and specialties to use collaboratively which starts on patients’ arrival and continues into their admission. This was implemented on 29 October 2018.

We measured time from ED arrival to post-take ward round (PTWR) as a measure of efficiency, analysing sample data from our electronic medical take list covering two Wednesdays before and two Wednesdays after our intervention, with a ‘buffer’ of a week each side of the implementation to discount any short term unrepresentative effects. We corroborated this through a manual check of 40 random patient records. We also collected qualitative data throughout the process, using questionnaires to gather feedback for the multiple PDSA (Plan, Do, Study, Act) cycles to improve the process.

Results

Our data showed that mean average ED arrival to medical review was faster by 2 hr 32 min (5 hr 10 min to 2 hr 38 min) and ED arrival to PTWR was faster by 3 hr 45 min (11 hr 2 min to 7 hr 17 min).
Fig 1: Time to PTWR on sample Wednesdays, pre- and post-combined clerking

Questionnaire feedback from staff was largely positive and constructive during the process and alterations were made according to their suggestions.

Conclusions

This project improved visibility of ED documentation, reduced unnecessary duplication, reduced waiting times and overall improved efficiency for staff and patients. It was widely supported by ward staff and management, thus ensuring its sustainability.

This method is a middle ground between ‘single’ clerking and conventional (ie ‘double’) clerking. It reaps many of the benefits seen with single clerking but with minimal change to the organisational processes. Patient flow was faster and this combined process could be implemented in other trusts without significant difficulty.

Looking to the future, we hope to improve the system further with more automation of data collection such as digital admission documentation to further improve the admission process for patients and staff.
**A retrospective audit of hyperlipidaemia management following acute coronary syndromes**

**Authors:** Kaung Lwin, Chee Khoo, Hnin Hay Mar, Zaw Aung

^A University Hospitals North Midlands; ^B Shrewsbury and Telford NHS Trust

**Introduction**

Control of hypercholesterolaemia is a highly effective way of reducing cardiovascular events in patients at high risk. Repeat cholesterol measurement is good practice in lipid management to optimise treatment but is poorly performed. Following NICE approval of proprotein convertase subtilisin/kexin 9 inhibitor (PCSK9i), there is a need to identify patients who are eligible for this treatment.

**Objectives**

To determine performance in lipid measurement 3 months following initiation of lipid therapy. To determine whether all patients with an indication for a PCSK9i following ACS were being identified.

**Methods**

A retrospective study evaluated acute coronary syndrome (ACS) patients using Myocardial Infarction National Audit Project (MINAP) registries from Royal Stoke Hospital (Jan 2014–Dec 2016). MINAP included patients who were admitted directly to Royal Stoke Hospital and transferred from nearby district general hospitals; Leighton, Macclesfield, Shrewsbury and Telford, Burton area following ACS for treatment. All patients whose initial serum cholesterol >7.3 on admission were identified as sample population. Total cholesterol and LDL levels were recorded during admission and post-discharge.

**Results**

There was a total 3,548 patients in MINAP (Jan 2014 – Dec 2016). 75 patients (2.1%) were identified as sample population. Eight patients did not have any record of lipid profiles on our system and GPs did not wish to engage in supplying information. 6 patients deceased. 61 patients were analysed. Mean age was 57 (Range 27-80). Mean cholesterol was 7.85. LDL-C was poorly measured as there were only 5% (n=2) measured on admission and 40% (n=24) at 3 month after discharge. Serum cholesterol were repeated in 58% (n=35) of the patients at 3 month following event. We identified two high risk patients (total one event) met for PCSK9 inhibitor as LDL-C was persistently >4, and two high risk patients whose last LDL-C>4 despite maximum Statin and one very high risk patients (two or more event) whose last LDL-C >3.5, potential meet for PCSK9i. There were two high risk patients already started on PCSK9i and their LDL-C were reduced significantly.

**Conclusions**

Lipid profiles, especially LDL-C, were poorly done on admission and following discharge. This could be improved by repeating lipid profiles when patients attend for cardiac rehabilitation and recommending GPs to repeat the lipid profiles following discharge. A small number of patients were identified as being eligible for PCSK9i. Failure to repeat LDL levels in patients following discharge from hospital is likely to explain this. There was also possible underreporting of comorbid vascular diseases within the MINAP database may prevent the identification of patients at very high risk. We re-established the routine practice of measuring lipid profile in our cardiology wards on admission, repeating during cardiac rehabilitation, and recommending GPs to measure following discharge.
References


A quality improvement project conducted in a GP practice in Greater Manchester to improve the monitoring and safety of patients on apixaban

Author: Zenab Sarwar Mateen
Royal College of Physicians

Introduction

Apixaban is a direct oral anticoagulant inhibitor (DOAC) that prevents thrombin generation and thrombus development. As per NICE (National Institute for Health and Care Excellence) guidelines, those taking apixaban require regular follow up and monitoring due to significant safety issues such as bleeding or renal impairment.

In many GP practices, including Kildonan House, monthly drug safety audits are carried out and reviewed by the pharmacists. These reports ensure high-risk medications that require regular monitoring are not overlooked as without these requirements prescribers should not be authorising further medication.

However, although rivaroxaban, another DOAC was reviewed, as well as lithium and amiodarone, apixaban was not included. I wanted to put measures in place to improve the system to meet these standards and improve the monitoring and thus safety of patients on apixaban.

Materials and methods

I conducted the project using Plan-Do-Study-Act quality improvement methodology: a driver diagram was created; outcome and process measures were outlined; a search was conducted on the electronic patient notes; a meeting was set up with the pharmacists to continue implementing the changes made on the electronic system to start monitoring and recalling patients requiring review.

The search was conducted using SystemOne on all patients currently prescribed apixaban 5 mg twice daily and checking:

- if they have a valid indication
- if they are on the correct corresponding dose
- they have been appropriately reviewed in the last 6 months
- whether their monitoring blood tests in the last 12 months are up to date.

The data was collected and analysed and a results table was created for the following parameters:

- Age of patient
- Indication
- Weight recorded with date
- Date of bloods (renal function, liver function, full blood count)
- If they fit the criteria for 6 monthly renal function bloods
- Whether any bloods are overdue
- Actions taken from the data collected for each patient
- Whether a review of compliance/side effect was carried out recently.

Results and discussion

<table>
<thead>
<tr>
<th>NICE guidance</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apixaban licensed for specific indications</td>
<td>3 DVT/PE prophylaxis = 5%; 4 DVT/PE treatment = 7%; 51 patients prophylaxis of stroke = 88%; Therefore 100% prescribed for licensed indications</td>
</tr>
<tr>
<td>Apixaban 5 mg BD reduced to 2.5 mg BD if has</td>
<td>1/58 = 1.7% One patient flagged up as on wrong dose as</td>
</tr>
</tbody>
</table>
two of: age >80, Weight <61 kg, Creatinine ≥133 met age and weight criteria; ? AGE >80 (83) ?; Weight LOW (58 kg in 1993)

<table>
<thead>
<tr>
<th>Apixaban contraindicated if creatinine clearance (CrCl) &lt; 15 mL/minute.</th>
<th>0 patients had a CrCl &lt;15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apixaban 3 monthly review for compliance, adverse effects and assessment for VTE</td>
<td>In the last 3 months ? 9/58 asked about drug adherence = 166% ?; 1/58 asked about adverse effects = 1.7%; In the last 6 months ? 23</td>
</tr>
<tr>
<td>Annual routine monitoring (urea and electrolytes (U&amp;Es), liver function test (LFT), full blood count (FBC))</td>
<td>19/58 annual bloods overdue = 33%; 11/58 annual bloods were overdue by &lt;12 months = 19%; Tasks sent: 11 tasks sent to recall</td>
</tr>
<tr>
<td>6-monthly U&amp;Es if CrCl 30?60 mL/min</td>
<td>29/58 needed 6-monthly U&amp;Es = 50%; 7/58 6-monthly U&amp;Es overdue = 12%</td>
</tr>
<tr>
<td>3-monthly U&amp;Es if CrCl 15?30mL/min</td>
<td>0/58 fit this criteria</td>
</tr>
</tbody>
</table>

100% of the patients were prescribed apixaban appropriately and only 1/58 patients was queried as a possible candidate requiring a reduced dose depending on a more recent weight confirming <61 kg criterion met. All others were dosed appropriately with the information available.

However, it is evident that we are not meeting standards in the monitoring of apixaban bloods routinely. 33% of the routine annual bloods were overdue, 19% of which were >12 months overdue. Only 17% were asked about adverse effects in the last 6 months, and only one of these patients was actually asked in the last 3 months fitting the guidelines. We performed better on documenting drug compliance checked, with 40% done in the last 6 months but these were all mostly part of complete medication reviews or secondary care reviews rather than apixaban-specific consultations.

I involved practice members to illustrate the importance of adding apixaban to the monthly drug safety report and the following implementations and recommendations were made.

1. **Add following patient status recall messages**
   - All on apixaban need annual U&Es, LFTs, FBC and CrCl
   - All with CrCl 30–60 need 6-monthly U&Es
   - All with CrCl 15–30 need 3-monthly U&Es
   - All with CrCl <15 need apixaban stopped and review
   - Need updated weight every 5 years for ALL adults

2. **Add apixaban on to monthly drug safety report**
3. **Pharmacists to check during yearly reauthorisation if all routine annual tests completed**
4. **Pharmacists to review and consider discussing with CCG (clinical commissioning group) about safe prescribing for apixaban and implementing assessment of compliance and adverse effects.**

**Conclusion**

There is a real risk in drug safety if monitoring requirements are not met as patients are reliant on the prescribing team for authorising their medication as suitable. Although all prescriptions were currently safe, as an ongoing process, the system will now have a fixed report for any patients at risk on apixaban to be identified. Due to the messages flashing on the patient notes they will be more likely to get actioned by staff to change doses and obtain overdue bloods; reducing costs of repeated tests, kinder as less venepuncture, and much safer. The pharmacists were in agreement to monitor those patients highlighted and also as part of their annual reauthorisation review to ensure bloods are up to date.

This is therefore a sustainable project and the changes and project have helped to educate the clinicians, pharmacists and patients.

**References**
3 Medicines.org.uk. Eliquis 2.5 mg film-coated tablets – Summary of product characteristics (SmPC) – (eMC). EMC, 2019. Available at: www.medicines.org.uk/emc/product/4756/smpc
Improving the quality of referrals to ambulatory emergency care

Authors: Katherine Keaney, Annelies Sweeney, Shaznin Visanji,* Amber Hawksley* and Reginald Coleman

Barnet Hospital, Royal Free NHS Trust
*RCP chief registrar

Introduction

In January 2019, Barnet Hospital opened a new Acute Medical Unit (AMU), which uses the objectives and aims set out by NHS Improvement’s Same day emergency care. The Ambulatory Emergency Clinic (AEC) forms part of the new AMU, as a clinic for those patients ‘fit to sit’, to avoid unnecessary hospital admissions in clinically stable, ambulatory patients. The aim of this audit was to understand how the clinic was being utilised, prior to the new AMU opening. By identifying the most common reasons for referral and highlighting any unsuitable referrals, the community and medical teams were educated, therefore utilising the services better for on-the-day referrals.

Materials and methods

Baseline data was collected of all new referrals made to the AEC in 1 week. Data was collected on the source of each referral, the number of referrals that were accepted by the AEC consultant, the clinical reason for referral and any subsequent referrals to other clinics or specialties. A re-audit was completed 4 weeks after the new AMU opened.

Results and discussion

118 referrals to AEC were audited over a 1-week period. 36% of referrals were from the ‘acute medical’ on-call team, 28% from A&E, 24% from GPs and 12% from inpatient wards (post discharge). 31% of all new referrals were rejected by the AEC consultant, requiring discussion with the referring clinician or referral to an alternative service. The majority of ‘inappropriate’ referrals were from general practice, although 28% of inappropriate referrals were from the medical on-call team. The most common clinical presentations referred to AEC were suspected venous thromboembolism and infections other than cellulitis. 10% of all referrals were to repeat or follow-up blood tests. A total of 30% of all patients referred to AEC were later referred to other clinics and specialties, of which over half were sent to community clinics and to surgical specialties.

A re-audit was conducted 4 weeks after the new AMU opened, 88 patients were audited over a 1-week period. Following a grand round presentation and internal communications to the medical teams, there was significant reduction in the percentage of rejected referrals (18%), and onward referrals to other specialties (19%). Although the percentage of patients seen in AEC post discharge from medical ward had gone up to 32%; 75% of these patients were discharged from the acute medical wards, aiding in admission reduction and reduced length of stay. Unfortunately, there was an increase in the number of referrals to follow-up blood test results to 28%.

Conclusion

The results from the audit reflect the large number of patients being referred to AEC inappropriately and the burden of medical and surgical subspecialties on this outpatient resource. We recommended revising the current guidelines to outline clear referral criteria. A pathway is currently in progress for access to ‘Hot clinics’ for medical teams to referral to directly. A protocol has been implemented for consultants to follow
up test results requested on their on-call, including blood tests, to reduce the follow-up burden on the clinic.

Reference

CLINICAL

Paperless medical clerking: are we still documenting what matters?

Authors: Ahmed El-Masry, Pete Kelly, Shaznin Visanji,* Amber Hawksley* and Lauren Farber

Barnet Hospital, Royal Free NHS Trust

*RCP chief registrar

Introduction

Accurate clerking is vital in ensuring optimal management of medical patients. Previous studies have highlighted the importance of proforma use in maintaining documentation standards. This study aimed to refine an existing clerking proforma and explored the subsequent impact of transition to electronic patient records (EPR).

Materials and methods

A single centre retrospective analysis was conducted at Barnet General Hospital, Royal Free NHS Trust, over a year (January–December 2018). All patients (n=60) were admitted during medical take to the acute or short stay units. Three groups of documentation were audited, 20 patients in each: clerking using an (i) no existing proforma; (ii) introduction of a standardised clerking proforma and (iii) post introduction of EPR. Comparison of medical clerking standard was made against guidelines outlined by the professional record standards body (PRSB).1 Adherence to highlighted domains was documented.

Results and discussion

Across all three groups, patient demographics and admission details and common sections of a history (presenting/history of complaint and past history) were documented for all patients. This was also the case for cardiorespiratory and abdominal examinations.

With regards to history taking, introduction of the proforma led to improved documentation of review of systems (25 to 45%). Additionally, social circumstances were better explored; living situation (45 to 75%); occupation (15 to 50%), smoking and alcohol history (50 to 80% and 45 to 70% respectively) and independence in activities of daily living (40 to 70%). Though least documented, neurological examination documentation improved (45 to 70%).

Clerking standards were generally maintained during transition to EPR. Further improvements from the introduction of a proforma were seen, particularly in drug allergy histories (75 to 100%) and their severity (43 to 100%). All patients on EPR had investigations (blood tests, gases and scans) immediately uploaded when available.

Gradual improvement in resuscitation status was observed across all study groups (5, 50 and 100% respectively). However, treatment escalation plans remained variable (0, 35 and 15% respectively).

Areas which remained poorly documented across all study groups included family history (15, 10 and 25% respectively) as well as AMTS/4AT scoring (0% on EPR).

Conclusion

Introduction of a medical clerking proforma has led to sustained improvements in domains of medical clerking documentation. Although the introduction of EPR can be daunting, provided there is adequate support and training for staff, benefits can be observed. There is scope for introduction and re-auditing of an updated proforma in the future.
Reference

CLINICAL

Does quicker access to a senior decision maker make a difference in the acute medical unit?

