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Pre-Registration Abstracts

Clinical Audit

An assessment of the electronic documentation of Medicine Reconciliation

Abstract

Background:

The aim of medicines reconciliation (MR) on hospital admission is to reduce the risk of harm due to medication omission or inappropriate prescribing. A medicines optimisation report, published by NICE in 2015, identified a 30-70% unintentional variance between medications that patients were taking pre and post-admission. [1] Accurate documentation of MR is crucial and an effective standard operating procedure (SOP) should facilitate this. [2]

Objectives of Audit:

1. Assess documentation of medicine reconciliation on the trust's electronic notes according to trust SOP
2. Identify common problems with recording MR electronically
3. Evaluate if the SOP requires review

Audit standards:

1. Pharmacist/technician should speak to the patient when appropriate
2. A summary of the final drug history must be recorded
3. Discrepancies between the list compiled and drugs prescribed should be documented
4. Problems requiring further investigation/intervention should be documented
5. Information regarding allergies, sensitives and adverse drug reactions should be documented within the MR
6. Pharmacist/technicians should document clearly if the patient receives a NOMAD and details of patients pharmacy should be recorded
7. Details of acute medications should be recorded
8. Details of care home should be documented when appropriate

Method:

For this retrospective study, 2 different MR records from each adult ward were reviewed daily between 01/02/2021 and 05/02/2021. Ethical approval was not required, and case numbers were used to identify patients with complete medicine reconciliation at random; each was audited by the author.

Results:

Of the 120 MR documented, 0% met all 8 audit standards. Findings from standard 1 showed that 78% of technicians/pharmacists did not document speaking to the patient to establish drug history. Standard 2 achieved 100% as all drug histories were documented on the EPMA system Standard 3 found that only 34% of medication discrepancies were clearly documented; standard 4 showed that documentation of problems requiring further investigation achieved only 2%. 79% of allergies were not documented within the MR tab itself; however, they were always documented elsewhere. Of the 33 NOMAD patients identified for standard 6, 69% were recorded correctly. Standard 7 found that 62% of acute medication were not documented. Of the 24 care home patients identified, only 9% documented details.

Conclusions:

These findings demonstrate incomplete documentation of MR. There is a clear need to amend the current SOP to clarify necessary elements of MR documentation combined with re-launch followed by re-audit after 6 months.

The SOP states that discrepancies can be communicated either verbally or via documentation in the medical notes. Interestingly it also states that verbal communication is preferred to ensure timely action. On observation, it was

noted that most interventions were verbally resolved and this is reflected in the poor results for audit standards 3 and 4. There is also no requirement to document speaking to the patient to establish a drug history.
This study was conducted during winter pressures and the Covid-19 pandemic, where quality of care was not compromised but documentation may have been. Another limitation was that verbal communication wasn't quantified.
Although the results show poor documentation, this is not a reflection of the quality of MR. The implementation of electronic recording is relatively new; therefore, the pre-existing SOP requires review and further clarity is required to determine which information must be documented. Stipulation between desirable and essential documentation criteria is also needed.

Contact Details
Sabrina Mahmoud
North Tees University Hospital
Sabrina.mahmoud@nhs.net

An audit assessing the appropriateness of controlled drug destruction and its relevant documentation

Abstract
Background
A 2015 sponsored study by NHS England estimated that £300 million of NHS prescribed medicines were wasted yearly. (1). This statistic, whilst not directly linking to CD's wasted in hospitals, indicates that opportunities to reuse medication appropriately should be taken. Our Trust's average savings from non-controlled drugs returns within a 6-week period are roughly £10,000, if CD's were appropriately returned this could have significant cost implications.
Aims and Objectives
The aim of this audit is to quantify the number of CD's that are appropriately returned and to assess the adherence to the Trust policy using the following standards, within a six-week period. Cost implications will also be analysed.
The following standards are taken from the Trust CD returns policies. (2, 3).
1. Each CD intended for destruction must be recorded into the CD destruction register.
2. CD's should be returned into stock (not destroyed) unless it meets ANY of the criteria listed below:
a) Patient's own drugs
b) Opened liquids
c) >6 months expiry
d) Poor condition
e) Issued >6 months ago
f) Loose tablets
g) Cut foil strips
h) More medication than quoted on the container or box
i) Part of a blister pack
There should be a 100% concordance to these standards.
Methods
Data was collected over a 6-week period (starting 18th December 2020). Records of all CD returns stored for destruction in pharmacy were assessed to see whether they had been written in the destruction register.
The CD's that had been entered into the register for destruction were also assessed to see if they were appropriate for destruction against standard two.
The drug cost was analysed based on pricing listed on the Trust dispensing software.
No ethics approval was required for this audit.
Results
7.3% (12 of 165) of CD's for destruction were not recorded in the destruction book.
22.9% (35 of 153) of the CD's could have been returned rather than destroyed.
The total cost of the CD's that could have been returned was £60.32; the doop kits used cost an additional £80.52 and 4 people helped with destruction over a 3-and-a-half-hour period. If all employees were band 5, this would be equivalent of £178.36 in wages. This would total at £319.20 for a 6-week process.
Limitations to this audit included, a small sample size as data was only gathered over a 6-week period and gathering information during a pandemic, this is because fewer high-risk patients were willing to attend hospital that may have needed high cost drugs, which, when returned, could have large cost implications.
Conclusion

This study clearly showed the need for more education around the topic of waste management, in particular, assessment of whether a CD can be returned or should be destroyed.
I set up a game for staff to guess the amount of money the drugs and doop bins cost. Answers varied from £400-7,500, the answer and waste management information were relayed to improve awareness.
Other recommendations include:

- Reviewing the policy
- Having a returns checklist on the CD cupboard
- Education

Contact Details
Aidan Bowler
North Tees and Hartlepool NHS Foundation Trust
aidan.bowler@nhs.net

Auditing the prescribing of oral tetracycline's for the management of acne in patients >12 years old in a GP surgery.

Abstract
Background
Skin conditions account for 8% of primary care antibiotic prescribing. (1) The Clinical Commissioning Group for the GP surgery assesses antimicrobial resistance and appropriate prescribing of broad-spectrum antibiotics in primary care. (2)
Acne management involves a stepwise approach. First-line treatment for mild-to-moderate acne involves a topical retinoid, such as adapalene, alone or combined with benzoyl peroxide for example Epiduo gel. (3) For those with moderate acne unresponsive to topical treatment, adding a tetracycline, such as lymecycline or doxycycline for a maximum of three months should be considered. Once complete, maintenance therapy should resume with topical treatment. (4)
Topical treatment should always be co-prescribed with oral antibiotics to reduce the risk of antibiotic resistance (4). There is little additional benefit of using antibiotics for more than three months, and oral antibiotics are less clinically effective when used as a monotherapy. (3, 5)
Objectives
The audit standard is that 100% of patients receiving oral antibiotics to treat acne are co-prescribed a topical agent by 08/03/2021.
Method
A search was conducted, using the EMIS patient database, to identify patients prescribed oral tetracycline's for acne within six months from the search date: 28/01/2021. It was identified whether a topical treatment was co-prescribed. This data was tabulated to include: Patient number, oral antibiotic prescribed, indication, date last issued, and topical treatment prescribed. The audit was part of the medicines review process therefore, no ethical approval was required. Patient information collected was partially anonymised with patients numbered individually and data collection sheets were stored on a password-protected device.
Results
The initial search identified fifteen patients prescribed oral antibiotics for acne. Two of these patients were co-prescribed a topical treatment (13%). Therefore, 87% of patients were not prescribed acne treatment according to NICE guidance.
Conclusion
An intervention was conducted to meet the standard. Telephone consultations were held with patients who met the search criteria to determine whether treatment with oral antibiotics was still indicated, to offer topical treatment where needed, and inform them of the guidance. As a result, many agreed to step down to maintenance topical therapy. (3)
Following the intervention, 75% of patients prescribed an oral antibiotic for acne were co-prescribed a topical treatment. This is a 62% improvement from the initial audit value.
Additionally, as a result of the consultations, 80% of patients were prescribed an appropriate treatment for acne that followed NICE guidance.
Limiting factors impeding full achievement of the standard include: one patient being uncontactable, and previous intolerance to similar topical preparations reducing willingness to try Epiduo gel. A teaching session was provided to inform prescribers of the guidance. Future plans to continue to improve the correct prescribing of acne treatment

include creating a popup alert on the EMIS database. This will notify prescribers of the guidance to co-prescribe topical treatment alongside oral antibiotics and prompt a treatment review in 3 months. The GP practice plans to re-audit in 12 months to ensure the maintenance of the standard.

Contact Details
Hannah McMillan
North Cumbria Integrated Care Foundation Trust
hannahmcmillan123@googlemail.com

Investigating the effects of Covid-19 on high INR readings

Abstract
Project Abstract: Investigating the effects of Covid-19 on high INR readings
Background: The anticoagulant medicine; warfarin, is widely used and requires patients to have INR monitoring at Warfarin Clinics up to every 12 weeks (1). The adverse effects of Warfarin include haemorrhage at high INR readings. A patient's response to warfarin is affected by many factors including diet, lifestyle, other medications and co-morbidities. On the 23rd March 2020, the UK entered a lockdown period due to the Covid-19 pandemic, which has been proposed to affect INR readings, either from infection of the virus or from the impact of the pandemic including; shielding, prolonged INR testing intervals, diet changes from stockpiling, patient illness, medication changes and lifestyle changes due to restrictions (2)(3).
Objectives:
- To determine how many patients have received INR readings at 8 or above between March 23rd 2020 and 5th January 2021.
- To determine how many of these patients who have received INR readings at 8 or above tested positive for Covid-19.
- To determine whether INR readings at 8 or above are more prevalent in specific patient groups during Covid-19 including male patients, older patients or ethnic minorities.
- To determine what factors have affected patients INR readings, including changes to their medication, lifestyle and co-morbidities, as well as, prolonged INR monitoring, during the Covid-19 pandemic.