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Barnet Hospital, Royal Free NHS Trust
*RCP chief registrar

Introduction

This project aims to reduce the time that clinically stable patients take to be discharged from the acute medical unit (AMU) by improving access to a ‘senior decision maker’ (defined as ST3 and above). The patient cohort selected were those referred from their GP directly to the AMU, of any age, and discharged within 24 hours of attendance, hence avoiding hospital admission. A target of 2 hours to senior review was decided on, as per national guidelines.

Material and methods

The grade of doctor and time taken to senior review was recorded for 27 patients using the above criteria over 6 weeks. This was compared with the length of time the patients spent in the department before being discharged.

A medical registrar was then moved to the AMU from Monday to Friday from 13.00 to 21.00 to increase access to a senior decision maker and to take pressure off the medical take team based in the emergency department.

Results and discussion

59% of patients had their initial clerking done by a doctor of foundation year 1 (FY1) grade, 24% by core training years 1 or 2 (CT1/2) and only 7% by a specialty registrar (SpR).

Time to senior review averaged 3 hours 19 minutes, ranging from 1 hour 32 minutes to 5 hours 45 minutes. Only 17.3% met the 2-hour target. The time to decision to discharge (DTD) averaged 3 hours 20 minutes, with a range from 16 minutes to 6 hours 52 minutes, meaning 62.5% met the 4-hour target.

A dedicated registrar based in AMU improved both the time to senior review and the time to discharge. Time to senior review averaged 2 hours 56 minutes and the time to discharge averaged 2 hours 59 minutes. 47% met the 2-hour senior review target and 75% met the 4-hour time to discharge target.

Conclusion

This is one PDSA (Plan, Do, Study, Act) cycle of an ongoing quality improvement project aiming to improve flow of GP-expect patients. These patients have traditionally been seen by the most junior medics and have often had a tortuous journey through the medical department despite the fact that 75% of them are discharged on the same day.

Reference

Safe medical staffing: the association between medical staff numbers and mortality in English hospitals

Authors: Phil Harvey* and Nigel Trudgill
Sandwell and West Birmingham NHS Trust

*RCP chief registrar

Background

The RCP Guidance on safe medical staffing (GoSMS) report proposes staff numbers per 30-bed medical ward for expert clinical decision makers (ECDM), senior clinical decision makers (SCDM) and competent clinical decision makers (CCDM). The report recognised that outcome data in relation to medical staffing levels are limited.

The Summary Hospital level Mortality Indicator (SHMI) is the adjusted measure of mortality calculated for hospital providers comparing actual with expected mortality. A SHMI <1 implies lower mortality than expected. We have examined the relationship between mortality at a trust level and medical staffing.

Methods

The number of medical doctors by grade was accessed from electronic staff records provided by Health Education England. Medical bed numbers and SHMI by acute hospital trust was obtained from the NHSi Model Hospital resource. Medical beds per ECDM, SCDM and CCDM working in medical specialties were calculated. Only acute hospital trusts were included; community, mental health and specialist trusts were excluded. Univariate linear regression was undertaken with SHMI as the dependent variable to examine associations with medical staffing levels.

Results

A total of 136 trusts were included in the final analysis. The median number of medical beds was 391 (IQR 273–489) per trust. The median numbers of ECDM, SCDM and CCDM were 53.7 (IQR 37.2–84.3), 22.5 (12.0–38.2) and 36.8 (27.6–59.2) respectively. The mean number of beds per ECDM, SCDM and CCDM were 7.2 (2.6), 19.3 (11.4) and 10.3 (4.1) respectively. Univariate linear regression analysis demonstrated highly significant associations between SHMI and ECDM (0.015 (95%CI 0.008–0.021), p<0.001), SCDM (0.003 (0.001–0.005), p=0.001) and CCDM (0.009 (0.004–0.014), p=0.001).

Fitting a linear relationship between beds per staff member and SHMI, trusts are more likely to achieve SHMI <1 if, per 30-bed ward, a trust employs more than 4.3 ECDMs, 1.3 SCDMs and 2.9 CCDMs. GoSMS suggested a minimum of 1 ECDM, 1 SCDM and 2 CCDMs per 30-bed ward per week.

Conclusions

Higher numbers of all grades of medical staff per bed are associated with lower mortality. It is not possible to confer causality from this association but acute hospitals with higher staffing levels per bed appear to have lower than expected mortality.
HEALTH SERVICES AND POLICY

Paramedic direct referrals to senior decision maker: is this the way forward? A pilot project in acute general medicine and ambulatory care at the John Radcliffe Hospital, Oxford

Authors: Leila Vaziri,* Mridula Rajwani, Jordan Bowen, James Price, Sudhir Singh, Anuja Bambaravanage* and Megan Stewart
Oxford University Hospital
*RCP chief registrar

Background

The Royal College of Physicians 2013 Future Hospital report recommends ambulatory care ‘by default’ as a model to meet the increasing demands on acute services. The Oxford University Hospitals Ambulatory Assessment Unit (AAU) was established in 2016 to provide an ambulatory alternative for patients referred to the undifferentiated medical take. A phone cascade system between 8am and 6pm enabled senior decision makers (consultant, chief registrars) to receive all initial calls about medical admissions from referring GPs as well as from paramedics and other healthcare providers. Despite the provision of a direct line to a senior clinician the majority of paramedic conveyances were to the Emergency Department (ED), including a proportion of patients eligible for redirection to the AAU.

Aims

To decongest the Emergency Department by directing an increased number of appropriate paramedic referrals to the AAU or the Medical Admissions Unit.

Methods

1. A collaborative pilot project was developed by engaging the senior trust leadership, the regional ambulance service and the local clinical commissioning group (CCG).
2. Initial observational data collection of patients from ED triage conveyed by ambulance and subsequently seen in the Emergency Department.
3. Discussion with the Ambulance Service leadership to identify barriers to referral and encourage calls of medical presentations directly to the medical referral phone.
4. Phone holder availability to referring paramedics increased to 24 hours.
5. Educating medical registrars around ambulatory pathways in the region.

Results

1. Data collected on a single day in ED triage showed 2/43 (4%) of paramedic referrals were seen on AAU, with no patients referred directly to take. On review of the clinical presentations, 16% could have been seen on AAU directly, and 25% could have been seen directly on the medical admissions unit.
2. Pre-intervention 12% of calls made to the referral phone were from paramedic team, and post-intervention that rose to 26% of total calls taken.
3. Over a 1-week period during the pilot 73% of calls, from paramedics were directed to AAU or medical take, and therefore away from the Emergency Department. Only 17% were seen in ED. 10% were directed to other services, including specialties.
4. The data also suggested that the AAU South Central Ambulance Service patients rose from 3.8% to 13%, which has been maintained post the pilot week.
Conclusion

This pilot project sought to reduce the number of ambulance conveyances to the ED by removing barriers to paramedics accessing alternative pathways. Critical to this was enhancing an existing phone-cascade model providing a direct line for paramedics to discuss patients with senior decision-makers. In conjunction with an education programme and cross-organisational collaboration the number of discussed patients conveyed to ED was reduced by 73%.

Although increasing the availability of senior decision support to non-medical referrers ‘upstream’ to acute hospital services may reduce ED conveyances, further work is necessary to understand the opportunity, cost, economics and professional barriers to widespread adoption.
Medical workforce review using the RCP guidance on safe medical staffing demonstrating wide variation of workload to workforce ratio between medical teams within a single trust

Authors: Thomas Weetman, Deanne Bell, Gareth Watts* and Fang En Sin*
Brighton and Sussex University Hospitals NHS Trust
*RCP chief registrar

Introduction

The Royal College of Physicians (RCP) published guidance on safe medical staffing in 2018. Its recommendations were derived by estimating the workload generated by each clinical activity.

In our trust, there is a perception of a high junior doctor workload and an imbalance of workload between teams, which can compromise patient safety, work efficiency and training quality. Acting on this, we aim to:

1. compare the workload per tier 1 (pre-registrar) doctor between medical teams
2. compare the trust’s tier 1 staffing level against the RCP benchmark, focusing on staffing of medical wards in-hours.

Methods

Twenty medical teams across Brighton and Sussex University Healthcare Trust (encompassing two hospitals) were assessed.

The clinical activity of each team (number of new and pre-existing inpatients, and discharges) was collected over a 2-week period using inpatient lists and electronic data. Workload was calculated as ‘average hours of work required per week per team’ based on estimations in the RCP report.

In calculating the average hours of ward work contributed by each tier 1 doctor per week, on-call commitments were accounted for, in addition to leave entitlements.

With this data, we then:

1. determined the ratio of workload to workforce per team, and compared between teams.
2. compared the number of doctors needed as per the RCP guidance with actual staffing levels.

To help validate the guidance, we assessed additional hours worked using exception reports and diary cards from tier 1 doctors for 1 week.

Results

The average number of inpatients per team per day was 23 (range 3–51), with four new patients (0–13) and two discharges (0–6). The average hours of weekly ward work per team was 55.6 (6.4–88.3), with 5.4 doctors per team, each contributing 28.8 hours of ward presence a week.

The normalised workload to workforce ratio demonstrated a wide variation, ranging from 0.24 to 1.7 (with 1.0 representing the median) [Fig 1]. The average workload to workforce ratio was higher at PRH (1.3) than RSCH (1.0).

Overall, there was more than the recommended number of doctors (average actual:recommended ratio 1.9). Despite meeting the minimum staffing requirement of the RCP, staff are routinely working beyond
contracted hours. A total of 77 hours were exception reported in 1 month, and the ‘diary card’ reported a total of 30.4 hours of extra work in 1 week.

Possible explanations include: staff and system inefficiencies; mismatch of workload to staffing level due to variations in workload and rota management; high workload from high acuity and complex patients. In addition, the hours of ward presence did not account for staff breaks and mandatory teaching.

![Diagram showing variation in normalised workload to workforce ratio between medical teams within the trust, with 1.0 being the median](image)

**Conclusion**

The RCP guidance forms a basis for trusts to benchmark their workforce. We demonstrated the importance of regular reviews of medical staff distribution, in order to ensure safe, efficient delivery of care. The guidance stipulates a minimally safe staffing level; however the reality of maintaining a progressive care system may necessitate more doctors. The RCP recognises that the report is ‘the start of an ongoing process’, and we hope that our findings contribute to this process.

**Reference**

Introducing an ambulatory PE pathway with no extra resource

Authors: Wendy Baird,*A Emily Hannah,B Mark Feenan,B Chiara Byrne,B Mary Burke,B Joanne Dougan,B David HaaijerB and Judith Smyth,B

*A Southern Health and Social Care Trust; B Craigavon Area Hospital

*RCP chief registrar

Introduction

New or suspected diagnosis of pulmonary embolism (PE) is a common cause of presentation to the acute medical take with a UK annual incidence of 60–70 per 100,000 population. Recent studies have demonstrated that approximately 37–44% of new diagnosis of pulmonary embolism could be classified as low risk using the PESI scoring system and safely managed as an outpatient.1 This project aimed to develop an ambulatory PE service within a busy district general hospital serving a population of 360,000 with no ambulatory unit and no extra resource.

Materials and methods

A retrospective case review was carried out on all medical admissions in the 12-month period from November 2015–October 2016 who had a coded discharge diagnosis of confirmed PE. Eligibility for ambulatory care was retrospectively applied using a validated tool (PESI score) calculated based on admission observations and patient past medical history. Patients who had a high PESI score or other contraindications to ambulatory management (eg right heart strain, significant comorbidities) were excluded.

This showed that there were 93 confirmed PE cases in the 12-month period. Of these, 38 patients would have met eligibility criteria for consideration for ambulatory management. The average length of stay was 6 days for these patients, equating to a potential saving of 268 bed days per year with a cost saving of £139,360. This does not include admissions for suspected PE who subsequently had a negative CT pulmonary angiography (CTPA).

Following this review we set up a collaborative working group inclusive of representatives of emergency department, acute medical team, administration staff, radiology and pharmacy. A PE pathway was established using current British Thoracic Society guidelines using existing ‘chair’ space in the clinical decision unit within the emergency department for an initial 2-week pilot.

Results and discussion

Five patients were ambulated during the 2-week pilot phase. This resulted in a cost saving of approximately £3,640 in bed days saved for this group. This has demonstrated the cost-effectiveness of the ambulatory pathway and as a result we intend to make this a permanent service within our trust. The patient feedback for this group has been positive and we are monitoring long-term outcomes from this pathway.

Conclusion

Collaborative working across specialties has led to the development of a new ambulatory PE service with no added cost. We hope to develop our ambulatory service further with the aim of reducing medical admission rates and improve quality of care for our local population.
Reference

Formation of a Junior Doctor Wellbeing Steering Group

Author: Amy Davies*

University Hospitals Birmingham NHS Foundation Trust
*RCP chief registrar

Introduction

Reports by the British Medical Association, Royal College of Physicians and Health Education England have all raised concerns regarding the wellbeing of junior doctors. Working in an increasingly demanding, poorly resourced and underfunded healthcare system is associated with a triad of guilt, low self-esteem and sense of failure. Understandably, this not only affects the day-to-day working of individuals, but also extends detrimentally to affect home life and mental health.

Wellbeing initiatives are numerous and of varying success. What is recognised is that there is an appetite for change and hospitals need to prioritise the development of a wellbeing culture within their workforce.

The setting of our steering group is a newly built, world-renowned large tertiary teaching hospital, which often attracts doctors in training specifically to develop specialty interests. Despite these positive elements, anecdotally and also from junior doctor surveys, the hospital is often described as impersonal and junior doctors commonly describe feeling like a ‘cog in a machine.’

Methods

A primary scoping exercise of previous wellbeing initiatives indicated that they were either individually led or as a result of a small groups working separately within the hospital. The aim of the Wellbeing Steering Group was to initially bring these individuals together to enable collaborative working. At this stage these individuals were predominantly consultants. Invitations were then extended to members of the education team, junior doctor support team, occupational health, nursing colleagues and junior doctor representatives.

Results

There are currently 18 members of the Junior Doctor Wellbeing Steering Group. Meetings are currently held quarterly. The aims of the meetings are threefold:

1) Introduce like-minded individuals passionate about junior doctor wellbeing.

2) Encourage discussion regarding the development of existing initiatives and a non-judgmental forum to discuss ideas for future initiatives.

3) Ensure that smaller working groups are allocated to specific initiatives to enable work to be completed and fed back to all members of the steering group.

Summary of each meeting is emailed out to all members after large group meetings, with updates in between to ensure all are up to date with developments.

Ongoing initiatives include:

1) Small group reflective practice groups facilitated by a consultant psychologist to discuss difficulties faced as a junior doctor.

2) Implementation of Schwartz rounds (multi-professional reflective practice).
3) Development of a ‘buddy system’ for new doctors joining the hospital.

4) Encouraging positive feedback eg promoting the use of the ‘Learning from Excellence’ scheme

Conclusion

A single junior doctor wellbeing initiative is unlikely to be successful in isolation. Although in its infancy, the Junior Doctor Wellbeing Steering Group provides a forum for passionate individuals advocating the importance of junior doctor wellbeing and is a much-needed positive step forward. Collaborative working allows ideas to be developed simultaneously with the hope that we can increase the number of initiatives and have a positive impact on junior doctor wellbeing.

Reference

Taking back control: a better deal for junior doctor engagement in rota design using e-Delphi and assignment problem algorithm

Authors: Matthew Szeto* and Jasmine Mann
Medway NHS Foundation Trust
*RCP chief registrar

Introduction

The British Medical Association and NHS Employers published a guide to good rostering practice, which emphasised the need for a collaborative approach, in which the views of junior doctors should be taken into account when designing a rota.¹ The guidance, however, did not provide tools for promoting junior doctor engagement in this process. Lack of structured consultation strategy and low level of satisfaction contribute to the prevailing narrative that junior doctor’s input is undervalued, resulting in ‘a crisis in junior doctor engagement’.²

This case study presents the utility of e-Delphi exercise for consultation and Assignment Problem Algorithm to improve satisfaction by matching work patterns to doctors’ preferences.