Method: All Warfarin Clinic patients including home visits at an NHS Trust, who received INR readings of 8 or more between 23/03/2020 and 05/01/2021 were included in the study. Patients were identified using the report function on the anticoagulation clinic recording system; INR star. Using patient identification numbers from the report, each INR Star and Meditech patient profile was accessed for data collection. The patient's INR reading, age, gender, warfarin indication, INR target, ethnicity and any Covid-19 test results were recorded. Further, additional variables including changes in diet, medication, lifestyle and patient co-morbidities were also recorded. This study did not require ethical approval.
Results: Thirty-three patients aged between 28 and 91 years old (mean 69.1, SD 17.1, 95% CI 54.3 to 65.9), who all had an ethnicity of White British were investigated in the study. The majority of patients took warfarin for Atrial Fibrillation (n=14), making the most common target INR; 2.5. Eighteen patients were female and fifteen were male. Three patients were positive for Covid-19 infection. Most patients had several additional factors affecting their INR reading, including; illnesses or infections and changes in their medications, lifestyle, diet and warfarin dose. Three patients had no known reason for their high INR reading.
Conclusion: The study results provide no conclusive evidence that raised INR readings are due to the Covid-19 pandemic. Current research on high INR readings during Covid-19 is limited, thus, further studies are needed to determine an association between the variables, in order to make valid interventions and to promote the need for increased INR monitoring during the pandemic. Future work could include a larger sample size and compare the amount of patients receiving high INR readings in the same time period before the pandemic.

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Contact Details
Megan Blenkinship
South Tyneside and Sunderland NHS Foundation Trust
meganblenkinship@gmail.com

Evaluating the Quality of Patient Follow-Up Post-Myocardial Infarction: An Audit of ACE inhibitor/ARB and Beta-Blocker Up-Titration in Primary Care

Abstract

Background

Following a myocardial infarction (MI), NICE recommends commencing an angiotensin-converting enzyme (ACE) inhibitor/angiotensin receptor blockers (ARB) and a beta-blocker (1). The titration of these medications to the maximum tolerated dose is recommended (1,2). This has shown to reduce mortality, morbidity and hospitalisation rates compared to suboptimal doses (3–5). Arnold et al has shown that only 12% of beta-blockers and 32% of ACE inhibitors are titrated to maximum doses 12 months post-MI (6). Similarly, Ouwerkerk et al has shown that between 46%-48% of the maximum doses of ACE inhibitors/ARBs and between 34%-41% of the maximum doses of beta-blockers are achieved after 3 months (5). The aim of this project is to audit the titration of ACE inhibitors/ARBs and beta-blockers against NICE standards (1).

Audit Standard: NICE standard – maximum dose ACE inhibitor/ARB and beta-blocker should be achieved within 6 and 11 weeks of discharge, respectively (1).

Objectives

- To measure patient medication doses against the audit standard and assess the proportion of patients titrated at 3- and 6-months post-discharge.

Methods

A clinical system search was conducted on 12th December 2020 of a GP practice (patient population: 19,000) for patients coded with an acute MI in the previous 12 months. Data was extracted from patient records to determine the dose of medication at discharge and the titration history. An exclusion criterion was developed, and ethics approval was not required.

Results

In total 26 patients were identified by the search, 23 (88%) of which were eligible for and prescribed ACE inhibitor/ARB and beta-blocker therapy at discharge. However, only 3 (12%) and 2 (8%) patients were at maximum doses, respectively. Of patient's not discharged on maximum doses, 0 patients achieved maximum doses of either ACE inhibitor/ARB or beta-blocker within 6 and 11 weeks, respectively. Therefore, all patients failed to meet the audit standard. At 3 months, only 5 (19%) patients had their ACE inhibitor/ARB increased and 3 (12%) had their beta-blocker increased from discharge doses, none of which were to maximum doses. At 6 months, 6 (23%) patients had their ACE inhibitor/ARB increased and 6 (23%) had their beta-blocker increased from discharge doses. Of which, only 1 (4%) patient achieved maximum dose ACE inhibitor/ARB. A heart failure (HF) nurse followed up 3 (12%) patients who all achieved maximum doses of ACE inhibitor/ARB and an increase in beta-blocker by 6 months.

Conclusions

Although the sample size was small, the data supports previous research and suggests that the up titration of ACE inhibitors/ARBs and beta-blockers within the GP practice is below the national average and fails to meet the audit standard (1,5). The data also suggests that there is a bias towards patients who receive follow up care from a HF nurse compared to those who do not. Those who are followed up are more likely to have their treatment optimised compared to those who are not; potentially causing differing mortality and hospitalisation rates (3–5). A quality improvement project will be established to develop processes to identify patients and support healthcare professionals with up titration.

Contact Details
Caitlyn Madden
Northumbria Healthcare NHS Foundation Trust
caitlyn.madden@hotmail.co.uk

The impact of the use of patient information booklets for commonly used post-operative medicines on nurse-led discharges from elective surgery wards.

Abstract

Background: At Queen Elizabeth Hospital (QEH) elective surgery wards experience a high patient turnaround. Whilst a member of the pharmacy team would counsel patients on their discharge medicines, nurses manage the discharges instead. The pharmacy department produced a booklet containing summaries of commonly used post-operative medicines to facilitate the delivery of good quality medicines information.

Objectives:

- To facilitate the delivery of medicines information at a good quality in line with the Royal Pharmaceutical Society's (RPS) standard: "Information about patients' medicines should be communicated in a way which is timely, clear, unambiguous and legible; ideally generated and/or transferred electronically" via the booklet. (1)
- To compare the patients' opinion on the quality of the medicines information who did not receive a booklet to those who did.

Methods: Open- and closed-ended interview questions were produced for patients discharged before and after issuing the booklets. The pre-booklet data collection cycle dated from 21/12/20 to 08/01/21. Out of 37 contacted patients 24 participated in the project. The post-booklet data collection cycle dated from 25/01/21 - 19/02/21 and out of 54 contacted patients 26 patients participated in the project. Patients were contacted via telephone by the primary researcher who entered the data whilst conducting the interviews. A T-test was carried for quantitative data analysis and NVivo was used for qualitative data analysis.

Results: There was no statistically significant difference in how satisfied patients were with the medicine's information provided on discharge before and after issuing the booklet (p=.69).

There was also no statistical difference in how satisfied patients were with the medicine's information sources provided on discharge before and after issuing the booklet (p=.25).

33% of all patients had questions about their medicines after leaving the hospital but in the pre-booklet population 58% reported that they were not given any useful medicines information sources. In the post-booklet population, 11.5% of patients found the booklet useful in answering their questions. 15.4% patients did not find the booklet useful in answering their questions. 38.5% patients either did not look at the booklet or could not remember getting the booklet. The patients who found them useful explained that it was due to nurse counseling.

Out of 16 patients who had used the booklet, 100% found them easy to navigate, found the information to be clear and were satisfied with the level of information in it.

Conclusions:

The results do not indicate a statistically significant change in impact of using the booklet for nurse-led discharges. Engagement increased when the nurses directed the patients to the booklet and explained how to use them. Further interventions include more detailed training sessions on how to use the booklets during a discharge. Limitations include the small sample size and small data collection windows. Patients were not told of the project to limit bias, which impacted the level of answers and their willingness to participate.

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Contact Details

Prothoma Masudur
Gateshead Health NHS Foundation Trust
prothoma.masudur@nhs.net

Investigating loading doses of Vitamin D used within a large acute hospital and compliance with current guidance

Abstract

Background

Vitamin D compounds are fat soluble sterols which are essential for the regulation of calcium and phosphorus levels in the body. Vitamin D deficiency (VDD) is defined as serum hydroxyl-25 (25-OHD) concentration that is <25nmol/L and vitamin D insufficiency is defined as 25-OHD concentration that is 25-50nmol/L. Sufficiency has many benefits including reduced incidence of rickets and osteomalacia [1]. When combined with sufficient calcium intake, vitamin D can reduce the risk of fractures in some populations [2]. Vitamin D deficiency has also been linked to other non-skeletal effects such as type 2 diabetes [3] and cardiovascular disease [4]. Current NICE CKS recommends treating VDD with a total of around 300,000 international units (IU) of vitamin D given either as weekly or daily split doses, followed by lifelong maintenance treatment of about 800 IU daily. NICE CKS recommends vitamin D insufficiency is treated with maintenance therapy doses without loading [5].

Objectives

To assess whether patients are receiving the correct loading dose of vitamin D based on current NICE CKS guidelines[5]. Standard: 100% of patients to comply with guidelines.

To assess and determine if guidance is not being followed that this is being noticed and corrected by discharge. Standard: 100% of patients have the dose of vitamin D corrected by discharge.

Methods

This audit uses retrospective data, collecting patient data via a data collection tool (DataLaunchpad), electronic prescribing system and medical notes over a four month period (4/8/20 – 3/11/20). Inclusion criteria were: patients over 16 years old, vitamin D level <50 nmol/L and patients prescribed loading doses of vitamin D during admission. There were also exclusion criteria set in order to limit the data to include patients prescribed vitamin D loading by the hospital, and to exclude specific specialties with their own guidelines. This audit did not require ethical approval.

Results

A total of 169 patients were included: 48 patients with insufficient vitamin D levels and 121 with deficient vitamin D levels. 62% of patients included were correctly prescribed vitamin D loading doses during their admission. The clinical directorate with the highest compliance to guidelines was Care of the Elderly (70%) and the directorate with the lowest compliance was Medicine (54%). Three patients with incorrect dosing had this corrected by discharge. Out of the 65 incorrectly prescribed doses, 78% of these had an overall dose that was too high (>300,000IU). The most commonly prescribed regimen was colecalciferol 20,000IU three times a week for five weeks (40%).

Conclusions

In conclusion the hospital did not meet the target standard of 100% compliance with guidelines and 100% correction of dosing by discharge. This audit only accounted for patients prescribed loading doses during a 4 month period while admitted to the hospital and therefore is limited in its applicability. The introduction of a trust guideline would allow for a single regimen to be set as standard and therefore may reduce the number of incorrect loading courses being prescribed and ensure sufficient vitamin D levels for patients.

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Contact Details

Gabrielle Stokes

South Tyneside and Sunderland NHS Foundation Trust

gabbystokes54@gmail.com

Audit to determine appropriateness of referrals to District Nurses in the Community for administration of Tinzaparin

Abstract

Background

Many patients within the community rely on district nurses (DNs) to administer injectable medicines (e.g. tinzaparin) at home.

Tinzaparin referral forms should be used to refer patients to DN teams, thereby transferring information between care settings. It is the responsibility of the healthcare professionals involved in the patient's care to complete the forms. If this information is inaccurate/incomplete, it may lead to a medication error.

Tinzaparin administration contributes substantially to the workload of DN teams. Internal audit has shown that 11% of patients could self-administer after initial support from the DN team (1). Therefore, they may have been inappropriately referred.

Audit standard

100% of patients referred to the DN service have a tinzaparin referral form as per the Low Molecular Weight Heparin and Unfractionated Heparin in Adults guideline (2).

Objectives

1. To determine if tinzaparin referral forms are received by DN teams, during a defined time period.
2. To identify if a patient could self-administer, or a carer/family member could administer, following initial support from the DN during a defined time period.

Method

A questionnaire was designed and sent to each DN team within Northumbria Healthcare NHS Foundation Trust. The study was conducted from 25th January–26th February 2021. One survey response was required for each patient requiring DN support with tinzaparin administration. This clinical audit did not require ethical approval.

Results

32 patients were included in the data collection. 31 patients (97%) receiving prophylactic/treatment tinzaparin were aged over 60. 17 patients (53%) referred to the DN teams had a tinzaparin referral form. The most common reason for referral was the inability to self-administer due to dexterity issues. 25 patients (78%) were identified as unsuitable for self-administration and a carer/family member couldn't administer either. 3 patients (9%) could have self-administered tinzaparin and 4 patients (13%) had family members which could have been taught to administer. Therefore, 7 patients (22%) were identified as either being able to self-administer, or having a family member that could be trained.

Conclusions

Only half of the patients had a tinzaparin referral form completed. Therefore, the audit standard was not met. This increases the risk of errors occurring on transfer between different healthcare settings.

This study highlights that most of the patients are over 60 years old and the majority of referrals for DN provision are appropriate. However, there remains a small but significant cohort of patients who could either self-administer or have a family member trained to do so. If these patients hadn't been referred, significant time could have been saved and reinvested to support other patients.

Future research will explore; factors influencing the non-completion of the form, barriers to self-administration or that by a family member/carer, and potential training and education for staff and patients, with a re-audit planned for later in 2021.

At the time of this study, the DN teams were extensively involved in administering COVID-19 vaccinations. This impacted their time and ability to complete the survey, which was the main limitation noted.

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Contact Details

Sophie Horner

Northumbria Healthcare NHS Foundation Trust

sophie.horner@northumbria-healthcare.nhs.uk

Audit of the appropriateness of dalteparin dose for venous thromboembolism (VTE) prophylaxis in dialysis patients and patients with severe renal impairment

Abstract

Background

Hospital-acquired venous thromboembolism (VTE) is a common and preventable problem. Dalteparin is the choice of low-molecular weight heparin (LMWH) for VTE prophylaxis in the large acute hospital. Patients with renal impairment are at increased risk of bleeding due to the accumulation of LMWHs and prolonged anticoagulant effects. There is limited evidence and guidelines regarding the exact dose to prescribe for these patient groups [1]. The trust renal consultants' advice and a regional VTE guideline were used as references [2]. For VTE prophylaxis, patients with severe renal impairment (eGFR <30ml/min/1.73m2) should receive 5000 units daily and patients receiving dialysis should receive 2500 units daily.

Objectives

- To find out whether patients are prescribed the correct dose of dalteparin according to renal consultant's advice.
- To determine whether incorrect prescribing is being identified and corrected during admission.

Method

This was a retrospective audit from 1st September 2020 to 31st September 2020. Patients who received dialysis and patients with severe renal impairment in the large acute hospital were included in this audit. Data was extracted using the hospital data generator (Data LaunchPad) for patients who were prescribed either dalteparin 2500 units or 5000 units in inpatient wards across the hospital during the defined period. Eligible patients were identified through using the electronic prescribing system (Meditech Version 6). This audit did not require ethical approval.

Results

26 dialysis patients and 83 patients with severe renal impairment were identified. 73.1% (n=19) of dialysis patients were prescribed 2500 units dose of dalteparin and 26.9% (n=7) were prescribed 5000 units. Among the seven patients dosed with 5000 units, two cases were raised by the ward pharmacist and one case was raised by the staff nurse. The dose of dalteparin was corrected for all three patients during admission.

62.7% (n=52) of the patients with severe renal impairment were prescribed 5000 units according to the recommended advice and 37.3% (n=31) were prescribed the reduced dose of dalteparin. The reduced dose of dalteparin was prescribed potentially due to several factors such as low body weight, low platelet counts and high bleeding risk. No major incidents were reported following the incorrect prescribing of prophylaxis dalteparin.

Conclusion

According to the results, a trust guideline should be implemented on VTE prophylaxis in order to standardise the prescribing of LMWH across the trust. Further research is needed to determine the appropriate dose to prescribe in high risk patient groups. Further work could include teaching sessions among the staff and re-audit after trust guidelines have been implemented. Besides, a major decision was made by the large acute hospital to switch to enoxaparin by February 2021 in line with other areas in the trust. Limitations of this audit include the fact that the large acute hospital does not have a trust guideline hence the standard was based on the renal consultant's email and other hospital trust's guidelines. Factors that may have contributed to a different prophylactic dose being prescribed were not accounted for due to no documentation.

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Contact Details

Vivian Jia Ni Chiong

South Tyneside and Sunderland NHS Foundation Trust

viviancjn1120@gmail.com

Are nebulized bronchodilators being prescribed with the correct driving gas?

Abstract

Background

Nebulized bronchodilators are used for a variety of conditions in the inpatient setting, such as chronic obstructive pulmonary disease (COPD), asthma, bronchiectasis and hyperkalaemia [1]. The British Thoracic Society (BTS) guideline for the use of oxygen in emergency and healthcare settings outlines the correct driving gas which should be used to drive nebulized bronchodilators, depending on whether the patient has asthma, type 2 respiratory failure or other specific conditions. Choosing the incorrect driving gas may result in hypercapnic respiratory failure, inadequate control of symptoms and ultimately, deterioration of the patient [1,2]. To comply with this, MediTech V6 is built to make the prescriber specify the driving gas. This audit is designed to assess how well prescribing practice meets current recommendations.

Objectives

To assess what percentage of patients were prescribed nebulized bronchodilators using the correct driving gas, as per the BTS guidelines, between August 2020 and November 2020. The audit standards were as follows [1]:

- 100% of patients are prescribed the correct driving gas for their condition/history.
- 100% of patients requiring nebulized bronchodilators for asthma have them prescribed them via the INHOXY route.
- 100% of patients with current hypercapnic respiratory failure (T2RF) or risk factors for it are prescribed nebulized bronchodilators via the INHAIR route unless their current oxygen requirements are >6L nasal cannulae or >35% venturi mask.
- Additionally, if the driving gas was incorrect, to assess the percentage and degree of intervention from a pharmacist.

Methods

Patients admitted requiring nebulized bronchodilators between 01/08/2020 and 30/11/2020 were identified using our electronic prescribing system (MediTech). Each patient's medical record was checked, and prescription data recorded in an excel spreadsheet. More than one drug was usually prescribed, and these were considered separate prescriptions. If >2 nebules were prescribed, then we chose 2 as a random sample. Correctness of the prescriptions was determined using pre-defined criteria taken from the BTS guideline.

Results

266 patients were identified, with 411 prescriptions in total. Of these, 90/411 (22%) were incorrect. 4/90 (4.4%) of these incorrect prescriptions were queried by a pharmacist. 62/411 of the prescriptions were for patients that had asthma with target saturations of 94-98%. 41/62 (66%) of these prescriptions were prescribed using the correct driving gas, and there was no pharmacist intervention for incorrect prescriptions. 178/411 of the prescriptions were for patients with target saturations of 88-92% and of those prescriptions, 39 (22%) were incorrect. 4/39 (5%) of these prescriptions were queried by a pharmacist and corrected either by the medical team or a prescribing pharmacist.

Conclusion

Based on the results, prescribing practice is not reliably in line with BTS recommendations on prescribing nebulized bronchodilators in emergency and healthcare settings. A baseline assessment of knowledge, followed by targeted education for doctors, pharmacists and nurses could be considered to improve practice. In the future, once education is implemented, this can be re-audited and assessed to determine if prescribing practice has improved.

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Contact Details

Mohammed Ali

Sunderland Royal Hospital

mohammedali932@gmail.com

To assess whether venous thromboprophylaxis in Covid-19 patients is prescribed according to trust guidance on the acute medical unit (AMU) and Larch C (elderly care) wards.

Abstract

Background

Patients with Covid-19 are known to be at a higher risk of developing a venous thromboembolism (VTE) or a pulmonary embolism (PE) (1). The use of low molecular weight heparins (LMWH) is recommended (2). It was suspected that the trust guidance on thromboprophylaxis in covid-19 patients was not being followed.

Objectives

To assess whether 100% of VTE prophylaxis in covid-19 patients is prescribed according to trust guidelines on AMU and Larch C over 4 weeks.

Methods

The study was conducted on AMU and Larch C, by the author, as this is where the initial problem was seen, and data would be easily obtained. It was collected over a period of 4-weeks.

A data collection form was created, trialled and amended; these were stored in a locked drawer in the pharmacy office. Data collected was the bed number, hospital number, gender, age, weight (kg), estimated glomerular filtration rate (eGFR), creatinine, creatinine clearance (CrCl), VTE risk assessment completion, whether enoxaparin was prescribed and the dose. This data was then entered into a spreadsheet which was password protected allowing CrCl to be calculated, establishing if the dose was appropriate according to guidelines. This audit did not require ethical approval.

Results

A total of 29 patients were included. Data showed that 48% of patients were incorrectly prescribed VTE prophylaxis. Enoxaparin was an under dose in 21% of patients, 14% had been over-prescribed enoxaparin, 13% were not prescribed any prophylaxis.

Conclusions

The results reflect that the main issue on the wards are patients being under dosed on VTE prophylaxis.