Methods

Following review of workload and medical staffing, Medway Maritime Hospital undertook a re-design of its medical registrar (MR) rota in October 2018. With support from the Medical Staffing Department, a new rota was drafted by a doctor who takes part in the MR rota.

The draft rota, together with information on changes in work hours and pay, formed the basis of an e-Delphi consultation exercise, in which

1. All MR were invited to participate in an online survey to rate statements regarding aspects of the new rota using a 5-point Likert scale, and to provide comments to justify their ratings.
2. The quantitative and qualitative results from round 1 were summarised in a report to all MR. Having considered the report, all MR were then invited to reconsider the statements in round 2. The process would be repeated for round 3.
3. A consensus was defined as statements being rated ‘Agreed’ or ‘Strongly agreed’ by ≥66% of respondents.³
4. For statements that did not achieve a consensus, decisions would be taken based on simple majority.

The rota template was revised based on the result of the e-Delphi consultation. All MR were then invited to submit their top three preferences for work pattern (ie which line of the rota they wish to occupy). This was constructed as an Applied Mathematics ‘Assignment Problem’, in which:

- The ‘cost’ of assigning each MR to their first preference was 1, their second preference was 2, and their third preference was 3. A cost of 99 was applied the rest of the rota.
- Using OpenSolver 2.9.0 (2018), an algorithm was used to populate the rota with the minimum ‘total cost’. An example of such algorithm output is shown in Figure A.

(A more detailed explanation is available at www.excel-easy.com/examples/assignment-problem.html)
The process for designing and implementing the new MR rota was evaluated in another online survey 6 weeks post-implementation of the new rota.

**Results**

The return rate of the e-Delphi exercise was 72% for round 1 and 78% for round 2. Round 3 was cancelled as there was no further qualitative responses to drive further consensus after round 2. Four statements achieved consensus in round 1, and 2 additional statements achieved consensus in round 2. There was a trend towards increasing agreement for all statements (Table 1).

<table>
<thead>
<tr>
<th>Statements achieving consensus in round 1 (% agreement)</th>
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<tbody>
<tr>
<td>? The new rota would allow for a better SpR on-call experience. (85%)</td>
</tr>
<tr>
<td>? The new rota would allow better patient care. (85%)</td>
</tr>
<tr>
<td>? Not having to work 2 consecutive weekends is a desirable feature. (77%)</td>
</tr>
<tr>
<td>? If swaps cannot be found after reasonable effort, locum cover should be sought to honour existing leave arrangements. (100%)</td>
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</tbody>
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<tr>
<th>Statements achieving consensus in round 2 (% agreement in round 1, % agreement in round 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>? Existing agreed leaves should be honoured even if no swap or locum cover can be found. (46%, 78%)</td>
</tr>
<tr>
<td>? The new rota should be implemented from January 2019. (63%, 71%)</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Statements accepted on simple majority (% agreement in round 1, % agreement in round 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>? It is preferable to have an additional rest day AFTER (rather than before) weekend nights. (15%, 57%)</td>
</tr>
<tr>
<td>? Provided the number of night shifts remains constant, spreading out night shift blocks is a desirable feature. (54%, 64%)</td>
</tr>
</tbody>
</table>

Fourteen MRs submitted their work pattern preferences. All were allocated to one of their top three preferences as follow:

- First preference: 4
- Second preference: 6
- Third preference: 4

Post-implementation evaluation (response rate: 89%) showed high level of satisfaction with the design, allocation, and implementation of the new rota (Fig B).
Conclusion

Good consultation strategy and high satisfaction level are facilitators for junior doctor engagement. E-Delphi exercise provides structured consultation to develop consensus for rota design and implementation, while an Assignment Problem Algorithm increases satisfaction by matching work patterns to doctors’ preferences. These tools should be considered in promoting engagement of junior doctors in rota design.

References

**EDUCATION, TRAINING AND MEDICAL PROFESSIONALISM**

**Building a strong foundation**

Authors: Kieran Palmer, George Sismey, Shivani Gor, James Lambert, Lauren King, Mehak Chadha, Kathryn Killicoat and Billy Cheung*

Homerton University Hospital NHS Foundation Trust

*RCP chief registrar

**Introduction**

Final year medical students often feel apprehensive and anxious when transitioning from student to doctor. Studies have shown that increased length of shadowing and specific ‘preparing for practice’ teaching improve confidence. We targeted this transition by delivering an extensive medical education preparation programme. We aimed to improve student preparation and ability, with a view to improving patient safety.

**Materials and methods**

We designed a comprehensive programme to target history, examination and clinical skills, while providing experience of being on call. There were four streams:

1. Focused bedside teaching
2. An ‘on-call hour’ simulation exercise
3. A comprehensive 11 station formative OSCE examination
4. ‘Thriving and Surviving’ lecture series, incorporating the new national NEWS2 scoring system for unwell patients.

Questionnaires were completed before and after the course. We used a Likert scale for various feedback components, which included items from the GMC Outcomes for Graduates specification.

**Results and discussion**

Quantitative and qualitative feedback was collected during each part of the teaching programme. The on-call simulation questionnaires assessed candidates’ confidence in answering bleeps, prioritising tasks, handing over and escalation. Our results demonstrated a significant increase in mean confidence and perceived abilities in all areas assessed (38% to 94%, \( p<0.001 \)). Students also felt that it identified and addressed many points which were otherwise absent from the standard medical curriculum. Overwhelmingly positive feedback from the OSCE and bedside teaching indicated that students appreciated appropriately pitched, structured teaching as preparation for their final exams and clinical practice.

**Conclusion**

Our feedback further confirms that students often feel uncertain and anxious when starting work. Our results suggest that a targeted ‘on-the-job’ teaching course improves confidence for clinical practice across all domains. We recommend similar implementation across different medical schools in the future.

**Reference**

EDUCATION, TRAINING AND MEDICAL PROFESSIONALISM

Current perspectives on the chief registrar scheme from doctors in the West Midlands

Authors: Amy Davies\textsuperscript{A}\textsuperscript{*} and Philip Harvey\textsuperscript{B}\textsuperscript{*}
\textsuperscript{A}University Hospitals Birmingham NHS; \textsuperscript{B}Sandwell and West Birmingham NHS

\textsuperscript{*}RCP chief registrar

Introduction

The Royal College of Physicians (RCP) chief registrar scheme commenced in 2016 following a report by the Future Hospital Commission recommending the need to improve management and leadership opportunities for doctors in training.\textsuperscript{1} The chief registrar scheme offers a bespoke leadership and management programme that can be undertaken alongside training.

The chief registrar scheme is a 1-year programme available to all registrars ST4 and above. A minimum of 40\% of the registrar’s time is allocated to management and leadership development. Quality improvement work, mentoring from clinical and non-clinical executives, and attendance at management meetings form the majority of the role, although this is variable between posts. The RCP provides 10 days of formal training for each cohort.

An independent evaluation of the pilot indicated the scheme improves personal leadership development, service improvement, education provision and junior doctor engagement.

Methods

A combination of paper and electronic surveys were completed at two separate 1-day regional events; West Midlands RCP Update in medicine conference and University Hospital Birmingham general internal medicine (GIM) registrar training day. The survey assessed current understanding of the chief registrar role and factors that influence applications to the role.

Following the survey results we have presented experiences of the chief registrar role at regional GIM training days and specialty training days.

Results

193 responses were completed (77\% paper, 23\% electronic). 55\% of participants were registrars in training (ST3 and above) and 39\% were consultants. 99\% were working within medical specialties.

78\% recognised the term chief registrar, although 25\% believed that the role was only applicable to those with aspirations of becoming senior medical leaders. Furthermore, many felt the role was limited to registrars training in GIM (37\%), registrars in final year of training (14\%) or those with previous management experience (17\%). 9\% of respondents believed that chief registrars stopped all clinical work and 16\% believed the role mandated additional training time.

50\% of registrars indicated they were either interested (18\%) or unsure (32\%) about applying for future posts. Of those not interested in applying, 31\% indicated they were unaware of what the role involved. 7\% were concerned they would be unsuccessful if applying and 8\% were concerned that the post would have a negative impact on training.

Following presentations we have been invited to meet with potential applicants, consultants, educational leads and programme directors to discuss the role.
Conclusion

Despite recognition that doctors in training would benefit from management and leadership opportunities, awareness of the chief registrar scheme could be improved.

The number of posts advertised for the coming year has increased within the West Midlands. We predict an increase in chief registrar applications for those posts. Although causality to the above interventions cannot be proven, promoting the role through day-to-day work in addition to formal presentations will have increased awareness and reduced common misconceptions about the role.

Reference

Establishing a regular systems-based teaching programme for core medical trainees within a district general hospital

Authors: Kate Edwards* and Tom Cozens
Aneurin Bevan University Health Board
*RCP chief registrar

Introduction

Although Health Education and Improvement Wales (HEIW) provide regional teaching days for core medical trainees (CMTs) in line with the curriculum, the local teaching for CMTs within hospitals in Aneurin Bevan University Health Board has been variable. Focusing on the Royal Gwent Hospital where no formal teaching was being run locally, I aimed to establish regular teaching sessions for CMTs incorporating clinical skills, simulation training and useful systems-based discussions that are relevant to day to day working practices.

The aim is to drive cultural change in a hospital that has never run local teaching sessions for CMTs to establish a regular programme that can be continued beyond August 2019 with the new introduction of internal medicine trainees in Wales.

Materials and methods

Having initially asked the current cohort of CMTs what type of teaching they would like to receive, it was apparent that most CMTs wished to have clinical skills and simulation teaching to help them gain confidence in core procedures and emergency scenarios as they progress into higher training.

With this in mind I set up discussions with the simulation lead for the hospital and the postgraduate department to organise dates and times that these sessions could be run. As a gastroenterology trainee, I set up a month in November 2018 where I hosted teaching for the CMTs on a weekly basis to include a clinical skills station on ascitic drain and Sengstaken-Blakemore tube insertion, a simulation session on management of gastrointestinal (GI) bleeds and decompensated liver disease, and small group talks on the initial management of luminal and hepatology emergencies that are commonly encountered on the medical intake.

The feedback received from these four sessions was very positive with many CMTs asking for continued regular teaching using this format. I subsequently utilised this feedback to gain support at the medical directorate meeting in creating a medical simulation faculty to ensure longevity of this teaching programme.

Since January 2019, a regular teaching programme delivered once a week has been established, with each month focusing on one medical specialty, which to date has included cardiology and acute medicine. Feedback from these teaching sessions has again been very positive and is helping to drive change over the next 6 months.

Results and discussion

To date, the teaching sessions have been rated overall by attendees as ‘excellent’ or ‘very good’. Two-thirds of people felt the clinical skills workshops in particular improved their clinical skills ‘a great amount’ and all attendees agreed that these workshops would help them pass their Annual Review of Competency Progression (ARCP) for their level of training.

Having established clinical skills sessions in previous hospitals I was somewhat confident that I had the understanding to set up this teaching programme locally. However, I have experienced some challenges along the way. Skills gained so far in my chief registrar training have helped a great deal in overcoming
these challenges. The challenges included agreeing on a set day for the regular teaching sessions as many medical teams hold departmental teaching or MDTs at lunchtime. Negotiations with different clinical directors regarding the day and time of CMT teaching led to agreement on a Thursday lunchtime prior to care of the elderly departmental teaching. After running the first few teaching sessions on a Thursday lunchtime, attendance was relatively poor despite good communication beforehand with the CMTs. Feedback suggested that CMTs felt the postgraduate department, being detached from the main hospital building, was one factor that contributed to poor attendance. In response to this, I moved any non-clinical based teaching sessions to the medical mess which is central to the hospital and has facilities to hold meetings and run PowerPoint presentations. With this change, uptake was much improved, however it still look a lot of messages via the CMT WhatsApp group and emails to remind juniors that this teaching is now a permanent and a regular feature of Thursday lunchtimes.

Finally, to ensure longevity of this teaching programme, I have approached the medical directorate to aid the establishment of a medical faculty for simulation, something that is mandatory for internal medicine trainees from August in Wales. Uptake from consultants has been slow, with many expressing concerns that simulation is not a modality of teaching they are used to doing and do not have the skill set to teach. As a result, ‘Train the trainers’ sessions are being run locally in the next few months to equip medical consultants with the skills needed to run simulation scenarios, including debriefing.

**Conclusion**

Establishing a regular local teaching programme for core medical trainees has had its challenges, particularly driving a culture towards positive change among trainees and consultant colleagues in a hospital which has traditionally had no formal teaching. Despite the challenges faced, the outcome of establishing this varied systems-based teaching programme has proved to be beneficial to trainees to date, helping them to gain confidence in both academic knowledge and clinical skills which can be utilised as they progress into higher training posts.
EDUCATION, TRAINING AND MEDICAL PROFESSIONALISM

IMT SIM: beyond the realms of resuscitation and procedures

Authors: Christopher Huntley,* Joseph Wheeler, Jennifer Kerks, Stuart Hamilton, Amanda Szuszman, Philip Dainty and Richard Barlow

New Cross Hospital, Wolverhampton
*RCP chief registrar

Introduction

The impending arrival of the new internal medicine training (IMT) curriculum has shifted focus from knowledge-based assessments towards capabilities in practice (CiP) and generic capabilities in practice (GCP). These focus on non-technical professional skills and medical leadership, providing an opportunity for Simulation Based Education (SBE) to support IMT development and experience. The benefits of SBE are far beyond traditional skills and drills training (such as resuscitation and procedures), as previously touted. We present our new IMT SIM training programme at the end of its pilot year.

Method

The IMT SIM programme is delivered at SimWard-Wolverhampton and provides half-day simulation-ward training to a maximum of five core medical training (CMT) or IMT doctors per session. The programme content maps to the new IMT curriculum, layering common medical inpatient and outpatient scenarios with varying levels of complex non-technical human factor themes and professional and leadership skills. All scenarios are adapted from events that faculty members have encountered through their physician training.

Themes encompassed throughout the programme include, but are not limited to: situational awareness; managing and resolving conflict; prioritisation; ethical issues in practice; team working; clinical reasoning; bias in practice; leadership; and followship. Feedback from candidates was collated in each session through Likert scales and unstructured qualitative questions to refine future scenarios.

Results and discussion

17 CMT doctors undertook the pilot IMT SIM programme between June 2018 and February 2019, with 9 returning surveys. 100% felt the sessions were ‘very relevant’ to their clinical practice and 100% felt they learnt ‘a great deal’ from the sessions. 89% felt the aims of the sessions were ‘very clear’ and 66% felt that the intended learning outcomes were ‘very clear’. 89% felt that their practice would change either ‘a great deal’ or ‘quite a lot’ as a result of the sessions.

From unstructured responses, 66% of candidates found the non-technical and human factor elements of each scenario extremely beneficial. Other feedback highlighted a safe environment enhancing the learning in the debrief, the diversity of scenarios and the differing complexities and themes arising. 44% of candidates specifically requested further sessions within their training. Faculty members observed that despite each session including the same scenarios, differing themes emerged during the debrief as a result of the varying past experiences of candidates. This allowed the tailoring of sessions to each candidate.