The audit has highlighted areas of improvement that could be made for future work. It had been discussed in morning handovers with the doctors that this was an issue, and they were made aware of the guidance. Doctors and pharmacy staff were then emailed the guidance alerting them to the specificity of this, it was also displayed in the doctors' offices making it accessible. The email also alerted pharmacy staff of the issue and to note this when reviewing and conducting a medicines reconciliation for such patients.

The main limitation found when collecting the data was recording the patients' weight which is required for the CrCl, this should be done on admission, however was not, therefore data was discounted and only data for 29 patients out of 62 was used. It was discussed with ward managers in the nursing daily huddle that weight was not being gained on admission, hence this was an area that nursing staff were aiming to improve.

Another limitation was the reducing number of patients with covid-19 over the 4 weeks, this was a determining factor of the length of the study, also making it difficult to re-audit. This therefore means that improvements could be made in implementing the covid guidance within the current VTE prophylaxis guidance for non-covid patients, as the numbers decrease, a separate guidance may not be required.

Contact Details

Kulsum Zara Pervaz

North Cumbria Integrated Care - Cumberland Infirmary

zpervaz@hotmail.co.uk

Improving direct-oral-anticoagulant (DOAC) monitoring in a GP surgery during the COVID-19 pandemic

Abstract

Background:

DOAC monitoring should be carried out regularly within time frames determined by certain patient factors. The GP surgery uses NECS monitoring recommendations [1] which include routine monitoring advice alongside dosing in renal impairment. The main factors considered are age, weight and renal function plus in-range FBC and LFTs. These guidelines are based on the summary of product characteristics (SPC) of the drugs [2][3][4][5].

Due to COVID-19, DOAC monitoring was put on hold where possible to prevent unnecessary entry to the surgery to limit spread. This may impact patient safety in relation to dosing (e.g. increased bleeding or clot risk). During this time DOAC monitoring was carried out opportunistically rather than within a scheduled time.

Objectives:
Implement a strategy to ensure regular DOAC monitoring, defined as being no more than two weeks overdue
Methods:
Clinical searches were produced within SystmOne to identify patients who were overdue monitoring. Three searches were used for patients requiring 3, 6 and 12-monthly monitoring and were ran on 26 January 2021. The searches identified patients with a DOAC issued within the last 12 months without documentation of creatinine clearance within the above time-frames. Up-to-date blood tests (FBC, U+Es, LFTs) and weight were requested. Results were examined in regards to clinical appropriateness of the DOAC and dose.
Recalls were set to ensure ongoing monitoring. An automatic report of search results was set to alert the practice pharmacist via a two-weekly task. A 30-minute slot was created within the appointment ledger for said pharmacist to arrange and examine bloods on a two-weekly basis.
Ethics approval was not required.
Results:
Of 155 patients prescribed a DOAC, 40% were overdue monitoring, 3-monthly, 6-monthly and 12-monthly monitoring making up 4%, 24% and 12% of this total, respectively. 36% of patients were between 0 and 3 months overdue, 48% of patients were between 3 and 6 months overdue and 16% of patients were >6 months overdue. One patient required DOAC to DOAC switching and 3 patients required dose reduction due to renal impairment, all being at least one month overdue for monitoring.
Since putting in place the automatic search and time block for monitoring there have been no patients more than 2 weeks overdue, therefore, meeting the objective. However, this will need to continue to be looked at moving forward as it is still a new process.
Conclusions:
Although this process is in the early stages it has definitely had a positive impact on DOAC monitoring within the GP surgery. Scheduled time within the workload appears to be most effective. Further re-auditing will be needed to ensure the system remains efficient and meets the objective. Additionally, this audit was carried out in a time when GP surgeries are under more pressure due to the pandemic and it may be that in the future this strategy is no longer needed when workload reduces. Further improvements could also look into developing a similar process for monitoring of other drugs.

Contact Details
Emily Paige Reeves
CDDFT
reevespaige123@gmail.com

Audit for Vancomycin Prescribing and Administration Habits in Clostridium Difficile (C. difficile) Infection

Abstract
Background: C. difficile are gram-positive spore-forming anaerobic bacteria. Despite being a human microbiome species, their outgrowth could induce pseudomembranous colitis, via toxins production [1-3]. C. difficile can cause complications such as dehydration, toxic megacolon, and colon perforation [1-4]. According to the trust guideline, non-complicating C. difficile infection (CDI) is managed by stopping antibiotics, laxatives, or proton pump inhibitors (PPI), if possible, along with giving oral vancomycin 125mg four times daily for 10 days in suspected patients while waiting for microbiological confirmation. Public Health England recommendations allow 14 days of vancomycin therapy [1-6].
Objectives: This audit evaluates two aims:
I. Prescribing vancomycin for C. difficile follows the trust guideline:
a) 100% of suspected patients had Glutamate Dehydrogenase (GDH) or culture test.
b) 100% of GDH/culture-positive patients had faecal C. difficile toxins test.
c) 100% of suspected patients had vancomycin therapy stopped after a negative faecal C. difficile toxins test.
d) 100% of toxins-positive patients were prescribed oral vancomycin for 10 days.
II. Administration of vancomycin for C. difficile follows the trust guideline:
a) 100% of toxins-positive patients were administered oral vancomycin for 10 days.
b) 100% of toxins-positive patients had no missed doses.
Methods: Data on Meditech Electronic Medical Records (EMRs) from 01/04/2020 to 31/10/2020 was screened retrospectively in November 2020, to identify patients who received vancomycin for C. difficile. Identified patients'

profiles were analysed to evaluate the outcomes, under each of the two audit aims. No ethics approval was required for this audit.
Results: All 54 C. difficile suspected patients had either GDH or culture test (100%). 48 out of 51 positive GDH/culture patients had faecal C. difficile toxins test (94.4%). 14 out of 48 faecal C. difficile toxins tests were negative, while the remaining 34 tests were positive. Vancomycin was stopped in three toxins-negative patients (21%). It was prescribed and administered for 10 days in 15 toxins-positive patients (44%). The remaining toxins-positive patients were prescribed or administered vancomycin for other durations.19 toxins-positive patients (56%) did not miss any vancomycin dose. The main reason for missing therapy was the unavailability of vancomycin at the time of administration.

Conclusion: 57.5% of C. difficile cases comply with the trust guideline. This conclusion was limited by the absence of some patients' data, which reduced the concluded compliance. Guideline compliance can be potentially improved via:

- Automatic faecal C. difficile toxins testing if either GDH/culture test result is positive.
- Renaming tests used in C. difficile diagnosis on Meditech.
- Stocking oral vancomycin on the wards at the highest risk of C. difficile.
- Updating the trust C. difficile guideline to allow GDH/culture-positive but toxins-negative patients access to vancomycin, in liaison with microbiology teams, if other diagnoses except C. difficile infection are exhausted [7,8].
- Updating the trust C. difficile guideline to allow usage of 10 to 14 days of vancomycin [6].

Contact Details
Mohamed Ahmed Elarabi
South Tyneside and Sunderland NHS Foundation Trust
mohamed.elarabi@nhs.net

An Audit of the Appropriate Prescribing of Bisphosphonates

Abstract

Background

Bisphosphonates treat osteoporosis and reduce fracture risk in patients with low bone density or previous fracture. Osteoporosis often occurs in men over 50 years old, postmenopausal women and in patients with long-term glucocorticoid use [1]. NICE national guidelines and the Medicines and Healthcare products Regulatory Agency (MHRA) advise bisphosphonate treatment should be reviewed periodically. Long-term therapy should be reviewed, and treatment breaks taken to minimise safety risk to patients.

Fracture risk assessments should be performed regularly. The fracture risk assessment tool (FRAX) and dual energy x-ray absorptiometry (DEXA) scans are used to estimate bone mineral density and 10-year fracture risk. Patients should have renal function, vitamin D and calcium levels checked before treatment initiation for safe and effective bisphosphonate treatment. Without recommended monitoring and reviews, bisphosphonates can be inappropriately prescribed and continued in patients. This can lead to complications including atypical fractures [2].

Aims

This audit aimed to ensure bisphosphonates are prescribed in accordance with guidance. Therefore, patients should have fracture risk assessments to confirm clinical need for bisphosphonates.

- Standard 1: 100% of patients have had either a FRAX or DEXA scan prior to starting bisphosphonate treatment or have been reviewed within the appropriate time as per NICE guidance.
- Standard 2: 100% of patients had the recommended pre-treatment checks before being prescribed a bisphosphonate.
- Standard 3: 100% of bisphosphonates are prescribed appropriately according to national and local guidelines.

Method

Ethics approval was not required because this audit was conducted retrospectively. Data was collected for 38 patients between a 6-week period from October – December 2020. All patients identified were above 50 years old, admitted to general medicine, elderly or orthopaedics wards. A data collection tool was used to gather relevant information about each patient using their medical records available via Meditech. The data recorded included fracture risk assessment, pre-treatment checks, previous fracture and estimated glomerular filtration rate (eGFR).

Results

Of the 38 patients identified, 6 had bisphosphonates initiated on admission and 32 were already taking them. The findings revealed that bisphosphonates were prescribed appropriately for 18 patients (47%) and inappropriately for 20 patients (53%). Bisphosphonates were initiated and prescribed appropriately by the trust for the 6 patients and met all 3 standards. The main reasons for inappropriate prescribing involved fracture risk assessment. 40% of patients had not received a FRAX or DEXA scan while 20% of patients had not been reviewed or had a repeat scan. These findings may be due to miscommunication between primary and secondary care when prescribing bisphosphonates as 5 patients (25%) did not meet standard 2. Other reasons for inappropriate prescribing accounted for 15% of patients.

Conclusion

The prescribing of bisphosphonates in osteoporosis patients was mostly below the required standards, the main factor being a lack of fracture risk assessment. Overall, osteoporosis patients admitted to hospital do not appear to have the regular reviews of their bisphosphonate treatment as recommended by national guidelines. A review of trust guidance could benefit patients both in primary and secondary care settings.

Contact Details
Chloe Ingamells
South Tyneside and Sunderland NHS Foundation Trust
Chloeingamells@gmail.com

An Investigation to Measure the Frequency of the Occurrence of Interactions between Enzalutamide and Abiraterone with Other Medications.

Abstract

Background

This paper studies the interactions found in patients commencing Enzalutamide (ENZ) or Abiraterone (ABI) for metastatic prostate cancer. These medicines are both substrates of, and inhibitors/inducers of, many cytochrome p450 enzymes, leading to numerous interactions with other medications. The cohort of patients treated with these drugs is often elderly, with co-morbidities leading to polypharmacy[1] . At this trust, drug histories for patients on ENZ or ABI are carried out by oncology nurses. However, on occasion interactions between these drugs and other medications are unnoticed and significant interactions leading to incident reports have been recorded as a result.

Aims & Objectives

Aim: An investigation to measure the co-prescription of Enzalutamide and Abiraterone with other interacting medications.

Objectives:

- To record the number of interactions found between ENZ/ABI with other medications.
- To record the severity of any interactions found.
- To investigate whether any action was taken to prevent/resolve interactions.

The standard expected is for 100% of interactions between ENZ/ABI with other medications to be queried and actioned where appropriate.

Methods

Retrospective review of electronic nurse records was undertaken to obtain a list of regular home medications for patients starting treatment within a 6 month period using the trust electronic prescribing system. These medications were entered into the Cancer Drug Interaction Checker against the relevant chemotherapy drug[2]. Any interactions were recorded along with the severity and the recommended adjustment. Clinical documentation was used to investigate if any amendments were made where an interaction was found. The data collected was from between 1/4/2020 – 31/10/2020. This audit did not require ethical approval.

Results & Discussion

Of the 50 patients in this audit, 11 were found to have no interactions between their chemotherapy and regular medications, yet on only 4 occasions was a patient flagged to the pharmacist on suspicion of a drug interaction.

For ENZ, 93 interactions (64 severe) were found with 29 different medications. 30 patients were prescribed at least one medication with a severe interaction. For ABI, 5 interactions were found, none of which were graded as severe. The difference in number of interactions between ABI and ENZ can be attributed to the smaller number of patients on ABI (7) compared to ENZ (43) but there is also a smaller number of documented potential interactions with ABI (375)[3] vs ENZ (566 drugs)[4].

It was also found that documentation of medication histories is an area that requires improvement. Spelling errors, omissions and a lack of specificity all contributed to unreliability of the medication history in nursing notes and may have impacted the results found in this audit.

Conclusion

Further improvements to the medication history process are necessary. This would improve patient safety and patient-centred care throughout treatment. A consideration could be to have more pharmacist-focused involvement when conducting and documenting medication histories. Pharmacists are more thoroughly trained on how to conduct an in-depth medication history as well as having the expertise to take action where required. This increases the likelihood of significant interactions being identified, reducing harm to patients.

Contact Details
Sana Hatahet
South Tyneside & Sunderland NHS Foundation Trust
sanahatahet@gmail.com

A retrospective analysis of Structured Medication Reviews within primary care to assess the quality of information contained within discharge summaries

Abstract

Background: In October 2020 the Structured Medication Review (SMR) and Medication Optimisation Service came into effect for primary care networks. This established key patient cohorts who would benefit from an SMR. These include patients in care homes, with polypharmacy (10 or more medicines), taking medications associated with errors, patients with severe frailty, and those taking addictive pain medicines[1]. Key requirements of an SMR include personalisation, shared decision-making, assessing risk of harm and clinical effectiveness of medicines. Transitions of care between the hospital and primary care setting is a known area of medication risk and intervention at this point can reduce medicines-related harm[2,3]. In hospital, clinical reviews of medicines akin to the SMR requirements are often undertaken by clinicians including pharmacists. If all medication review activity started during the inpatient stay was communicated to general practice, this could be incorporated into an SMR to avoid duplication and enable seamless care.

Objectives: The objective of this project was to establish which of the possible SMR requirements carried out within an inpatient setting were clearly communicated to primary care within standard discharge communications.

Methods: A search was performed on a single general medical practice clinical IT system to identify patients who were discharged from hospital and then received a subsequent SMR by a clinical pharmacist within 6 months. This search was carried out on 02/12/2020. A proforma was created and tested to capture all the components of an SMR. The researcher then screened each discharge summary for compliance and communication of these SMR components. The project was discussed with the Trust research lead and ethical approval was not required.

Results: 16 patients were identified by the clinical search from four NHS Trusts. None of the discharge summaries indicated that a medication review had been carried out during the inpatient stay. However, of the 16 patients, 11 had received medication changes during admission. No discharge summaries stated whether any changes to medicines had been discussed with the patient.

Conclusions: This study demonstrates that despite medication review and changes to medication occurring in hospital, there is insufficient communication within the discharge summary and/or accompanying letters to inform which components of an SMR had already been carried out. Despite the limitation of a small sample size within this study, the results included patients discharged from a number of Trusts with similar outcomes. This highlights the need for a system wide approach to improving communication of medication review activity across care sectors to support a seamless and coordinated approach to medication review.

Contact Details
Rachel Ashurst
Northumbria Healthcare Foundation Trust
rashurst14@gmail.com

Has there been improvement in insulin prescribing since switching to electronic prescribing?

Abstract

Background

Insulin is a critical medicine; incorrect prescribing, administration and inappropriately missed dose have an adverse effect on patient's health(1). Two audits were carried out in the trust one which identified insulin as one of the most missed critical medicines and the other showed a high number of errors with insulin prescribing on paper charts. Since these audits were carried out insulin has moved to electronic prescribing. A National Diabetes Inpatient Audit (NaDIA) in 2017 showed significant reduction in errors in trusts using electronic prescribing and electronic patient records for insulin(2).

Aims and Objectives

The aim of this audit is to determine effect electronic prescribing has on insulin prescribing. The collected data would be analysed against the following standards:

- 100% patient had the correct insulin and device prescribed
- 100% of insulin prescription time was correct
- 0% of insulin doses are missed
- 100% of insulin doses were administered at the right time

Methods

A retrospective audit of patients on insulin was carried out within the hospital for a period of two weeks. Data launchpad was used to obtain record of all in-patients on insulin. Inpatient electronic record on Meditech was used to record insulin type, device, administration time, if any doses were missed and reason for missed dose. The audit did not require ethical approval.

Results

105 patients were included in this audit. 94% and 86% out of 72 patients that were on insulin prior to admission were correctly prescribed the right insulin and device respectively. 88% of insulin prescription time was correct. There were 203 doses missed (out of 1196 prescribed insulin doses), with 59.6 % due to self-administration, 12.3% due to Dr's decision, 8.4% due to Nurse's decision, 6.9% due to patient refusal and 12.8% due to other reasons. The audit showed that 59.6% of the recorded missed doses have not actually been missed as the patient would have received the insulin as they were self-administered only 40.4% were true missed doses. 70% of insulin doses were administered at the right time, that is within one hour of insulin being due.

Conclusion

This audit shows significant improvement in insulin prescribing since switching to electronic prescribing compared to 2017 audit which identified an overall 75% errors, this audit identified 33% errors. Implementation of electronic prescribing has eliminated some of the errors identified in the previous audit. Errors identified in this audit were due to incorrect insulin type, device and prescribing time and this can be improved by education of prescribers. Another significant finding was nearly 30% of insulin is being given at incorrect time; this can be improved by further education of nursing staff. Missed doses due to self-administration can be improved by including a self-administration code so that this is not entered incorrectly. A limitation comparing this audit to the previous insulin prescribing audit in 2017 prior to the switch to electronic prescribing was that it was a small scale and full audit report is not available.

Contact Details

Idayat Abosede Bamidele
Sunderland Royal Hospital
idayat_azeez@yahoo.co.uk

Audit of Tazocin antibiotic prescribing at an acute hospital in a large NHS Foundation Trust

Abstract

Background – Inappropriate use of broad-spectrum antibiotics is associated with increasing rates of antimicrobial resistance. Between 2015-2019 there was a 32% increase in antibiotic resistant bacteraemias.[1] Rates of Piperacillin/Tazobactam (Tazocin) prescribing have been increasing since an international shortage lead to a reduction in use in 2017.[1] A review of the literature found that the use of Tazocin has been evaluated in several studies[2-6] and the appropriateness rate of Tazocin prescribing ranged from 57-90%.

Objectives – Assess appropriateness of Tazocin use within the Trust, taking into consideration prescribing against approved indications, antibiotic review at 48-72 hours, course length, and de-escalation.

Method – At an acute hospital, patients admitted to the acute medical unit (AMU) between 25/10/2020 and 30/10/2020 and prescribed Tazocin were identified using the electronic prescribing system, iSoft. Data was gathered using iSoft, Nervecentre, and the patients paper notes. Using the Trust's antimicrobial guide, Tazocin prescribing was deemed appropriate if there was clear documented evidence of infection/sepsis, it was prescribed for an approved indication, and there was a documented review after 48 hours with a clear plan. Ethics approval was not needed.
Results – A total of 15 patients were prescribed Tazocin on AMU during the 6 day period. 80% were prescribed Tazocin for an approved indication (urosepsis 20%, sepsis – unknown origin 53.3%, microbiology recommended 6.6%). The remaining 20% were all prescribed Tazocin for lower respiratory tract infection (LRTI). Within 24 hours a further 13.3% of patients were identified as having LRTI but a more appropriate antibiotic choice was not considered. In total 33.3% received Tazocin for LRTI (CAP 60%, IECOPD 20%, COVID-19 20%). All patients were reviewed within 48-72 hours. 40% of patients had input from microbiology, which resulted in a more appropriate antibiotic choice. Average course length for approved indications was 9 doses compared to an average course length of 15.2 doses for patients with LRTI.
Conclusions – Appropriateness of Tazocin prescribing was broadly in line with evaluations found in literature. Most inappropriate prescribing was due to initial choice of antibiotic – particularly for community acquired pneumonia (CAP), this has also been noted in literature.[6,7] Evidence suggests that the use of broad-spectrum antibiotics in CAP is associated with poorer outcomes,[8] and the use of narrow-spectrum antibiotics should be promoted.[9] Increased awareness of Trust antimicrobial guidelines for LRTI/CAP is needed to improve appropriateness of Tazocin prescribing – this could be done through the use of 'Did You Know' posters placed in the AMU doctors office. There is also a need for increased awareness of the Trust's COVID-19 antimicrobial stewardship policy which recommends against using C-reactive protein (CRP) as a marker for bacterial infection as this has been found to be significantly raised in COVID-19. There are a number of limitations – the small sample size and short time frame mean results may not be representative. Antimicrobial stewardship will also have been affected by the COVID-19 pandemic. Time constraints did not allow for recommendations to be implemented – this would be useful future work.