Conclusion

The pilot year of IMT SIM has highlighted the benefit of SBE in providing training in non-technical aspects of clinical practice, and should not only be used in resuscitation and procedural training. SBE is still under-utilised and this fantastic educational resource should complement other forms of medical education. As a result of the success of this pilot year, our faculty is now expanding IMT SIM, with separate IMT year 1, 2 and 3 sessions in development. Our long-term vision is to provide this programme regionally.
EDUCATION, TRAINING AND MEDICAL PROFESSIONALISM

Introduction of a medical utilisation manager and the use of exception reporting to enable mandatory CMT clinic attendance. An educational chief registrar quality improvement project

Authors: Lisa Waters* and Matthew Foster
Warrington Hospital
*RCP chief registrar

Background

Regular attendance at outpatient clinics is an important educational experience for core medical trainees (CMTs) and is a mandatory requirement for the Annual Review of Competence Progression (ARCP). CMTs are required to attend 40 outpatient clinics over the 2-year period. During the 2017/18 academic year at Warrington Hospital there was considerable dissatisfaction among the CMTs contributing to a red RAG rating in the annual GMC training survey. The medical rota did not specifically allocate time for clinics and trainees were often unable to leave the ward to attend clinic due to staffing shortages. These issues were highlighted to the trust postgraduate education team. There was no formal data collection in place to ascertain which clinics were available and which trainees had attended.

Materials and methods

Changes were implemented. A medical utilisation manager (MUM) was employed and tasked with devising a rota for each CMT at the start of their placement. Key stakeholders were engaged including medical consultants from a breadth of specialties, clinic staff and estates. Each trainee (10 in total) received a rota at the start of each placement which included seven specific clinics for them to attend. It was made clear that these sessions were compulsory and that an exception report would be filed in the event of non-attendance. A form was provided to show evidence at clinic and also provide feedback. The MUM was responsible for rearranging clinics should leave be taken on a proposed clinic day.

Results and discussion

Ten CMTs were allocated to 7 clinic slots over a 4-month period. Of the 70 clinics scheduled there is documented evidence of attendance for 53% of scheduled clinics. However, qualitative feedback indicates that 80% of trainees were on target to meet their minimum requirements suggesting that there may be clinic attendance lacking documentation. 80% of trainees had also attended clinics in addition to their scheduled allocations. All of the CMTs completed at least one work-based placed assessment during their clinic time. All received informal feedback. No trainees completed a reflection on their clinic attendance. No exception reports were filed despite there being non-attendance at clinics.

This is the first cycle of this educational quality improvement project and we hope during the next cycle to improve clinic attendance among trainees with greater emphasis on reporting non-attendance and allowing time for trainees to feedback on their experience. We must explore the reasons for non-attendance and encourage reporting of this so that the reasons can be explored and if possible solutions sought. The trust now has a rolling rota with input from the MUM to ensure there are clinic slots available for trainees and we hope that this will improve the overall trainee experience for CMTs.

Conclusion

Implementation of a MUM at Warrington Hospital has allowed for a dedicated rota to be designed to enable CMT clinic attendance while ensuring patient safety on the wards is not negatively impacted. Attendance is presumed to have improved although there was no baseline data to back up this assumption.
Further work is required to make certain trainees document their attendance at clinic and that clear reasons are documented for non-attendance.
EDUCATION, TRAINING AND MEDICAL PROFESSIONALISM

Modular working for gastroenterology specialist registrars: delivering higher quality training and improved service provision

Authors: Phil Harvey,* Edward Fogden, Saket Singhal, Mark Anderson, Nigel Trudgill
Sandwell and West Birmingham NHS Trust
*RCP chief registrar

Background
Gastroenterology specialist registrars (SpRs) have competing demands on their time. Cover by all grades of trainees for inpatient ward work is often limited. General internal medicine (GIM) on-call frequency and subsequent ‘off days’ increased with the introduction of the 2016 contract. SpRs can therefore struggle to gain sufficient outpatient and endoscopy experience.

Methods
A new rota was designed for six SpRs including ward cover, outpatient attendance, endoscopy training and endoscopy service lists with separate periods of modular training when ward cover was undertaken. GIM on-call commitment remained unchanged. Outpatient attendance, endoscopy exposure and service provision were audited before and after the new rota was introduced.

Results
There were four SpRs on the previous rota before intervention including: two St7s, one St4 and one St3 compared with the new rota with 4.4 SpRs, including: 1.8 St7s, 0.6 St5s, one St4 and one St3. In the previous rota trainees performed 16.8 endoscopies (7.3 colonoscopies, 9.5 gastroscopies) per SpR per month compared with 32.2 (16.1 colonoscopies, 16.1 gastroscopies) on the new rota. Service endoscopy increased numerically from six colons and six gastroscopies to nine colons and nine gastroscopies per SpR per month. Across a six SpR rota this represents 648 ‘points’ of additional endoscopy activity per annum.

Clinic attendance was 3.3 and 3.2 per SpR per month on the previous and new rotas respectively. Projected clinic activity with improved booking efficiency was estimated at 20 additional outpatient clinics per month. Consistency of inpatient ward cover was also anecdotally challenging.

Discussion
The newly introduced modular rota led to a dramatic increase in outpatient endoscopy activity with both training and service benefits. Due to the complexity of the rota, optimal outpatient booking was challenging. Further PDSA (Plan, Do, Study, Act) cycles are planned to optimise this and inpatient ward cover.
‘Ready to Reg’ – a pilot trial of experiential medical registrar training

Authors: Yee Yen Goh,* Akish Luintel* and Shamim Nassrally*

University College London Hospital
*RCP chief registrar

Introduction

Pre-registrar experience of the duty medical registrar (DMR) role is limited to opportunistic encounters, often in under-resourced settings with a rota gap. A previous survey has showed that 44% of core medical trainees (CMTs) feel unprepared to take on the role as DMR.¹ The role is perceived by some early trainees to be ‘impossible’, requiring ‘superhero’ skills.² Medical registrars and consultants themselves acknowledge the complexity of juggling a high workload, providing leadership and dealing with acutely unwell patients.³,⁴ These perceptions and lack of experiential DMR training could contribute to a decline in acute medical specialty recruitment. Further, trainees who eventually take on the role often experience a ‘trial by fire’, leading to undue stress and anxiety.

The UCLH ‘Ready to Reg’ programme aims to provide CMTs with hands-on field training as a DMR under direct guidance of another medical registrar.

Methods

This pilot will be trialled between Jan–Mar 2019 with voluntary rolling recruitment. CMTs completed online pre-session questionnaires prior to being paired with a registrar. Participation on a particular day excludes CMTs on the acute take, to preserve staffing levels. Participants are provided with pre-session guidelines on conduct as well as suggestions on maximising their experience. During the session, the CMT responds to all DMR referrals, emergency calls and organises the take team, with a registrar present for on-the-spot advice. Post-session questionnaires were completed by CMTs and SPRs to aid reflection as well as obtain feedback.

Results and discussion

Five (20 total) CMT2s have completed a session, with another four signed up to do so (until end March 2019). None of the nine participants have prior DMR experience, and seven indicate worry about taking this on. From the pre-questionnaire, their top three concerns include: urgent decision making (8/9), insufficient medical knowledge (5/9) and intensity of workload (4/9). There was a lack of confidence in their ability to provide good quality advice to referrers with only one respondent feeling moderately confident of doing so.

Full post-programme feedback is not available as the scheme is ongoing. However, preliminary responses indicate that the actual challenges faced did not mirror pre-scheme concerns, especially in terms of medical knowledge and urgent decision making. Confidence in assuming the DMR role has improved, and participants feel that this will improve their first independent DMR shift, especially with delegation. The discrepancy in pre- and post-session concerns is likely because the role of a CMT is vastly different to that of the DMR, and hands-on experience is necessary to understand its requirements. This variance could affect preparation for the role and should be used to inform future local curriculum decisions and training.

Conclusion

Experiential learning is important in training for the DMR role, especially with leadership skills such as delegation. Early supported experiential learning provides better perspective and confidence in tackling the challenges of the DMR role. This could lead to better recruitment to acute medical specialties and eventually better patient care.
References


QUALITY IMPROVEMENT AND PATIENT SAFETY

Reviving. Surviving. Thriving. The Homerton Deteriorating Patient Programme

Authors: Billy Cheung,* Grace Walker,* Ian Donaldson, Kieran Palmer, Paul Tern and Carlo Prina
Homerton University Hospital NHS Foundation Trust
*RCP chief registrar

Introduction

Improving management of deterioration is a national priority. Despite this, measuring performance and improvements in deterioration can be challenging. Mortality and cardiac arrest statistics are often used as indicators but are limited in their value. The Trust leadership at Homerton, a 500-bed district general hospital, noted a pattern in incident reports around deteriorating inpatients. We examined our current response to deterioration and targeted areas to improve performance.

Materials and methods

Data collection

We collected data from a range of sources, both qualitative (thematic review of ITU admissions and staff feedback) and quantitative (escalation and response times).

1) We performed thematic analysis of unplanned admissions to ITU December 2017–February 2018 (n=51). We identified common themes:
   - Delay in referral to ITU.
   - Delayed response to physiological deterioration - escalating oxygen requirements, hypoxia and tachycardia.
   - Delays in escalation (nurses to doctors and between doctors).
   - Inadequate responses by medical teams to nursing escalations.

2) We reviewed escalation and response time to 30 deteriorating patients (new NEWS ≥ 5) and repeated this exercise post intervention.

3) We conducted surveys of doctors reviewing perceived level of support when managing deteriorating inpatients. We ran a junior doctors deteriorating patient group and conducted a nursing forum to identify barriers to recognition, escalation and response.

Interventions

- Multi-faceted education programme
  1. Tailored teaching sessions for specialties.
  2. Multidisciplinary deteriorating patient training days with NEWS2 incorporation.
  3. In-situ simulation focusing on deterioration.
  4. Presentation of thematic analysis to hospital-wide meetings.

- Multidisciplinary handovers – Introduction of a night handover checklist. We addressed issues surrounding attendance and integrated nursing presence. We worked with the emergency department to improve the transfer of care.

- Night huddles – New 1am huddles with the hospital at night team to discuss patients, highlight concerns and redistribute workload.
Results and discussion

Thematic review of ITU admissions

Post-intervention thematic analysis of ITU admissions found a reduction in:

1. Delays in referral to ITU (31% to 21%).
2. Inadequate medical response to deterioration (18% to 8%).
3. Delays in nursing response to deterioration (12% to 4%).

We found a reduction in the incidents of staff tolerating prolonged periods of escalating oxygen requirements.

Escalation and response times

Nursing escalation of deterioration improved with documented evidence in 73.3% of cases (22/30) compared with 53.3% (16/30). The medical response times and seniority of reviewer did not change following the interventions.

Conclusion

Improving response to deterioration can be achieved using a multidisciplinary approach combining education initiatives with systems changes. Obtaining in-depth understanding of local issues around deterioration is best done using qualitative data analysis to support quantitative data such as escalation and response times. This has allowed us to target our interventions and education. Further improvements are required, in particular around medical response times and seniority. To address this we are running a pilot scheme with an additional deteriorating patient doctor on the wards at night. We have developed an escalation and response pathway and critical care referral guidelines. We will review the impact in the next cycle of data collection.
QUALITY IMPROVEMENT AND PATIENT SAFETY

**Safe medical staffing: a move towards modelling the medical workforce establishment in practice**

**Authors:** Rhiannon Hughes,* Benjamin Pope and Kiaran Flanagan

North Bristol NHS Trust
*RCP chief registrar

**Introduction**

In 2018, for the first time, the Royal College of Physicians (RCP) published guidance on safe medical staffing requirements.¹ This included a benchmark of the number of hours required to provide care to medical inpatients from different tiers of clinicians. This led us, within North Bristol Trust’s (NBT) medical division to ask the question – do we have enough doctors?

Of note, in calculating the benchmark, the RCP guidance does not account for additional activities undertaken by Tier 1 clinicians, for example clinic requirements, and Tier 2 clinicians allocated to the ward, were estimated to be available 70% of the time, which at NBT was felt to be an underestimate.

As chief registrar, and collaborating with an internal analyst, we undertook a workforce modelling exercise, fundamentally based on the RCP guidance, but with refinements to account for our obligation to protect time required for training as per GMC recommendations.²

**Materials and methods**

Analysis of the on-call rosters identified hours rostered for ward work. In agreement with RCP guidance, predictable absences were calculated, plus an allowance for sickness (5 days per person).

Information was collated from the postgraduate education department regarding teaching hours and clinic requirements, and specialty registrars were surveyed regarding time necessary for specific training requirements. This was corroborated using JRCPTB decision aids.³

Medical staffing provided information on posts and vacancies.

This data was then compared to the RCP guidance of recommended hours required to provide inpatient care, according to our bed base and patterns of working.

**Results and discussion**

Overall from the current posts the model calculated that across the Tier 1 workforce there is an additional 517 hours per week and in Tier 2 there is a deficit of 343 hours from the minimum RCP benchmark. Excluding vacant posts results in Tier 1 having an additional 110 hours, and a Tier 2 deficit of 366 hours (See Table 1).

**Table 1: Tier 1 and Tier 2 variance from benchmark time required for safe ward staffing**

<table>
<thead>
<tr>
<th>Tier</th>
<th>Benchmark: time required for RCP safe ward staffing (hrs)</th>
<th>Total rostered hours for ward work (hrs)</th>
<th>Unavailable time for ward work: due to leave and training requirements (hrs)</th>
<th>‘Real’ time remaining for ward work (hrs)</th>
<th>Variance from benchmark (hrs)</th>
<th>Variance from benchmark (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1,107</td>
<td>2,238.3</td>
<td>614.2</td>
<td>1,624.1</td>
<td>517</td>
<td>46.7</td>
</tr>
<tr>
<td>2</td>
<td>540.2</td>
<td>533.9</td>
<td>336.5</td>
<td>197.4</td>
<td>-342.8</td>
<td>-63.5</td>
</tr>
</tbody>
</table>
While accounting for additional training requirements, according to this model, there are sufficient posts in Tier 1 to meet the RCP benchmark for ward staffing in hours. However, at Tier 2 the numbers of posts do not meet the benchmark. If the model had used the more conservative figure provided by the RCP for Tier 2 staff unavailability, rather than the figure estimated from surveying current registrars, it remains under-established, at -200 hours per week. There is likely to be compensation from Tier 1 staff (eg CT2s), and from Tier 3 cover, to support Tier 2 workload.

**Conclusion**

This work enhances the understanding of the medical workforce establishment, as the model gives a more accurate estimation of our requirements. Prior to undertaking this exercise we had hypothesised that we needed to create additional posts in Tier 1 workforce. However, this work has changed our focus within the division, onto strategies for expansion of Tier 2 posts while improving recruitment to existing posts at Tier 1.

Future work is required to adapt the model to evaluate workforce at the specialty level and evaluate out-of-hours cover.

**References**

QUALITY IMPROVEMENT AND PATIENT SAFETY

Speedier discharges: a simple project to identify ways to expedite inpatient discharges

Authors: Sushuma Kalidindi, * Christina Longhurst and Zia Din
University Hospital North Midlands
*RCP chief registrar

Introduction

Delays in inpatients’ discharges can have a major effect on patient flow and patient experience, as well as a financial burden on the trust. The aims of our project were to:

- discover if there were any delays to patient discharges
- detect any themes good or bad which enabled or hindered the discharge process.

Methods

After discussion with all members of the multidisciplinary teams and discharge facilitators, a questionnaire was developed. An audit of all patients discharged from the medical division over 24 hours was undertaken using the questionnaire and medical notes. Further information was obtained from our in-house IT system. An Excel spreadsheet and BaseLine© were used for data analysis.

Results

A total of 34 patients were identified. The following themes were noted:

1. Decision to discharge to actual discharge: There was a wide variation in time from decision to discharge until patient leaving hospital (30 minutes to 9 hours). We had confirmed our pre-existing suspicion of delays in obtaining hospital transport as a main cause of delay. Other factors identified included delay in writing discharge letters.

2. Pharmacy: Only four patients had their TTOs (To take out) dispensed before the day of discharge and a further three patients didn’t need medicines to take home. The majority of TTOs were dispensed from our dedicated mini pharmacy hubs with an average turnaround time of 15 mins and a maximum of 3 hours 25 minutes. To avoid delays in dispensing, our trust has developed an innovative dedicated mini pharmacy hub on each floor which expedites issuance of TTOs compared with the main pharmacy.

3. Discharge lounge: Initially only two patients out of 34 used our discharge lounge (both from the same ward), according to the medical notes. However, on review of the discharge lounge records a further six were sent there. This identified the need for better documentation, which has been a consistent thread throughout. One ward reported not using the discharge lounge as they were not picking up the telephone.

Conclusion

A thorough review of our current discharges yielded a wide variation in different practices on different wards. To spread best practice, we recommend a focus group of all discharge facilitators to spread awareness of good practice to other wards. It also highlighted delays in completing discharge letters due to staffing levels and current work pressures on junior doctors. We are currently considering alternatives, including training admin professionals/discharge facilitators to complete discharge letters. We have introduced the use of mini pharmacy hubs in each area of the hospital which allow medications to be dispensed much more quickly. It also highlighted transport as a major issue in delay in discharging patients. This has now been corrected by optimising our transport team.
This project highlights the importance of reviewing current process to see if they can be optimised. We are planning to re-audit in a few months to see if discharges can be further expedited as earlier discharge of just 1–2 patients per ward by a few hours can have a major financial impact along with patient flow and improvement in patient experience.

References

Streamlining communication between nursing staff and medical teams regarding patients who are ‘medical outliers’

Authors: Amy Davies* and Sandhi Nyunt

University Hospitals Birmingham NHS
*RCP chief registrar

Introduction

Due to rising demands, hospital beds have become a valuable commodity, no more so than acute medical beds. As a result, patients being admitted under medical specialties may be moved to a non-medical (frequently surgical) ward, becoming a ‘medical outlier’.

Although postulated that these patients have increased inpatient mortality, this has not been proven. However, there is evidence that medical outliers have longer lengths of stay. 1

At the Queen Elizabeth Hospital in Birmingham, medical outliers are allocated to multiple medical consultants in an attempt to distribute the workload evenly. There is a designated Band 7 nurse who coordinates medical outliers to ensure each outlying patient has a named consultant.

Despite this pathway, confusion often arises when nursing staff need to contact junior doctors for the corresponding consultant between 9am–5pm. As a result, the on-call team is often contacted regarding these patients. Although the on-call team would be involved in the care of the all medical patients out of hours, they are not involved in the care of medical outlying patients between 9am–5pm Monday to Friday.

Methods

Over a 2-week period the number of calls between 9am–5pm (Monday to Friday) to the on-call medical team (registrar, senior house officer and foundation year 1 doctor) regarding medical outlying patients were monitored. We also surveyed 30 members of the nursing staff who work on non-medical wards regarding their understanding of who to contact regarding medical outliers when requiring medical input.

A previous piece of work completed in 2017, resulted in posters providing information regarding the medical outlier coordinators role. In 2017 these were placed at each nursing station on all non-medical wards. A count of how many of these posters were still present was also completed.

Results and proposed intervention

Over the 10-day period there were 50 calls to the on-call team between the hours of 9am–5pm. regarding medical outliers (range 3–8/day).

Nursing survey data and number of existing posters: currently being collected

Although the survey and poster data remains outstanding, the two proposed interventions to streamline the process are:

- Production and distribution of updated poster detailing who and when to contact regarding outlying patients: to include bleep numbers for the junior doctors
- Meeting with switchboard managers asking that they triage those calls coming through switch for the medical on-call team and redirecting calls regarding outlying patients between 9am–5pm to the designated coordinator.

Conclusion
Our initial survey data indicates frustration amongst nursing staff regarding contacting doctors caring for medical outliers. The aim of this study was to improve the awareness of the medical outlier nursing coordinator, in addition to ensuring nurses are aware which medical team they should contact and how. Consequently this will reduce the number of inappropriate calls to the on-call team in normal working hours.

Reference

QUALITY IMPROVEMENT AND PATIENT SAFETY

The effects of bleeps on medical on-call doctors’ workflow and work efficiency

Authors: Fang En Sin,*  Gareth Watts* and Edward Kingdon
Brighton and Sussex University Hospitals NHS Trust

*RCP chief registrar

Introduction

While bleeps are a reliable and rapid method of communication, frequent bleeps cause interruption in patient care and disruption to workflow for the receiver. Furthermore, clinician sending a bleep can wait an average of 9:35 minutes for a reply, representing significant inefficiency. Local feedback from junior doctors reflects the above. This project describes the volume of bleeps received by out-of-hours medical doctors within our hospital and the reasons they are sent. Understanding current activity will support planning for effective and efficient communication in future.

Methods

Switchboard data was inspected to identify the frequency and timing of bleeps sent to doctor on-call covering medical wards at one of two acute sites in over four consecutive weekends. There are five doctors covering medical wards between 9am and 9pm (1 SpR, 2 GPST/FY2 and 2 FY1 grades), one between 2pm and 12am (SpR) and three overnight (1 SpR, 1 CMT/FY2, 1 FY1). The data presented describes bleeps during a 24-hour period.

On-call junior doctors completed a log over one weekend to capture the indication for each bleep, and whether responding interrupted an existing task.

Results

A total of 1,632 bleeps were received by eight medical on-call doctors covering the medical wards at the Royal Sussex County Hospital (RSCH) site during 8 consecutive weekend days.

The mean number of bleeps per day per person was 35.9 (range 17–54). The frequency of bleeps to doctors varied by grade. The night foundation year 1 doctor received the most, with 4.5 bleeps an hour.

Assuming 5 minutes spent answering each bleep, an on-call doctor spends an average of 3 hours (range 1.4–4.5) in every 24-hour period answering bleeps. For the bleep sender, this equates to an average of 5.7 hours in a 24-hour period waiting for a call back.

The pattern of bleeps over time of the day is shown in Fig 1.
The bleep log reveals that 92% bleeps interrupt existing tasks, with post-take ward rounds (42%) and clinical reviews (38%) constituting the majority of these tasks. 49% of logged bleeps were for routine tasks, defined as tasks that do not need attention within 60 minutes. 14% of bleeps were directed at incorrect doctors and had to be redirected. The return rate of bleep log was incomplete, but our data is consistent with similar published data.\textsuperscript{2,4}

**Conclusion**

While bleeps are a reliable and effective means of recruiting clinicians to urgent or emergency tasks, using bleeps for non-urgent tasks may compromise the coordinated work of groups of clinicians. Just under half of bleeps received by out-of-hours medical doctors in this study were for non-urgent tasks. Interruption of post-take ward rounds and unscheduled patient reviews reflects a significant opportunity cost for the current system.

We plan to generate updated guidance for non-emergency bleeps, to whom they should be directed and how to minimise ward round interruptions and incorrectly-directed bleeps. We will also supplement the quantitative data with users’ perspectives, to help build a strategy to optimise out-of-hours clinical communication.

**References**

QUALITY IMPROVEMENT AND PATIENT SAFETY

Treatment escalation plans: a review of patient and family discussions and communication between healthcare professionals

Authors: Catrin Manon Lewis, Eliza Lefroy and Billy Cheung*
Homerton University Hospital NHS Foundation Trust
*RCP chief registrar

Introduction

Treatment escalation planning (TEP) forms an integral part of patient management plans during an acute medical take. However, the quantity and quality of documentation can be variable. We analysed the documentation of components related to discussions with patients and families on our electronic TEP forms, identifying areas for improvement. We also looked at whether decisions were approved by responsible consultants and conveyed to nursing staff in a timely manner.

Materials and methods

Treatment escalation plans (TEPs) from four medical wards were reviewed. We looked at the number of forms discussed with patients and/or relatives. If there was no documented discussion, a reason was expected to be given. We also reviewed the number of forms approved by the responsible consultant within 24 hours, and the number of forms countersigned by the senior nurse in charge.

Two rounds of interventions were performed, with further data collections after each.

Following initial data collection on a single day in January 2018, an email from the medical director was sent to the medical consultant body to remind of the requirement to document discussions with patients and/or relatives.

A second review of forms was completed on another day in February 2018 following intervention.

The third data collection occurred in February 2019 following the presentation of our findings to the hospital-wide medical grand round, to highlight our previous findings.

Results and discussion

A total of 34 TEP forms were reviewed in Jan 2018. Of these, 23/34 (67.6%) were discussed with patients, with 16/34 (47.1%) discussed with families. 12/34 (35.3%) were discussed with both.

41 forms were reviewed after the first intervention.

21/41 (51.2%) of TEP forms were discussed with the patients, with 23/41 (56.1%) discussed with families and 10/41 (24.4%) with both.

Of forms not discussed with patients or families, 6/7 had a documented reason, this improved to 7/7 in February 2018. Commonly documented reasons include patient lacking capacity or no family available for discussion, by phone or in person.

23/34 (67.6%) of TEP forms were countersigned by a consultant within 24 hours but this dropped to 25/41 (60.9%) in February 2018. This improved to 13/16 (81.3%) by February 2019 after grand round intervention.

The senior nurse in charge countersigned in less than 5% of cases in the first and second data collection rounds.

49 TEP forms were analysed in our third data collection.
22/49 (44.9%) were discussed with patients and 24/49 (49.0%) were discussed with families and 15/49 (30.6%) with both.

Conclusion

The documentation of TEP form discussions with patients and families remains inconsistent despite two different interventions. This may be explained by the rotation of junior doctors. We must therefore continue to highlight the TEP form requirements to each new cohort. Countersignature by the responsible consultant within 24 hours showed a more promising improvement. Further multidisciplinary training is required to improve rates of overall TEP completion, as well as ensuring all sections are fully completed.
Quality Improvement and Patient Safety

Trust-wide improvement of discharge summaries at University Hospital Southampton

Author: Clare Smith*

University Hospital Southampton
*RCP chief registrar

Background

The discharge summary is a document completed by hospital staff at the end of an admission to communicate inpatient information and ongoing plans with community care providers and the patient. The electronic discharge summary at University Hospital Southampton was developed 10 years ago. Following annual review of both national standards and local requirements it has grown considerably. This has substantially increased the content and therefore it takes a long time to complete, and is challenging for GPs and community services to decipher relevant information. The information for patients is not clear. It is neither patient-centred nor clinician-friendly, and is therefore not fit for purpose. A review is required to ensure the discharge summary is suitable for patients, providers and users.

Method

I am undertaking this project with a multidisciplinary team utilising the IHI ‘Model for Improvement’, which asks three questions: What are we trying to accomplish? How will we know that a change is an improvement? What change can we make that will result in an improvement? followed by ‘Plan, Do, Study, Act (PDSA)’ cycles.

We have engaged multiple stakeholders in order to fully understand the problem from different perspectives. This includes patients, commissioners, and both clinicians and non-clinicians across primary and secondary care. Process mapping has helped identify where bottlenecks occur and a driver diagram influenced the scope and spectrum of PDSA cycles.

The current situation

University Hospital Southampton produces 100,000 discharge summaries a year, 80% of which are completed by junior doctors. There is variation in the number completed depending on hospital specialty. The discharge summary template is the same regardless of the department or clinical need. A blank discharge summary with just headings will print onto four sheets of paper. All headings within the document will be printed in the final summary regardless of whether they have been populated or are relevant.

The discharge summary takes junior doctors 20–40 minutes to complete and within some specialties, it takes 60–70% of their day. On one-in-four occasions the IT system crashes and does not save any data entered. There is a negative culture among junior doctors towards the discharge summary which has had an impact on their completeness and accuracy. This is evidenced from coders who use the discharge summary to code admission episodes. We have had negative feedback from GPs who find discharge summaries incredibly frustrating, and some report they are employing people to decipher the relevant information. Patients have raised formal complaints and there are many calls to the Medicine Information Service with questions or queries.

Current PDSA cycles

- Patient-facing and friendly
- A multidisciplinary document that moves away from a letter from hospital doctor to GP
• Negotiations with commissioners for the content of the summary
• Appreciative inquiry methodology to create a culture change and an ideal model
• Working with IT to develop the new prototype
• Use of voice recognition and auto-population of fields.
Pulling the plug on fax machines: can we improve the inpatient rheumatology referral system?

Authors: Roseanna Wheatley, Rachael Myers, Zenab Mateen, Arani Vivekanantham, Pippa Watson, Jayne Little*

Manchester University NHS Foundation Trust
*RCP chief registrar

Introduction

In an overstretched NHS with increasing workload pressures, efficient interspecialty inpatient referral systems are important for patient safety and length of stay. Within Manchester University NHS Foundation Trust (MFT), referrals to rheumatology are handwritten, faxed to a secretary and put in the junior doctors’ office. This system results in time delays, missing referrals and a lack of important patient information.

Objective

To review inpatient rheumatology referrals within two large teaching hospitals and identify areas within the current system that require improvement.

Methods

We performed a retrospective analysis of 105 inpatient rheumatology referrals over a time period of January 2018 to January 2019 from two hospitals within MFT. We established a list of items felt to be essential for an informative and safe referral and reviewed each paper referral against these criteria.

The medical notes of 28 patients; 17 from Manchester Royal Infirmary and 11 from Wythenshawe Hospital, were reviewed to establish the times of the first documentation of the need for a rheumatology review, the first fax received by rheumatology and the documentation of first rheumatology review.

Results

The inclusion of items of essential information from each hospital and the combined results are summarised in Table 1. Time of referral, referrer’s contact details and patient’s past medical history were the items most frequently omitted on the referrals reviewed.

Table 1: Inclusion of essential items for inpatient rheumatology referrals n (%)

<table>
<thead>
<tr>
<th>Item</th>
<th>Wythenshawe Hospital (n=105)</th>
<th>Manchester Royal Infirmary (n=105)</th>
<th>Combined (n=210)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of referral</td>
<td>78 (74)</td>
<td>95 (90)</td>
<td>173 (82)</td>
</tr>
<tr>
<td>Time of referral</td>
<td>26 (25)</td>
<td>7 (7)</td>
<td>33 (16)</td>
</tr>
<tr>
<td>Name of referrer</td>
<td>102 (97)</td>
<td>92 (88)</td>
<td>194 (92)</td>
</tr>
<tr>
<td>Referrer’s contact details</td>
<td>38 (36)</td>
<td>13 (12)</td>
<td>51 (24)</td>
</tr>
<tr>
<td>Patient’s name, hospital number</td>
<td>104 (99)</td>
<td>102 (97)</td>
<td>206 (98)</td>
</tr>
<tr>
<td>Patient location</td>
<td>95 (90)</td>
<td>101 (96)</td>
<td>196 (93)</td>
</tr>
<tr>
<td>Past medical history</td>
<td>62 (59)</td>
<td>75 (75)</td>
<td>137 (65)</td>
</tr>
</tbody>
</table>

The results in Table 2 demonstrate that on average, patients had a rheumatology review within 2 days of documentation of need for rheumatology review. The delay between fax date and the review was the same as that between a decision for referral being made and a fax referral being written.
Table 2: Timings between documentation of need for rheumatology review and patient’s rheumatology review in number of working days between (median (IQR))

<table>
<thead>
<tr>
<th>Documentation of need for rheumatology review and date on fax referral (median, (IQR/range))</th>
<th>Date on fax referral and rheumatology review (median, (IQR/range))</th>
<th>Documentation of need for rheumatology review and rheumatology review (median, (IQR/range))</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (0–1/0–3)</td>
<td>1 (0–1/0–2)</td>
<td>1.5 (1–2/0–3)</td>
</tr>
</tbody>
</table>

Conclusion

The current system for inpatient rheumatology referrals is inefficient. Our results demonstrate that many of the referrals received by our rheumatology departments were missing essential information and there were significant delays in the receipt of referrals. We have undertaken a process mapping session to identify how this can be improved and an electronic referral system via the local electronic patient record (EPR) is being created. This should ensure that referrals are received in a timely manner and contain the correct information.