Contact Details
Grace Beaumont
County Durham and Darlington Foundation Trust
Grace.Beaumont@nhs.net

An audit of incident investigation within the Pharmacy Department.

Abstract
Introduction
Datix is the software used to report incidents and near misses at a large hospital in Newcastle. In February 2020 new pharmacy specific guidance was written, expressing that incidents should be closed within four weeks of being reported1. In January 2020, a member of staff was appointed as a medication safety specialist technician.
Prior to this, there was clinical governance and risk department (CGARD) guidance and a trust expectation of incidents being closed within this time, but no pharmacy-specific guidance. The guidance outlines a new step by step timescale and who is involved in each of these. With an understanding this may not always be possible1.
Aim:
To improve patient safety by auditing whether the standard of closing Datix reports within 4 weeks of being reported is currently being achieved.
Methods
Datix's were analysed over two six month periods, pre-guidance; August 2019 – January 2020, then post guidance, August 2020 – January 2021. The data was extracted from the Datix application, into an Excel spreadsheet. Each incident was manually highlighted if it met the standard. The data was also looked at in an 8 week timescale, by category and by location. Access to Datix was required but ethical approval was not.
Results
The results of this showed that between August 2019 and January 2020 2% of incidents were closed within 4 weeks of being reported and 14% in 8 weeks. Between August 2020 and January 2021 19% were within 4 weeks and 39% within 8 weeks.
Looking at after the guidance was in place, medication was the most common category compromising 77% of the incidents, and 18% of these were closed within 4 weeks. Of the incidents that are closed within the correct timings,

the most common locations were jointly inpatient dispensaries and the pharmacy production unit. However, there was not a significant difference between locations.

Discussion

These results show, there has been a significant improvement in the time of the incidents being closed in the most recent 6 month period. This is important as other studies have shown that closing incidents quickly, helps when learning about and implementing improvements that improve patient safety2,3. The data does not suggest that location or category affects timings. This increase could be from an amalgamation of the new guidance, the appointment of a specialist technician and specifics of the guidance like the specific time frames, putting onus on different people at different times.

Whilst there is an improvement in the time frame, there are still some developments that may increase this. As nearly double the incidents are being closed within 8 weeks rather than 4, it may be suggested that in some incidents there is not a major investigative hold up. A reminder at 21 days, may help. Finally, if there is a major hold up, a note function to update other colleagues may be helpful.

Conclusion

It is clear to see there is an improvement in incident reporting time. It may be of use to reaudit this, after suggestions of improvement are implemented.

Contact Details

Eve Collinson

Newcastle Upon Tyne Hospitals NHS Foundation Trust

eve.collinson@hotmail.com

Assessing adherence to antibiotic prophylaxis prescribing in elective colorectal surgeries

Abstract

Background- Invasive surgery often necessitates the use of antibiotic prophylaxis, to prevent surgical site infections, and post-operative complications(1,2). Internal trust guidance has been written, to work alongside Commissioning for Quality and Innovation (CQUIN) guidance(3) and National Institute for Health and Care Excellence (NICE) recommendations(4). These provide clear, evidence-based choices for antibiotics in colorectal surgery, and are continually reviewed. This is key to counter the increasing prevalence of antibiotic resistance(5), and to improve patient outcomes.

In 2019 an audit was completed within the trust, looking at prescribing of prophylactic antibiotics within colorectal surgery, and whether it complied with the CQUIN guidance(6). Overall, the adherence was good (87%). The opportunity arose to complete the audit cycle and re-audit for two main reasons: a recent change in gentamicin dosing guidelines, and to comply with CQUIN recommendations, around colorectal surgery.

Objectives- The aim of the audit is to assess whether antibiotic prescribing in colorectal surgery complies with the guidance. This will be achieved by retrospectively analysing data over a 3-month period, and assessing whether the data complies with the three relevant trust guidelines. In particular, this will be looking at choice of antibiotic, necessity of redosing, and recommended doses. (7,8,9)

Method- All patient procedures are coded, and the data analysed in this audit was collected from those coded for colorectal procedures undertaken between 1st July and 29th September 2020. The specific patient details were accessed via the trust's electronic prescribing system (eRecord). The information collected were the patient's age and weight, and specifics around the procedure. This included length of surgery, and antibiotic choices, timings, and doses. This was then compared with the guidelines, to assess compliance.

Results- Of the 138 colorectal surgeries coded, 107 fit the criteria for the audit.

Of the 107 assessed, 72% (N=77) used the correct antibiotics. Of these 77, 69% (N=53) were completely correct, and followed the guidance- under 50% of the surgeries assessed as a whole. For those that picked the correct antibiotics, some had additional concerns, as indicated in the table below:

	Gentamicin		Redosing	
	Dose too high	Dose too low	Indicated but not prescribed	Prescribed but not indicated
Number (N)	15	3	4	1
Percentage (N/correct antibiotic choice)	19.4%	3.9%	5.2%	1.3%

Of the procedure assessed 13% (N=14) did not use antibiotics at all. The majority of these were examinations under anaesthetic (N=10) although there were several (N=3) that had no clear reason for non-use of antibiotics. In

addition to this, 15% (N=16) used the incorrect antibiotics- either incorrect for the patient's age (N=10) or non-guideline (N=6).
Conclusion- Of the surgeries investigated, only around 50% followed the guidelines, a significant decrease when compared to the audit completed the year before. Either this indicates a lack of awareness around the correct choices, timings and doses of antibiotics, or a lack of importance placed on keeping to these recommendations. A large factor could be the switch in Gentamicin dosing, as 18 patients were dosed incorrectly, this represents a large proportion of the results. Although there is clear guidance, there is likely familiarity with the use of mg/kg in dosing, and this may affect the compliance. Therefore, an improvement could be to make it more easily accessible, or offer teaching on the current recommendations.
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Contact Details
Sophie Barker
Newcastle Upon Tyne Hospitals NHS Foundation Trust
SophieJHB@hotmail.com

An Audit Assessing Choice and Timing of Antibiotic Prophylaxis Against Local Hospitals Guidelines in Spinal Surgery

Abstract
All patients undergoing neurosurgical and spinal (NS&S) procedures should receive a prophylactic dose of an antibiotic as per the hospital guideline, to prevent post-operative neurosurgical infections. Surgical site infections (SSIs) and deep central nervous system infections are common examples of these infections, the incidence of which can range from 0.15% and 10.0%, and are associated with serious morbidity and mortality.
As per local hospital NS&S guidelines prophylactic antibiotic doses should be given ideally 30 minutes before knife to skin (KTS) but can be given up to 60 minutes before. A repeat dose should be given if the surgery lasts longer than 4 hours or if the patient loses more than 1500mL of blood during the surgery. Different antibiotics are indicated depending on the classification of the surgery; clean (both complicated and uncomplicated). It is subjective as to what is deemed complicated but it is regarded that complicated surgeries include: tumours, fixations to the pelvis and revision of previous NS&S surgery.
An audit was undertaken at a large hospital Trust in the North of England; 50 adult patients who had undergone NS&S surgery occurred between the dates 31/08/2020 and 16/10/2020. The intraoperative and anaesthetic records were examined for these patients to establish KTS time to the last stitch time, to determine the length of the surgery; which antibiotic was given and when it was given.
Of the 50 patient cases audited 98% received prophylaxis, of these the choice was correct in 82%, so overall complied with guidelines with choice.
Of the 50 surgeries, 22% (11) were longer than 4 hours, thus requiring a repeat dose. Of this 22%, ten percent (5) were given gentamicin and/or teicoplanin so did not require a repeat dose, and of the 12% (6) remaining that received cefuroxime, thus requiring a repeat dose, only 8% (4) were given this.
Of the 50 patients, 50% received the prophylactic dose less than 30 minutes before KTS, 6% received their dose after KTS; one patient received prophylaxis 71 minutes before KTS, resulting in 40% of patients receiving prophylaxis within guidelines.
Overall, 82% of patients were given the correct antibiotic for their surgery with a remaining 12% requiring further stratification by consultants and clarification as to the appropriateness of the antibiotic given, indicating that the correct antibiotic could have been given in up to 94% of surgeries.
In conclusion, the majority of patients received a prophylactic dose of an antibiotic in line with the Trust guideline, however, only 50% of those were given within the correct timeframe prior to the surgery. For the 12% which were unable to be categorised as appropriate or inappropriate, these are going to be reviewed in a multidisciplinary team (MDT) meeting. In addition, the audit highlighted that the guidelines themselves require additional guidance for clarity on when a procedure is deemed to be complicated; requiring an additional antibiotic for prophylaxis.
This audit will then be fed back to the NS&S teams working with the Infection Specialists to improve practice.

Contact Details
Thomas Hindmarch
Newcastle upon Tyne Hospitals Foundation NHS Trust
tomhindmarch@talktalk.net

Structured Medication Reviews in Primary Care

Abstract

Structured Medication Reviews in Primary Care

Abbreviations

SMR – Structured Medication Review

PCN – Primary Care Network

DES – Directed enhanced service

GP – General practice

Background

Structured Medication Reviews (SMRs) are a nationally commissioned clinical intervention for Primary Care Networks (PCNs), designed to comprehensively evaluate patients with problematic polypharmacy. [1] Supported by PCN pharmacists, they have the potential to improve patient care and clinical outcomes through pharmacological interventions. There were five initial prioritised patient cohorts included within the network contract directed enhanced service (DES) who would benefit from a SMR to reduce risk of medicines-related harm and PCNs were required to proactively identify patients without a baseline figure or target provided. [2] Although the expectation is for PCNs to review all identified patients, the number of SMRs which can be completed by PCN clinical pharmacists is limited by their available capacity. PCNs need to establish a process for SMR case loading to maximise the use of the pharmacist resource to carry out the intervention.