Reference

QUALITY IMPROVEMENT AND PATIENT SAFETY

Standardising care of patients requiring non-invasive ventilation in response to NCEPOD – a chief registrar quality improvement project

Authors: Sunit Raja* and Catherine Thomas
Royal Berkshire Hospital
*RCP chief registrar

Introduction

In 2017, a nationwide review was performed by the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) into the quality of care provided to patients requiring non-invasive ventilation (NIV), in response to rising mortality as measured by the British Thoracic Society (BTS). The report concluded suboptimal clinical or organisational care was provided in over 80% of cases.

This quality improvement project aimed to review the quality of care of the same cohort of patients at a district general hospital providing acute NIV in four non-critical care wards, to identify specific factors contributing to suboptimal care and produce a practicable solution.

Materials and methods

A retrospective case-controlled review of 20 case notes of adult patients requiring acute NIV outside of the critical care setting between August to November 2017 by a single respiratory specialist reviewer. Comparison was made against BTS guidance. Outcomes were in-hospital mortality, re-admission within 30 days and time to resolution of respiratory acidosis. The review followed the patient journey from acute admission and initiation of NIV through to resolution of acidosis and conclusion of the NIV episode.

Results and discussion

The local review revealed mortality of 35% and of the 13 patients that survived the hospital admission, three were re-admitted within 30 days.

There was wide variation in the indication for initiating NIV, with almost all patients treated for ventilatory failure. Pneumonia was correctly identified in 45% of patients and 15% patients were ventilated for hypoventilation due to drugs and sedation. The average pH at initiation of NIV was 7.22.

Remediable factors were identified along the entire pathway of acute NIV provision including controlled oxygen use, promptness of blood gas sampling, adequate non-ventilator treatment and adequate duration of pre-ventilator treatment. Ventilator settings were titrated inconsistently and 45% patients did not reach target pressures at all.

Conclusion

In response to the findings of the review, a protocol was developed to ensure standardised management of patients requiring acute NIV in the first 24 hours. The protocol encompasses indications for initiating NIV, escalation plans in case of treatment failure, blood gas monitoring and titration of pressures. Re-audit is underway to measure improvement in measured outcomes.

References

Stratified follow-up pathways for cancer patients

Author: Hugo De La Peña*
Oxford University Hospitals NHS Foundation Trust, UK
*RCP chief registrar

Summary

- Overstretched/overbooked clinics and patients on waiting lists compromise patient care, safety, experience and go fundamentally against core NHS values.
- A change in the way patients are followed up is therefore urgently needed.
- The new model applies to cancer patients following strict inclusion and exclusion criteria for a total of 5 years when patients are ultimately discharged.
- A personalised remote follow-up (FU) schedule is created for each patient, based on European (EAU) guidelines.
- Wellbeing events and holistic needs assessment are mandatory for patients entering the new FU model.
- Expert IT, admin, cancer nurse specialist (CNS) and rapid access support is available on demand for patients on the new FU pathway.
- Robust IT and admin systems are in place to avoid never events: losing patients to FU and cancer relapses not picked up in timely fashion.
- Patients will avoid 10 to 13 clinic appointments/hospital visits each under the new model.
- The new model is being piloted in Oxford before expanding it to the wider NHS Network.

Introduction

Due to previously successful quality improvement (QI) projects within the germ cell cancer team at Oxford University Hospitals (OUH), we simplified surveillance cancer protocols and developed UK national guidelines. We therefore decided to stratify cancer follow-up regimes in order to improve both the pathway and patient experience. This model is currently being tested in testicular cancer, but to be implemented in prostate cancer and other tumour sites as well.

Materials and methods

1. The new model includes Face to face clinic review for the first year post orchidectomy followed by virtual/remote monitoring using IT systems, cancer nurse specialists (CNS) and admin expert support for a total of 5 years based on European (EAU) guidelines once the first surveillance CT scan has been performed, reported as normal and discussed with the patient in clinic.

2. A personalised schedule with routine surveillance tumour markers in blood (6-monthly until year 5 for both seminomas and non-seminomas) and CT scans at 3 and 5 years post orchidectomy (for seminomas) and as per TEO8 and TRISST trials for non-seminomas will be requested and provided to patients.

3. Patients need to attend one of the four mandatory wellbeing events running through the year and receive a holistic needs assessment (HNA).

4. Eligibility: Stage 1 seminoma or non-seminomatous cancer patients post orchidectomy with or without adjuvant chemotherapy after the first year on standard surveillance with CT report at year 1 showing no evidence of cancer. Motivated/engaged patients keen to participate and embrace the new model with Low anxiety scores as measured by routine psychological medicine questionnaires before appointments throughout the last 12 months prior to entering the new pathway.

5. Ineligibility: Patients with metastatic disease or on active anticancer treatment. Learning disabilities. In prison or under special needs/care requirements. Patients who have failed to attend standard face-to-face clinic follow-ups in the last 12 months (DNAs: did not attend). High anxiety scores as measured by psychological medicine questionnaires.
Results and discussion

The European Association of Urology (EAU) guidelines (2015) and Kollmannsberger et al (2014) looked at data from centres across the world and found that most relapses (around 98%) occur in the first 3 years, with the highest proportion in year one,\(^4\) also confirming that clinical examination does not pick up cancer relapse.

With increasing numbers of patients now living with and beyond cancer due to better diagnosis, cure rates and treatment modalities, there is irrefutable and palpable evidence of increased demand on the service. NHS England is aware that the NHS cannot cope with continuing to treat and follow up patients with a cancer diagnosis in the current way.\(^5\) Increased demand is thought to be approximately 3% / year (NHS Improvement 2016) and a need to redistribute resources has been identified and prioritised as a matter of urgency as overstretched clinics compromise patient care, safety and patient experience.

Conclusion

The new stratified follow up pathway for testicular cancer patients in Oxford is now in place and due to be implemented to the wider Thames Valley Supra Regional Network and other tumour sites at OUH. The pathway proposed will enable patients to become experts in their own disease, take ownership of their health and return to as near a normal life as possible sooner after diagnosis without compromising care or safety and improving patient experience at the same time. We anticipate up to 70% of our follow-up patients (n=150 to 200) to be eligible to enter the pathway in due course. We have created a robust database, which is monitored by dedicated admin, IT and cancer specialist teams in order to ensure patients are never lost to follow up and that relapses in the community are picked up immediately. We do not know in full at this stage the financial implications this change will bring, tariffs to the new service will also apply, penalties for waiting lists will be avoided as well as paying locums to do extra clinics. Regardless and above costs, we accept that overstretched clinics compromise patient care, safety and experience and therefore change is urgently needed according to our NHS core values.

References

QUALITY IMPROVEMENT AND PATIENT SAFETY

A new era for junior doctor roster management for the medical directorate in Musgrove Park Hospital, Taunton: Ensuring equity, contractual compliance and pro-active safe staffing across all clinical areas. A work in progress.

Author: Rachael Ward\textsuperscript{A,B,*}
\textsuperscript{A}Taunton and Somerset NHS Foundation Trust; \textsuperscript{B}Musgrove Park Hospital
\*RCP chief registrar

Defining the problem

There are two types of rosters for junior doctors working in the medical directorate: one for their in-hours commitments; one for their out-of-hours commitments. The out-of-hours roster is set from a rota template coordinated by central admin staff. In-hours rosters are needed for each separate clinical area to ensure safe staffing levels. They need to account for: out-of-hours commitments; annual leave; study leave; rest days.

Musgrove Park Hospital (MPH) in-hours rosters are created and self-policed by junior doctors. Audit demonstrated:

- departments fail to ensure 100\% minimum staffing in each clinical area
- not all juniors are getting the correct annual leave/study leave/zero days
- there is no robust system for demonstrating contractual compliance
- there is no clear structure of clinical responsibility for the in- and out-of-hours medical rosters
- the lack of communication between the two rosters means that processes for anticipating gaps and filling emergency gaps are inefficient.

Aims

1. Achieve 95\% (of 100\% standard) of minimum staffing across all medical wards by August 2019
2. Ensure in-hours rosters are contractually compliant by April 2019
3. Ensure contractual compliance is visible and easily audited

Methods

Quality improvement methodology was used. Survey and semi-structured interviews were conducted with relevant staff to help to characterise the problem. Process maps were created to gain greater understanding.

Audit was undertaken in the largest department (Care of the Elderly) to quantify the problem for the pilot.

A rota tool was developed and piloted with the following functionality:

- Each department’s roster is built on a single spreadsheet using a uniform template (customised for each department), visible on the intranet.
- For each day the number of juniors on the ward automatically tallies to give a visual display of staffing levels: red, below minimum; amber, at minimum; green, above minimum.
- The ward staffing levels automatically tally to a central dashboard giving a complete oversight of staffing in the directorate.
- Each junior’s individual leave, study leave and rest days automatically tally and go red if they exceed their allowance.
- Cross cover between departments is visually displayed.
- Prospective roster building and sharing.

Additionally, policies have been drafted documenting rota coordinator responsibilities and cross cover policies. A contract explanation document aids rota coordinators.

**Early results**

Initial audit showed that the directorate could only prove that 33% of juniors had taken the correct annual leave, 27% had taken the correct rest days. This has improved to 100%. A survey has shown that 100% of participants think that the system has had a positive impact on patient safety and staff wellbeing, reduced days below minimum staffing and increased confidence in filling rota gaps.

**Scope**

The project is immensely exciting. Improved visibility of staffing provides data for workforce planning not previously available. The trust is currently scoping how best to support medical staff with the maintenance and building of the rosters.
QUALITY IMPROVEMENT AND PATIENT SAFETY

Addressing front-line pressures: improvement of patient flow from Emergency Department streaming to the Ambulatory Assessment Unit at the John Radcliffe Hospital, Oxford University NHS Foundation Trust

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Background

The front line emergency services within the NHS are facing significant pressures, in particular over the winter period. Following the future hospitals report which recommended ambulatory care by default, an Ambulatory Assessment Unit (AAU) was set up at the John Radcliffe Hospital, Oxford in 2016. An NHS Improvement initiative including ED streaming and urgent care (GP) were also added to the ED structure at the trust in December 2017. Initial feedback from the ED streaming team was lack of clarity of suitability of patients for AAU as no pre-existing criteria in place.

Aims

To decongest the Emergency Department during busy times by increasing the number of direct appropriate referrals from ED streaming to the AAU.

Raising awareness of the ED streaming team and the wider team regarding suitable AAU patients.

Methods

1. Initial observational data collection of patients from ED triage and streaming seen in AAU, including mode of referral
2. Identification of barriers to referral
3. Removal of the phone barrier (10 patients via electronic message between 08.00–17.00)
4. Poster created of appropriate medical presentations to AAU to have in ED streaming area
5. Post-intervention data collection to review any changes to practice.

Results

1. Pre-intervention, on a single day only 1/76 (1.3%) patients seen in ED streaming was referred to AAU. On review, 21% of the patients seen that day in ED streaming would have been AAU suitable.
2. Following introduction of the referral checklist and discussion with ED streaming leads and team, a re-review of the ED patients to AAU was performed.
3. The AAU ED patient numbers increased from 2.7% to 14%, and the number of ED streaming referrals went up from 3.3% to 28%. An additional positive was a significant improvement in the communicated referrals via the electronic system (from 50% to 73%).

Conclusion

The barriers to referral were identified and addressed using simple interventions. These results show a significant improvement in patient flow from ED streaming to AAU between 08.00 and 20.00. Ongoing work is being planned to address the patient journey and experience in this exercise.
QUALITY IMPROVEMENT AND PATIENT SAFETY

App and web-based clinical communication solution and pager replacement

Authors: Anuja Bambaravanage* and Sudhir Singh
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Introduction

Oxford University Hospital NHS Foundation Trust (OUHFT) is a large tertiary care NHS trust in the UK. It has an ageing pager system which has been in use for over 40 years. Currently, medical staff increasingly use unofficial encrypted messaging platforms not meeting the information governance requirements for effective pager, landline-free communication.

As medicine advances, health needs change and society develops, the NHS has to continually move forward so that in 10 years’ time we have a service fit for the future. Virtually every aspect of modern life has been, and will continue to be, radically reshaped by innovation and technology – and healthcare is no exception.¹

To ensure NHS systems and NHS data are secure through implementation of security, monitoring systems and staff education. Encourage a world leading health IT industry in England with a supportive environment for software developers and innovators.¹

Clinical communication solution is an ongoing quality improvement project undertaken as part of the Royal College of Physicians Chief Registrar Programme, in line with OUHFT’s strategic themes.

Materials and methods

The first phase pilot was launched in February 2019 at Horton General Hospital, one of the trust’s four sites. See Fig 1.

Results and discussion

Advantages:

- Savings – £137,000 per year by not renewing current pager system contract and more by not upgrading the ageing infrastructure (transmitters).
- Instant contact – no more waiting around for ‘bleeps’ to be answered, calling switchboard, phone ping-pong.
- Know when a message has been read and received.
- Share photos/images/ECG and patient information with confidence – rather than risk breaching patient confidentiality by using unsuitable apps.
- Bleeps lack crucial detail, giving clinicians no prioritising of tasks that can be dealt with later.
- Know who’s on call without needing to reference black books and contact lists on wards, going to switchboard or bothering off-duty colleagues.
- Easy, direct, contact and dialogue
- Use on the move.
- Auditing, clinical resource management – diverting workforce to areas of need based on priority/demand and capacity
- Likelihood of the person who bleeped being busy at the time of a return call is high.
- The bleep system is also one-directional – forcing users to contact a specific individual. This individual may already be engaged on other time-consuming clinical activity and out of circulation. Meanwhile other clinicians who are able to respond immediately remain oblivious to the need.
This inability to manage tasks in a timely and appropriate fashion is costly at every level. Sub-optimal patient care can lead to unnecessary increases in lengths of stay, placing greater pressure on resources and depriving others of hospital care.

**Conclusion**

App and web-based clinical communication solution and pager replacement needs to keep pace with advances in digital technology to save financial and workforce resources and to make NHS ready for the future.

**Reference**

Fig 1: Phases of the clinical communication project

Fig 2: Areas that use clinical messaging
QUALITY IMPROVEMENT AND PATIENT SAFETY

Electronic acute medical take – small measures to improve transparency, management, flow and efficiency; a model for the future hospital

Authors: Danielle Lux, Rachel Darnell, Karen Kee and Craig Burke

Introduction

Increasing demands on the emergency department (ED) and acute medicine over the past decade have tested quality and management, unmasking long-accepted inefficient and archaic systems. More robust processes are needed to identify workflow and resource pressures in a more timely manner. Starting at the front door, the referral system between the ED and medicine is obscure and rife with inherent delays and consequent compromised patient care. A lack of transparency confounds performance and collaboration. The medical registrar, often the most experienced doctor on site, is hindered from clinical utility in fielding bleep referrals. Strategies to improve the acute medical take, including optimising the utility and efficiency of the medical registrar are needed. With the increasing importance of leadership and management as core skills, medical registrars need an opportunity to develop an oversight role, as stated in the JRCPTB quality criteria while also benefiting their juniors in accessibility for educational purposes.

Materials and methods

Process-mapping was used to evaluate the current system of acute referral to medicine. Shadowing of junior doctor work behaviours over shift patterns, in addition to staff surveys, highlighted various barriers to productivity, clinical effectiveness and flow. Accessibility, reliability and the static nature of the current Excel spreadsheet system utilised were explored. We collaborated with Patienteer, a task management software tool, to develop an acute medical take list generated from extracted live data from Cerner. Baseline measures were taken for key performance indicators (length of stay), time to clerking, time to senior decision-making and time to ED departure. An electronic tool was developed, extracting information from Cerner and using it to automatically generate a ‘live’ list of referred patients, with escalation by care or flow, ability to generate a task list, including senior review and increased transparency between not just the ED and medicine but also with the site management team with particular regard to bed management. A pilot study was performed looking at multiple key performance indicators (KPIs), flow, educational metrics and satisfaction.

Results

The live electronic list demonstrated reduced time to senior decision-making (namely, decision to admit or discharge), reduced length of stay in department (reduced 12-hour breaches), improved flow through ED (results pending) and improved staff satisfaction. Unwell patients were identified and seen earlier. Work volume was more consistent, with less dramatic peak referral times. Clerking efficiency was increased across all levels, with increased educational opportunities, including senior review. The medical registrar had greater oversight of the clerking force and ability to manage and anticipate work pressures. Senior review or post-take ward round (PTWR) was more timely. As a result, a greater number of ward admissions were achieved in-hours.

Working relationships between medicine and the ED were also enhanced. Flow through the ED was improved as a result of all the above, in particular, due to increased availability of real-time metrics and ‘Decision to admit’ (DTA) data. The application has identified causes of inappropriate referrals to medicine to tackle prior to consideration of an ‘open’ list. As a result of all the above, earlier specialist input was achieved; data has not yet been evaluated, however it is inferred that earlier specialist input results in reduced cost and overall length of stay.
Conclusion

The electronic workflow tool has enhanced performance and flow, both objectively and subjectively, improving workflow relations between the ED and medicine. Site management was also improved by ability to better prioritise and coordinate resources on the front line. This tool has demonstrated the need for greater transparency and real-time information to streamline process, prioritise, coordinate and root out delays, driving continuous improvement in care and flow. Further exciting applications expanding on this are being explored to enhance work flow and care generation.
QUALITY IMPROVEMENT AND PATIENT SAFETY

Experiences of a chief registrar – a report from the Nottingham University Hospitals chief registrar

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Introduction

The chief registrar (CR) programme seeks to establish a new senior leadership role for trainee doctors. The current Nottingham University Hospitals (NUH) CR has focused on morale building by improving trainee doctors’ experience and engagement with the trust. An enhanced sense of belonging may help alleviate the alienation some doctors experience from the nomadic existence their rotational placements can create.

Methods

Three areas of the quality improvement project (QIP) have been a particular focus: (i) making the best first impression; (ii) facilitating transition and rotation; and (iii) celebrating success.

(i) Making the best first impression

NUH induction feedback was suboptimal and included reports that multiple emails received from different sources prior to starting created confusion. The CR worked with a task and finish group seeking to address this among other issues. A single welcome letter and new universal handbook are among some of the outcomes and the CR is leading a pan-trust QIP reviewing and improving the process of local departmental induction.

Unlike the process of clinical handovers, where some guidance exists, no such guidance exists for ward-based handover despite evidence that, for example, induction handbooks’ improve doctors’ confidence and efficiency. The QIP has completed local induction guides on the pilot wards with handover videos called ‘Doctors’ voices’ being produced for the second cycle of improvement.

(ii) Facilitating transition and rotation

While it is not surprising some wards at NUH stock highly specialist equipment relevant to their clinical area, it is surprising to find no uniform layout to notes trolleys and basic equipment drawers, with some wards sometimes lacking basic equipment items. This can result in doctors wasting precious minutes on routine tasks searching for such items or indeed present potential safety concerns. Taking inspiration from ‘The productive ward’, another QIP compared a survey of doctors’ responses in what they considered vital equipment to the current provisions. The authors propose a new doctors on-call backpack while they cover multiple wards and draws on the concept of a standardised trolley to improve time efficiency.

(iii) Celebrating success

While induction can create a good impression, NUH (like many other trusts) lacks an equivalent send-off. Despite many trainees undertaking and presenting projects from NUH at national and international conferences, much of this work is not readily publicised within the trust. While NUH benefits from a successful staff awards scheme each November (‘NUH honours’), trainees who rotate in August often fail to gain a nomination. The CR has secured funding and a venue for the first ‘NUH doctors in training’ conference providing a platform for established academic trainees to inspire others and the perfect stepping stone for junior trainees to showcase smaller projects. There will be inspirational workshops from the NUH talent pool and clinical skills lab training in hard to access procedures (eg chest drains). The event
will close with the ‘Postgraduate Medical Education Awards’ ceremony recognising and celebrating outstanding contributions by certain trainees.

Results

The results and discussion of the above projects will be presented at the conference.

References

QUALITY IMPROVEMENT AND PATIENT SAFETY

Improving junior doctor experience at Sheffield Teaching Hospitals

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Introduction
Sheffield Teaching Hospitals Foundation Trust (STHFT) is one of the largest UK foundation trusts with 17,000 staff, approximately 1,000 junior doctors (JDs) in training and around 700 career grade doctors. The previous CEO and MD had a vision to improve the relationship between junior doctors and senior management in the trust. By fostering this relationship, the ultimate goal was to make the JD cohort feel connected, involved and valued by the organisation which would make STHFT an attractive workplace and result in excellent clinical outcomes and a high level of patient satisfaction.

Methods
A number of listening events were hosted by the previous chief executive and medical director at the trust. These events were attended by JDs as well as clinical directors and senior leaders in the trust. While many ideas emerged from the discussions, four main themes were identified:

1) Connect JDs within the trust with people, systems and processes
2) Create a great training experience
3) Create a healthy workplace to work and thrive
4) Engagement in improvement

One of the deputy medical directors was established as lead for JDs experience in the trust, and the chief registrar role was firmly embedded in this initiative to gain a stronger representation of the JDs workforce, as well as becoming a JD champion.

A JDs Oversight Group now meets regularly and reports on its progress to the Clinical Management Board, and the JDs Forum.

Results
The areas of work to date have included:

1) Improving medical handover
2) Producing induction videos for new JDs
3) Developing quality standards for rota management
4) Evening leadership connection events for JDs with invited speakers
5) Engaging JDs in quality improvement
6) Developing a business case for the provision of new doctors’ mess facilities
7) Ensuring easy access to fresh drinking water for JDs
8) Rewarding JDs achievements

Conclusion

Bringing a group together to work on a number of areas important to JDs is starting to see some progress. Measuring the impact of these initiatives on JDs morale is challenging and we are exploring ways to do this effectively. In line with our people strategy at STHFT, we believe that staff who feel cared for will in return impart a higher level of care to their patients.
QUALITY IMPROVEMENT AND PATIENT SAFETY

Medical outliers – a ‘wicked’ problem

Authors: Andrew Allard* and Elizabeth Lonsdale-Eccles*
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Background

The NHS is facing ever-growing pressures on secondary care with increasing presentations to A&E and rising demands on inpatient services. Consequently, significant numbers of medical patients are receiving care in ward settings that are intended for the care of non-medical specialties as their primary function. Patients cared for in this setting are termed ‘medical outliers’.

At Great Western Hospital every effort is made to care for patients in the most appropriate setting for their needs, however, due to service pressures, particularly in the winter months, a significant number of medical patients are being cared for on non-medical wards. In recent years there has been a reliance primarily on locum staff to see these patients as part of a ‘medical outliers team’. Staff turnover has been high and continuity of care for these patients has been variable. As a result there have been concerns regarding patient safety and the clinical governance surrounding care for these patients.

We set out to establish a more formalised system for caring for medical outlying patients with the intention of improving key performance areas including patient safety, establishing clear clinical responsibilities and improving staff morale across the multidisciplinary team.

Materials and methods

Using Kotter’s 8 step change model as a framework, we established a working group and agreed on a vision for what the care of medical outliers should look like.1 Engagement from the relevant staffing groups was sought revealing a preference to continue with an independent medical outlier team model. The Royal College of Physicians (RCP) guidance on safe medical staffing was used as a template.2 Key areas in need of improvement were identified and included, day-to-day handover of clinical information, access for ward staff to the outliers team, continuity of clinician care and clear chain of responsibility for medical outlier patients. Outcome measures were agreed to monitor success including audit of handover process, audit of continuity of clinicians tasked to outliers and data collection of measurable parameters, including overall outlier numbers and length of stay of medical outliers vs medical inliers.

Results and discussion

We have applied a staffing model based on the RCP safe medical staffing guidance and emphasis has been placed on long-term allocation of staff to the medical outliers team (frequently for several months at a time but minimum 1 week). An active handover process of clinical information has been implemented and is now well-established and the medical teams are now contactable via dedicated telephones. Despite attendances to the hospital and total number of medical outliers increasing, length of stay has remained stable compared with last year and data collection is ongoing.

Great Western Hospital is facing a significant challenge, common to many district general hospitals, in terms of how medical outliers are cared for. Multiple interventions are required to help reduce the scale of the problem in the long term including assessing and streamlining patient flow pathways as well as the capacity of the medical bed base and staffing models. In the short term ensuring patient safety, high quality of care and maintaining the wellbeing of staff is paramount. By improving continuity of patient care and effectiveness of the handover process we have started to address some of these issues. Going forwards a model for a substantive team has been developed and recruitment is in process which will add to continuity
of care and reduce reliance on temporary staffing further improving patient care. Other improvements in the medical bed base model are under development and will help further.

Conclusion

The challenges posed by the volume of patients being cared for at Great Western Hospital on outlying wards are complex. A focus on moving away from temporary staffing models to care for this patient cohort is key in ensuring high-quality patient safety and continuity of care. In the coming years the trust is aiming to ensure the numbers of patients cared for on outlying wards reduces and that the care of those patients is no different from that of inlying patients.

References

QUALITY IMPROVEMENT AND PATIENT SAFETY

Laying the foundations for quality improvement within an NHS trust: A chief registrar’s journey

Author: Christopher Huntley*
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*RCP chief registrar

Introduction

The benefit of quality improvement (QI) is acknowledged nationally across the NHS, royal colleges, regulatory bodies and in under- and postgraduate curricula. However, disparity remains between idealistic QI practice and local trust realities. This is a summary of a chief registrar’s experience when attempting to lay the foundations for a quality improvement service at the Royal Wolverhampton NHS Trust (RWT).

Methods

A QI strategy for the 2018–19 academic year was developed and delivered by the RCP chief registrar with support from the divisional medical director and key stakeholders. This focused on four key elements: QI education; QI governance; QI support; and sharing learning from QI work. Doctors in training (DiT) regularly completed 10-item Likert scales and qualitative surveys to assess the impact of our strategy.

Results and discussion

QI education and support

A new four-session QI workshop programme with supplementary drop-in sessions has been developed and provided education and support. To date, 127 DiT are enrolled, contributing to a minimum of 20 QI projects. The programme has been well received with improvements demonstrated in DiT confidence in leading QI work, self-rating of medical leadership qualities and a sense of empowerment (Fig 1). The first cohort of supervisors, nurses and governance managers have now been enrolled to this programme, to address supervision barriers identified.

Governance and learning from QI

Creating a divisional QI working group has enabled a review of current governance processes and we are now embedding QI within this, alongside developing a QI database. The first RWT QI conference is planned for May 2019, showcasing the ongoing QI work, aiming to improve wider engagement with QI and gather support for continuing projects. From April 2019, a trust QI team has been established which will build on these foundations. This has led to an improvement in the perceived QI culture at RWT (Fig 1).

Through this journey, identifying and addressing challenges and barriers to QI (Fig 2) has been key to directing future developments. Focus now centres on a multidisciplinary approach to QI and ‘upscale’ learning from changes introduced.
Conclusion

If Qi is to succeed and avoid previous mistakes of traditional clinical audit, engagement is required Trust-wide, from ground-staff to executive management. Understanding the barriers individuals undertaking Qi work face and overcoming these is critical in establishing a successful QI infrastructure. We highlight and address fundamental barriers in QI education, support and engagement with QI work, through our QI strategy. We have laid the foundations from which the newly formed QI team can develop within RWT over the coming years.
Online referrals improve interspecialty communication and are preferred by referring clinicians

Authors: Elinor Shuttleworth,* Liam Morris and Philip Webb
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*RCP chief registrar

Introduction (Plan)

At a large university foundation teaching hospital multiple systems were in use to request inpatient review by other specialties. Thus referral was extremely time-consuming: over 91% of referrers stated that finding out how to refer to each specialty took a significant amount of time. Over 97% stated they would save a significant amount of time if a formal document detailing referral processes existed or if there was a unified process of referring.

Conversely, within gastroenterology, where referrals were received by fax, review of referrals over a 1-month period revealed that 62% referrals could be dealt with by telephone advice, but 78% did not give contact details resulting in a mean of 3.3 bleeps/calls and 9.7 minutes/referral to contact the team (in 23% cases doctors had to visit the ward even though advice alone was appropriate). Furthermore, delayed specialty reviews were reported that were sent but not received via fax.

We set the SMART objective of reducing by 90% the number of patients seen by gastroenterology who require advice only but take >5 minutes in attempting to contact the parent team by March 2019.

Materials and methods (Do)

We worked with IT to develop an online gastroenterology referral via our existing requesting and reporting software (ICE). We also developed a function to give advice via ICE if a patient was felt not to require inpatient specialty review. This was launched on 1 February 2019 with a multi-modal education campaign highlighting the need for doctors to check the referral regularly for advice.

Results and discussion (Study)

Data were gathered for 8 weeks prior to launch of the gastroenterology ICE referral system. During this period, 48% of referrals could be managed with advice alone, but in 50% of the cases (median, range 0–66.7%), it took over 5 minutes to contact the referring team. After implementation the percentage of referrals managed with by advice alone remained the same but a median of 0% of referrals took over 5 minutes to contact the parent team (range 0–11.8%) (Fig 1).
Conclusion (Act)

While these data are promising we needed to contact referrers by other means in occasional cases. A follow-up survey of referrers revealed that while 93% know how to refer to gastroenterology via ICE, only 68% know how to check for advice. We will therefore focus on education in our next PDSA cycle.

This follow-up survey also revealed that all responders preferred ICE to the fax system. 90% felt that referrals were easier to chase and 100% were in favour of expanding ICE referrals to more specialties; again a focus for future PDSA cycles.

Finally, while time from referral to patient review/advice given is an important outcome measure, lack of reliability in receiving fax referrals meant these data were incomplete. This is now easily visible on the ICE system where average time from referral to outcome varies widely and appears to relate to ST3+ staffing levels. These data can now be utilised to develop safer working models within gastroenterology.
QUALITY IMPROVEMENT AND PATIENT SAFETY

Promoting appropriate medical discharges over the weekend – is 7-day working a reality?

Authors: Alex Fulton, Sam Heward, Sally Briggs, Jennifer Beynon and Jayne Little*
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Introduction

Timely discharge of patients is important for patient safety and satisfaction as well as patient flow and health economics. Improving hospital discharges and promotion of a 7-day service are key priorities of NHS England. Discharging medical patients from hospital over the weekend can be challenging due to both intrinsic and extrinsic issues. We aimed to explore these issues, identify key areas for improvement and increase the number or patients appropriately discharged over the weekend at a major acute teaching hospital in Manchester.