Objectives

1. To determine the clinical SNOMED codes available which could identify the SMR patient cohorts within a GP IT system.
2. Design clinical reporting searches which include above SNOMED codes/patient demographics to identify the specific cohort populations.
3. Estimate the number of structured medication reviews that can be performed within the available capacity of clinical pharmacists.

Methods

Using the SNOMED browsers, a selection of codes were identified which mapped to the five SMR cohorts. These codes were then inputted into EMIS the GP IT clinical system of a general medical practice to create searches to identify these cohorts based on retrospective clinical coding. The search was performed on 11/01/2021. The number of patients in each cohort were recorded as well as the numbers who were identified in more than one of the five prioritised cohorts.

A qualitative focus group discussion was held with the practice pharmacist team to establish an estimate of pharmacist resource required to undertake SMRs based on previous experience of the pharmacists. The project was discussed with the research leads at the Trust who advised that ethical approval was not needed.

Results

Of a total practice list size of 7936 patients, 1578 (19.9%) patients were within the five SMR cohorts. 252 patients were present within 2 of the cohorts, 57 in three cohorts,18 patients in 4 cohorts with 1 patient within all five SMR cohorts. Following the focus group discussion, an estimated 95 minutes on average was agreed as the time needed to complete all requirements of a SMR including preparation, consultation with patient, recording on clinical system, referrals and follow-up. This would equate to approximately 5 SMRs to be completed per working day or 950 per year - for a full time equivalent clinical pharmacist at 100% of capacity allocated to SMR completion.

Conclusion

These results show that a significant proportion of the practice population are required to receive a SMR under the new PCN DES. [3] This highlights the need for further refinement of the clinical searches and prioritisation of patients within multiple cohorts to make best use of the pharmacy resource. As PCN ambitions are to recruit further pharmacy professionals, this project gives useful scope to the systematic process needed to incorporate patient prioritisation into medication review.

Contact Details

Keavney Darby

Northumbria Healthcare NHS Trust

keavney.darby@northumbria-healthcare.nhs.uk

Assessing pharmacists' opinions on improving guidance for IV-to-oral antibiotic switches (IVOS)

Abstract

Background and Objectives:

Delaying IV-to-oral antibiotic switches (IVOS) can result in less favourable outcomes for a patient, including, increased risk of: cannula related infections, thrombophlebitis, developing antimicrobial resistance, and often longer durations of stay in hospital. IVOS are also advantageous with respect to cost reduction; both in terms of the medication itself, as well as a reduction in hidden costs (e.g. equipment for administration and nursing time) (1-2). Internal engagement with staff identified unknown barriers associated with pharmacists' involvement in IVOS. Hence, the aim of this project was to assess the awareness of the current IVOS guideline, and to collate pharmacists' opinions on the areas of improvement for this guide. One proposed improvement for this guideline is a RAG-rated system.

Methods:

A survey was sent to all pharmacists and pre-registration pharmacists within one hospital trust. The survey was comprised of 10 questions, with a 2-week data collection period. The survey focused on: identifying how many pharmacists currently use the IVOS guideline, how user-friendly the guideline is, and the preferred format of an IVOS guide. This study did not require ethical approval.

Results:

A total of 36 responses were collected. Thirteen respondents were unaware of the IVOS guideline. Eighteen respondents reported that they had never used the guideline. Of those respondents who had used this guide, no one 'disagreed' to this being user-friendly.

One of the main themes for suggested improvement was adding additional information on monitoring requirements. This was also suggested with regards to the possibility of incorporating monitoring requirements into an interactive guideline (i.e. being able to input CRP, WCC, NEWS and other information to get a 'red' or 'green' light on an oral antibiotic switch). Of the 36 respondents, 24 reported their preferred format for an IVOS guide would be a table (rather than a RAG-rated system or other suggestions).

Conclusions:

The results demonstrate that there is a need to increase awareness of the current antibiotic guidelines used within the trust, specifically regarding the IVOS guide. This could be implemented through teaching sessions. Overall, pharmacists appear satisfied with the current table format of this guide, hence, a RAG-rated system may not be the direction for future improvement. These findings could be further discussed at the next trust antimicrobial steering group.

Further research should be carried out to determine other useful improvements, which would assist pharmacists initiating IVOS. Other investigations assessing the feasibility of suggested improvements, such as an interactive guide, would be beneficial.

Contact Details

Francesca Lawson

Northumbria Healthcare NHS Foundation Trust

francesca.lawson@northumbria-healthcare.nhs.uk

An investigation into patients' experience and medication management of their high output stoma

Abstract

Background:

A high output stoma has an output of over 1200ml for more than 24 hours [1]. This increases risk of dehydration as well as electrolyte depletion potentially resulting in hospital admissions and a poorer quality of life [2].

The main ways to reduce output are corticosteroids, fibre supplementation, anti-motility, and anti-secretory agents. Anti-motility agents are often the most common medications used e.g., loperamide and codeine [2].

Clinical guidelines have been proven to improve quality of care received by patients. However there is limited guidance on high output stoma management [3]. The Trust has a set of guidelines for high output management - the first line therapy being an anti-motility and an anti-secretory agent [1].

Objective:

To evaluate patients' medication management of their high output stoma with the Trusts guidelines over a 5-month period.

Methods:

17 structured interviews with inpatients were conducted in the Trust during February 2021, at which point data saturation was achieved and thematic analysis of open-ended questions were used. The primary data was compared with the existing guidelines. Due to the nature and method it was confirmed ethical approval was not required.

Results:

Patients' timescale with stomas ranged from two months to 13 years. On a 5-point Likert scale (1-strongly disagree-5-strongle agree) an average of 4.5 was the response for how they felt about managing their stoma. The vast majority were happy with the amount of information they received to manage their stoma (82%). Reported patient understanding was 82% with one commenting "yes, it thickens my bowel movements". However, 23% of patients did not understand the roles of all their medications in relation to their stoma output as evidenced by a later question. 70% of patients took loperamide which is in line with the first step in the trust's guidelines (50% oro-disperable form). One-third of patients took lansoprazole which is also the first step on the guidelines. However, an additional four patients took omeprazole as their anti-secretory agent. 53% of patients took codeine-the second step of the guideline, with varying frequencies: BD (2), TDS (1) and QDS (6). Six patients fully complied with the guidelines with a frequency of QDS. 12% of patients took additional medications outside the guidelines in relation to their stoma output. Patients (59%) regulate their stoma output by increasing doses or frequency of medication they already take. Respondents commented they had no dietary concerns however three patients were on fluid restrictions.

Conclusions:

Only 18% of patients were fully compliant with the guidelines. The majority were taking the correct drugs but were not following the frequency and dosing of the guideline. Possible implications to raise awareness with health care professionals (HCP) of the guidelines is needed.

It is likely the high rate of noncompliance is due to lack of awareness by HCP and patients this would need to be verified in a further study. Furthermore, the sample size was small so results drawn may not be representative.

Contact Details

Sarah Coates

The Newcastle Upon Tyne Hospital Trust

sarah.coates16@nhs.net

Anti-emetic prescribing in paediatric bone marrow transplantation

Abstract

Background

Primary immunodeficiencies (PID) are a group of many disorders often diagnosed during childhood in which genetic mutations may result in a defective immune system. Incidence in the UK is estimated to be at least 5.9 per 100,000.1 Bone marrow transplantation (BMT) can offer a permanent cure; only 2 hospitals in England currently offer BMT for paediatric PID patients. Prior to transplant, patients undergo conditioning with cytotoxic drugs to aid engraftment of donor cells and prevent graft-vs-host disease. Conditioning often causes nausea and vomiting which can impair quality of life, so control using antiemetic drugs is important.

The project is based at a BMT ward within a tertiary-referral paediatric hospital. The aim is to ensure optimum prescribing of anti-emetics in children undergoing BMT. Current anti-emetic prescribing practice will be compared to standard protocol as per the British National Formulary for Children (BNFC)3. The order in which anti-emetics are prescribed and differences between conditioning regimes will also be reviewed.

Method

Paediatric patients undergoing BMT between November 2019 and November 2020 were identified. ERecord, the electronic prescribing system in the trust, was used to view the anti-emetic medicines each patient had been prescribed and administered for a 23 day period from the start of conditioning (day -8) until two weeks post-transplant (day +14). Ondansetron, cyclizine, hyoscine, levomepromazine and lorazepam were reviewed. The day prescribed, dose and frequency were recorded for each patient in a database in Microsoft Excel; these were compared to doses recommended by the BNFC3.

Results

24 patients were used; median patient age was 33 months and interquartile range 8-108 months. Patients received one of three different conditioning regimes. Ondansetron was always prescribed first on D-8 or D-7. Dosing was inconsistent; 25% were given a lower dose than expected and 16% were given a higher dose than expected. All patients were dosed 8-hourly rather than 12-hourly as recommended by the BNFC. Cyclizine was given to 91% of

patients and was prescribed second-line in 86% of these (median day started= -3.5), followed by hyoscine (median day started= –2) and/or levomepromazine (median day started= 0). 20% of patients were started on a dose of cyclizine lower than maximum (50% of these were later increased to the maximum dose). BNFC doses were always followed for prescribing of hyoscine and lorazepam (only 8% patients were prescribed lorazepam). Levomepromazine dosing was inconsistent; patients were started on different doses and frequencies and 12% of those prescribed it were prescribed lower than the minimum recommended dose. Patients conditioned with alemtuzumab/treosulfan/fludarabine were prescribed fewer anti-emetics and each anti-emetic was prescribed significantly later compared to the other conditioning regimes, suggesting lower levels of nausea and vomiting with this regimen.

Conclusions

The data highlighted trends that could be used to improve patient outcomes, but the sample size was too small to test statistical significance of these. Further work to undertake would be to suggest a prescribing protocol to ward staff based on the trends seen and to re-audit at a later date with a larger patient sample.

Contact Details
Hannah Paterson
Newcastle Hospitals NHS foundation trust
hannah-paterson@live.com

Understanding the Prevalence and Management of Anthracycline Induced Heart Failure in Haematology Patients

Abstract

Background

Anthracyclines are cardiotoxic anticancer agents, the use of which may result in heart failure (HF). The European Society of Cardiology (ESC) recommends that patients' left ventricular ejection fraction (LVEF) should be assessed before receiving anthracycline-based chemotherapy, and again after a year of completing any chemotherapy containing 300mg/m2 of doxorubicin or an equivalent dose of another anthracycline(1).