Materials and methods

Routinely collected data was explored to calculate the following information relating to discharges of medical patients over a 12 month period from 1 September 2017 to 31 August 2018 (from any ward other than the acute medical unit (AMU)):

- Number of discharges by day
- Number of weekend discharges per week (defined as 17.00 on Friday to 9.00 on Monday)
- Proportion of weekly discharges occurring over the weekend by month.

The same information was calculated on a ‘pilot’ ward (endocrine and general medicine).

A process mapping session including all relevant stakeholders on the pilot ward (therapist, ward clerk, ward manager, junior doctor and consultant, pharmacist and manager) allowed identification of key areas for improvement.

Criteria-led discharge forms (CLD) and weekend handover proformas were introduced as part of PDSA cycles while collecting the following measures:

- number of discharges per weekend (primary outcome measure)
- number of Fridays when weekend discharges are considered and number of CLD forms and handover proformas completed (process measures)
- junior doctor satisfaction (balancing measure).

Results and discussion

There were 5,461 medical discharges over 12 months, 557 (10.6%) of which occurred over the weekend. The greatest proportion of discharges occurred on a Wednesday, Thursday and Friday (1,036 (19.0%), 1,043 (19.0%) and 1,046 (19.2%) respectively). There did not appear to be any seasonal variation or other patterns in the number or proportion of patient discharged at the weekend (with the exception of a rise in proportion of weekend discharges in relation to the Christmas period). These findings were also reflected in the ‘pilot’ ward.

Process mapping identified the following key areas for improvement (see Fig 1):

1. Clear identification of patients suitable for weekend discharge.
2. Communication of this information to the weekend team.
3. Empowerment of the weekend team to discharge.
4. Appropriate allocation of patients to the ward (those without complex care needs).

The development of a paper handover proforma including a checklist of the following tackled items 1 and 2 above:

- Completion of TTO (to take out)
- Outstanding investigations
- Weekend requirements (nurse-led discharge / medical review / therapy assessment)

CLD forms aimed to address item 3 by empowering nursing and junior medical staff to discharge patients appropriately.

There has not yet been a significant change in the number of patient discharged over the weekend and few suitable patients have been identified for CLD despite team engagement. We aim to address ‘key area’ 4 above as part of the next PDSA cycle.

**Conclusion**

Despite team engagement we have found it challenging to increase the number of medical patients discharged over the weekend. This may be due to the significant numbers of patients having complex social and care needs and requires further exploration.

Fig 1: Weekend discharges
QUALITY IMPROVEMENT AND PATIENT SAFETY

Missing: Outlying medical patients. If found please bleep the medics

Authors: Kate Edwards,* Tom Cozens, Elen Rowlands and Rebecca John

Aneurin Bevan University Health Board
*RCP chief registrar

Introduction

The Society for Acute Medicine has recently updated its third Clinical Quality Improvement (CQI) standard, which states that, ‘All patients should be reviewed by the admitting consultant physician or an appropriate specialty consultant physician within 12 hours of arrival to hospital’.¹ This is in line with NHS Improvement which recommends that all patients should receive a ‘consultant approved care plan’ within 12 hours of admission.² This CQI is subsequently used as a benchmarking tool during the annual Society of Acute Medicine Benchmarking Audit (SAMBA). In the 2018 benchmarking audit, overall 62.8% of all patients received a consultant review within this time period.¹

Within Aneurin Bevan University Health Board the statistics for time between patient admission and consultant post-take ward round (PTWR) are in line with national average. However, medical patients are still missed off PTWR due to a number of identified factors including:

- A hospital system design of a ‘safari ward round’ whereby medical patients are outlied to medical and surgical wards.
- A lack of ‘real time’ transfer data onto the clinical IT system, Clinical Work Station (CWS).
- An outdated centrally located paper patient list which is often not kept up to date, rendering patients at risk of being missed or duplicated on rounds.

Over the past 12 months there has been one mortality attributable to lack of timely consultant review after admission. This, along with many other patients who are missed, is a significant driving force for change in this respect.

Materials and methods

With Kotter’s 8-step change model in mind,³ firstly an urgent climate of change was created. After discussion at a local Medical Directorate meeting, a coalition of was formed including the chief registrar, associate college physicians, and college tutor/acute consultant physician.

Baseline data was collected over a 10-day period to assess the number of missed patients from PTWR, and the exact reasons for this. Subsequently, the factors discussed in the ‘introduction’ as most likely causes for patients being missed on PTWR were identified, and ways that these three factors could be improved upon and what would be required to make these changes were discussed.

Results and discussion

Baseline data collected prospectively over a 10-day period showed that eight patients failed to be seen on the next occurring PTWR after their admission. The majority of these patients were missed over a weekend or during the week when transferred to an outlying ward out of hours. Reasons for being missed included patient details not being documented in the patient file by the admitting doctor, and delays in updating patient location on Clinical Work Station. Of note, one patient who was an outlier at the start of the weekend failed to receive an initial consultant review until day three of admission.

With regards to changing the way patients’ details are recorded, a new electronic ‘watch list’ was created within Clinical Work Station in a bid to improve documentation of patients awaiting PTWR. This was implemented for 24 hours to see how the process of using an electronic system worked and to identify any
flaws that may need addressing. A subsequent online survey generated very positive feedback from the on-call juniors and consultants who used the system, with 100% staff stating it was very user-friendly. Feedback also highlighted how the electronic system allowed those medical on-call juniors working in A&E to add patients without having to walk back and forth to MAU to add them manually to the paper list.

Additionally, as a ‘quick win’, to aid the medical handover process from day to night teams, the postgraduate department, who were undergoing a refurbishment, gifted the handover room with two extra computers and a large TV screen to allow handover to take place electronically using the watch list.

However, the pilot study identified the ongoing issue of patients being transferred out of hours without ‘real time’ update on patient location. Subsequent to this, discussions are currently ongoing with the medical bed management team to aid ‘real time’ electronic updates of patient location once transfers have been made.

The electronic watch list is due to be enrolled into the general medical take on 1 April, once discussions are complete with the medical bed management team. Once the electronic list is implemented and bed management have updated patient locations electronically, a further set of data on patients being missed off PTWR will be collected prospectively and analysed to appreciate whether these changes have made a positive impact.

**Conclusion**

In conclusion, it is evident that patients are currently missed off post-take ward rounds due to a number of identifiable factors. There have been a number of ‘quick wins’ throughout the process to date, while building on these changes over time is helping drive a culture of positive change for the hospital.

**References**

QUALITY IMPROVEMENT AND PATIENT SAFETY

Using sequential Plan-Do-Study-Act cycles to facilitate implementation of a morbidity and mortality review process

Authors: Amy Davies* and Megan Offer
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Introduction

Approximately 50% of deaths occur in hospital and it is estimated that 3–5% of these deaths are preventable. Morbidity and mortality (M&M) meetings allow these deaths, in addition to expected deaths and cases leading to morbidity to be reviewed.

Implementation of an M&M process provides an ideal opportunity to use a Plan-Do-Study-Act (PDSA) framework. A PDSA cycle enables small-scale change to occur before widespread implementation of a process. Using sequential PSDA cycles it is possible for stakeholders to feedback throughout the process and adjustments to be made accordingly.

Methods

An initial proposal outlined details of when and where the meetings would be held (first Monday of each month), selection of patients to be discussed and allocation of patients to presenters. Patients were to be presented by a junior doctor following discussion with a named consultant. For each patient a PowerPoint presentation and trust protocol M&M Word proforma would be completed.

The first, second and third M&M meetings would act as PDSA cycles in order to develop a reproducible format to the M&M that all stakeholders had contributed to.
Conclusion

Implementing an M&M process has had multiple challenges and the flexibility of the PDSA methodology has enabled the process to be dynamic. Asking those attending for feedback has meant changes are discussed as a department and engagement occurs across all levels instead of being implemented from top-down. Although improvements have been made and the M&M process is now established further PDSA cycles are required to increase the number of patients discussed.

Reference

QUALITY IMPROVEMENT AND PATIENT SAFETY

Ward round accreditation: an innovative quality improvement project to develop and improve the existing medical ward round at Warrington Hospital

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Introduction

Medical ward rounds have long been considered the centrepiece of inpatient care. They provide an opportunity for high quality, safe, multidisciplinary patient review while facilitating shared decision making, patient flow and important educational input. Variation in ward round structure is inevitable and there is always a fine line between balancing service needs and providing education. In 2012 the RCP and RCN produced Ward rounds in medicine: principles for best practice, providing core recommendations and best practice for conducting ward rounds. Accreditation of clinical departments and processes is increasingly being utilised in standardising best practice in clinical care. Here, for the first time, we outline how we are developing an accreditation process at Warrington Hospital with the aim of providing a framework for a consistent yet flexible, efficient and effective multidisciplinary, patient and education-focused medical ward round.

Materials and methods

In this quality improvement project undertaken at a district general hospital we employed both qualitative and quantitative data collection methods to establish current ward round practice. Junior doctors collected real time ward round data including compliance with recognised metrics such as venous thromboembolism (VTE) prophylaxis assessment, ceiling of care discussion and expected date of discharge (EDD). Educational value of ward rounds was collated via a questionnaire with opportunity to record any assessments undertaken and provide suggestions for improving the experience. A ward round Standard Operating Procedure was drawn up.

Exploring stakeholders’ perspectives, we surveyed inpatients. Prospectively, using the data collected we aim to implement metrics and an accreditation award system for medical ward rounds devised from our data collection, RCP/RCN guidance and best practice. Once standards are established, we will implement an accreditation process for each metric, generating ward round accreditation for the organisation.

Results and discussion

Nineteen patients were surveyed with a median age of 48 across a range of socioeconomic groups. 90% understood the term ward round. There were mixed responses to who should lead a ward round (22% said nurses, 63% said doctors and 15% did not mind). 89% of patients were aware of their diagnosis. 42% were aware of their EDD. 100% were agreeable to teaching taking place on a ward round. 37% felt the round required improved communication.

Seven individual consultant-led rounds and 37 patient interactions were observed. 46% of VTE assessments were completed. 100% of observation charts were reviewed. 95% of prescriptions were reviewed. EDD was documented in 51% of patients. 11% had a ceiling of care documented. Teaching occurred on 57% of rounds. One round provided opportunity for web-based placed assessments.

Conclusion

This project has engaged multiple stakeholders to demonstrate that there is currently considerable variation in medical ward rounds undertaken across the trust and that standardisation with the
implementation of set metrics provide improved patient care, flow and enhanced junior doctor educational experience. We aim to roll out implementation of an accreditation system to allow us to demonstrate improvements in compliance with RCP/RCN guidance and thus provide a systematic, consistent, multidisciplinary, education-filled medical ward round for all.

Reference

QUALITY IMPROVEMENT AND PATIENT SAFETY

**A quality improvement project on discharge summaries completion in a nephrology ward**

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**Introduction**
Discharge summary is an essential part of patient care and is a patient safety issue if not completed on time. The NHS England Standard Contract guidance insists that discharge summaries should be completed and sent to GPs within 24 hours of discharge. Dorset County Hospital aims for 98% discharge summaries to be completed within 24 hours. The aim of the project was to improve the 24-hour electronic discharge summary completion rates in the renal ward, from a baseline of 30% to 60% in the 3-month period from February 2018 to May 2018.

**Methods and materials**

**Main challenges**
The completion rates of the renal ward were lower than the rest of the hospital due to various reasons. An unfilled ward clerk position had resulted in difficulties accessing patient records in a timely manner. As day case procedures were archived using unique codes, there was a misconception that they don’t require discharge summaries. Poor staffing levels, lack of administration time in a busy placement and lack of insight into the importance of discharge summaries had resulted in a general lack of ownership within the team.

**Interventions (Plan, Do)**
The electronic discharge summary (EDS) system had an ‘inactive’ option of creating the list of incomplete discharge summaries for any ward. Arrangements were made through the information team to electronically update this list twice daily. A new routine of reviewing this list with the team, daily after handover was implemented. A team member was identified as the responsible person to clear the incomplete summaries. The team was educated on the impact on patient safety through patient stories, which improved their engagement. Registrars completed discharge summaries for all day case procedures. Temporary ward clerks helped to clear the backlogs.

**Results and discussion (Study)**
The percentage of completed discharge summaries within 24 hours and within 1 month of discharge were measured. Data collection was 100% complete. Following the QI interventions, the 24-hour discharge summaries completion rates had doubled (see charts 1,2). The monthly discharge summaries completion rates increased from 73.37% to 95.72%. The quality of discharge summaries was not compromised, and the summary content followed the national requirements.

**Next steps (Act)**
Although the improvements were sustained, the completion rates did not increase exponentially, but plateaued after the initial rise. Some potential reasons are weekend discharges and deceased patients. Further exploration of potential reasons and repeat PDSA cycles are required for further improvement.

**Conclusion**
All the progress achieved in this project was sustained due to the involvement of the entire team. The team who once viewed discharge summary as irrelevant to patient care and as a time-consuming task of no learning value, changed their attitude once they realised the importance of it. The key learning points from this project are ‘communication is the key to implement change’ and ‘patient stories are powerful’.
Reference


Fig 1: EDS completion rates after the QI project in comparison with baseline

Fig 2: EDS completion rates before and after the QI project
QUALITY IMPROVEMENT AND PATIENT SAFETY

The development of an acute frailty team

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Introduction

Older people living with frailty are more likely to be admitted to hospital when attending the Emergency Department (ED). Following admission, this population is also more likely to have prolonged inpatient stay, patient safety incidents and higher inpatient mortality.\(^1\) NHS Improvement recommends that all patients aged over 65 attending the ED should be screened for frailty using a validated screening tool such as such as the Clinical Frailty Scale (CFS).\(^2\) In addition, all patients with frailty should have access to a team capable of assessing frailty syndromes within the ED.

Manchester Royal Infirmary, part of Manchester University NHS Foundation Trust, established a frailty project group to meet these objectives. My role as an RCP chief registrar has allowed me to help lead the group and design improvement projects.

Intervention

One of these projects involved the pilot of an acute frailty team (AFT) within the ED, comprising a consultant geriatrician, nurse consultant and advanced nurse practitioner. Further support was provided from the ED pharmacist and Discharge 2 Assess (D2A). Older patients (≥65) presenting to the ED with a CFS of ≥4 were reviewed by the frailty team (weekdays, 09.00–16.00) providing they did not meet the pilot’s exclusion criteria (such as trauma, stroke or medical emergency). Patients were identified by referral or case finding. These patients then underwent a Comprehensive Geriatric Assessment within the ED.

Results

During the pilot 83 patients were reviewed over 23 days from October–November 2018. Only 39% of patients reviewed by the AFT were admitted to hospital. The average CFS score was 5.2 and the average time for review was 55 minutes. The presenting complaint was variable, however 40% of patients presented following a fall. Of those admitted, 47% were discharged within 48 hours compared with 40% of patients who were not reviewed by AFT. Prior to review the majority (55%) had already been referred to the medical team for admission. The 28 day re-attendance rate was 22%. The key limiting factors identified which prevented discharge were delays for therapy assessment and medications.

Conclusions

This pilot highlighted that an AFT within the ED can safely discharge patients or commence management which will reduce a patient’s subsequent length of stay. As part of the frailty project group, this data is now forming the basis of the case for the development of a sustainable AFT. Furthermore, limitations identified demonstrated the need to widen the multidisciplinary nature of the team to increase effectiveness. Further pilots are planned following the implementation of ED frailty screening and development of a partnership with primary care.

References