The percentage of patients developing HF post anthracycline chemotherapy is as yet undetermined in a single trust and current practice of monitoring patients receiving anthracyclines for haematological malignancies has not been quantified.

Objective

This audit aimed to understand the current practice with adult haematology patients receiving anthracyclines and determine the proportion who subsequently develop HF. As there is no defined hospital guideline to audit against, the ESC guidance was used.

The data will be used to assess the need for a haematology-cardiology service, whereby, joint care can take place if required.

Methodology

The hospital's electronic prescribing system was used to compile a list of adult haematology patients who started and completed anthracycline-based chemotherapy between January 2017 and December 2019. Patients' records were used to determine demographics, details of anthracycline received, history of cardiac diseases or risk factors for cardiac diseases (hypertension, hyperlipidaemia and diabetes), echocardiogram results, and if patients developed HF. Mean and standard deviation were used to describe continuous data, whilst numbers and percentages were used to describe categorical data.

The hospital's research and audit committee reviewed the project. Ethical approval was not required.

Results

Of 124 haematology patients who received anthracycline-based chemotherapy between January 2017 and December 2019, 87 fitted the audit inclusion criteria, most of whom were males (57.5%). The average time from patients completing chemotherapy to be reviewed in this audit was 24.9 months (range 12-45 months). The majority of patients (85.1%) did not have a prior history of cardiac disease. Approximately 48% of patients had at least one risk factor (diabetes, hypertension, or hyperlipidaemia). The anthracycline received by all patients was doxorubicin, with the total dose ranging from 25-300mg/m2. Most patients (92%) received a pre-treatment echocardiogram to assess baseline LVEF. However, only 37.9% of the patients received a post-treatment echocardiogram. The average time taken for a patient to receive an echocardiogram post-treatment was 9 months (range 1-14 months). Forty patients received a total doxorubicin dose of 300mg/m2, out of which only 15 (37.5%)

received a post-treatment echocardiogram within a year of completing chemotherapy. Two patients developed post-treatment HF and both had received a total of 300mg/m2 doxorubicin.
Conclusion
Since the number of patients who developed HF is low, the data is insufficient to support a combined haematology-cardiology service. The rate of post-anthracycline echocardiography could be improved at 1-year. All patients should receive a pre-anthracycline echocardiography and this could be improved as well.
Limitations of this audit include: length of available follow up as longer follow up may identify further anthracycline-induced HF and there may be a higher rate of chemotherapy induced HF if non-haematological malignancy diagnoses and other cardiotoxic chemotherapy agents were included.

Contact Details
Mohammed Altaee
South Tyneside and Sunderland NHSFT
mohammadeltaee@hotmail.co.uk

Investigating compliance with administrating anti-emetics and pain management via their prescribed route

Abstract
Background The correct management and administration of medications by healthcare professionals is vital to help reduce drug errors and patient harm.(1) Administrating medicines correctly includes ensuring the correct route is chosen; this is also highlighted in the Trust's medicines use policy.(2) Literature investigating the compliance of healthcare professionals with administrating medicines via the prescribed route is limited, and current practices of prescribing and administrating medicines within the Trust need to be investigated.
Objectives To evaluate the current practice of prescribing and administrating intravenous (IV) and oral paracetamol, cyclizine and ondansetron to patients at a large teaching hospital in the North East of England during a defined time period.
Methods Patients admitted on wards 5 and 7 at the large teaching hospital between 26/10/2020 and 08/11/2020 were identified using the Trust's electronic prescribing system (eRecord). The number of oral and IV paracetamol, cyclizine and ondansetron doses administered were counted for each patient, and the number of discrepancies between the route prescribed and the route the medication was administered by were recorded on an Excel spreadsheet.
Two surveys investigating how doctors and nurses would respond when faced with scenarios regarding IV to oral administration of medication were created on SurveyPlanet. The survey aimed at doctors included 3 scenarios surrounding prescribing issues, and doctors were required to give the single best answer from a range of choices. The survey created for nurses required the respondents to give the most appropriate action from a range of choices to 3 scenarios surrounding route of administration issues. The surveys were distributed to doctors and nurses working on wards 5 and 7, and results were analysed.
Results The number of instances in which paracetamol, ondansetron and cyclizine were given to patients were 1255, 132 and 132 respectively. In some instances, paracetamol (n =27, 2.15%) and cyclizine (n=3, 2.27%) were not administered via the prescribed route. 12 of the oral paracetamol doses administered via IV were annotated with 'may be given by IV route at the same dose IN RECOVERY ONLY'. All ondansetron doses were administered as prescribed. 6 doctors and 24 nurses responded to the survey. 100% of doctors were aware of the appropriate response to situations requiring a change of route on the prescription prior to administration. Conversely, 20.8% of nurses considered it appropriate to administer IV prescribed paracetamol, ondansetron and cyclizine orally without a change in prescription.
Conclusions Doctors were aware of the necessary measures to take to ensure pain medications and anti-emetics were prescribed appropriately. However, some nurses were unclear of the importance of administering medication via the prescribed route, and that IV recovery doses of paracetamol were solely for recovery and not to be given on the general wards. These findings provide scope for future work to include introducing teaching sessions and educating nurses to reinforce the importance of routes of drug administration, followed by a re-audit to see if compliance to the medicines policy has improved. This study did not require ethics approval.

Contact Details
Aisha Hussain
The Newcastle upon Tyne Hospitals NHS Foundation Trust
aisha.hussain33@nhs.net

Service Improvement

Can we achieve safe clinical practice via remote working?

Abstract

Introduction

The Covid-19 pandemic caused concerns over staff burnout and emotional distress whilst working on wards. Staff burnout is associated with medical errors and poor patient care(1). Interventions such as improving workplace infrastructure can help reduce this(2). Remote working rotas were produced for pharmacists and technicians alternating with the aim to reduce staff exposure to emotional distress on the wards, whilst maintaining a pharmacy presence. The aim of this project is to evaluate whether safe clinical practices was still achieved.

Methodology

Preliminary interviews were conducted using purposive sampling of staff; the objective of the semi-structured conversation was to identify key areas of importance or concern. Inclusion criteria involved pharmacy technicians and pharmacists who must have taken part in remote working previously or had been working alone on wards without a colleague, due to remote working.

Using this feedback, a survey was produced and staff were approached using opportunity sampling. Data collection occurred over a 4-week period using Microsoft Teams, sharing paper copies and emailing all staff appropriate to the inclusion criteria. Questionnaires were answered either online or on paper depending on staff preference.

Weightings were assigned to each answer in the survey, to give a mean agreeable % to the statement; completely disagree = 0%, somewhat disagree = 25%, neutral = 50%, somewhat agree = 75%, completely agree = 100%. The mean agreeable % for each statement was calculated for both pharmacists and technicians, an average below 50% was regarded as overall disagreement with the statement.

Results

Workload increased more for the members of staff on the ward (95% average agreement for technicians, 80% for pharmacists) than when they were remotely (45% technicians, 42.5% pharmacists). Pharmacists were more confident attempting to resolve queries for the remote worker than technicians, however technicians were only 50% average agreeable that their queries were understood and acted upon appropriately. Both professions agreed (95%) they 'experienced more interruptions than usual being the only pharmacy member on the ward'.

Technicians were not comfortable taking patient histories remotely, with a 45% average agreement. They did not agree that they were able to give patient-centred care.

When validating patient medication remotely pharmacists varied in their comfort, 3 pharmacists disagreed somewhat while 4 agreed somewhat, the average agreement was 57.5%. Pharmacists disagreed they had all the resources necessary to work safely and effectively with an average agreement of 47.5%.

Overall, pharmacists agreed to 65% that they have concerns about the safety of remote working, with technicians agreeing at 75%.

Discussion

Remote working is a beneficial method of ensuring pharmacy tasks are completed while minimising footfall onto the ward. The ability to remote work utilises staff and resources that otherwise may not have been used, as it provides staff the flexibility to cover multiple wards at once, across different sites. However, there is an increased workload pressure for the colleague based on the ward which can also cause staff burnout and is therefore is counter-productive. There are significant staff concerns around working with the MDT and ensuring safe patient-centred care.

Contact Details

Elizabeth Stuart

Northumbria Healthcare Foundation Trust

elizabeth.stuart2@northumbria-healthcare.nhs.uk

A quality improvement project to reduce the number of missed doses due to medication unavailability

Abstract

Background

A review found that 16% of medicines incidents reported to the National Reporting and Learning System from 2005-2010 were due to missed or delayed medications. [1] Missed doses can lead to adverse events that compromise patient safety. Missed dose is defined as any medication not given within 2 hours of prescribed time. [2] This project focused on missed doses due to unavailability of medication on the acute medical admission and an elderly ward.

Analysis and Assessment

Aim was to reduce the total number of missed doses by 10%. High-risk medicines were differentiated using the specialist pharmacy service guideline. [2, 3] A data collection tool was developed and trailed, and baseline data was collected for two weeks. This showed 54 missed doses on both wards. Also, it demonstrated that time taken from medications being ordered to reaching the ward was approximately 3 hours. The data was collected by the ward pharmacy team. Porters, nursing and dispensary staff were engaged within the intervention period. This project did not require ethics approval.

Intervention

The first intervention carried out for 2 weeks was to inform the porter to notify the ward pharmacy team when medicines were delivered. Pharmacy then informed the appropriate nurses that medications were available for immediate administration. Second intervention carried out for a further 2 weeks, was for the dispensary to notify the ward pharmacy team when medications are ready, and for them to bring medications onto the wards.

Measurement of improvement

The results from each intervention were analysed and imputed onto Microsoft Excel. The percentage reduction in the number of missed doses after each intervention was compared to baseline. The first intervention did not demonstrate an improvement in missed dose. The second intervention reduced the total missed doses on the acute medical unit by 37% and on the elderly wards by 80%. The second intervention made the largest impact in reducing the total number of missed doses across both wards, as 90% of high-risk medications were given to patients within 2 hours of time prescribed by the final week of interventions.

Conclusions

The second intervention improved the efficacy in administering medications to patients on time, and the multidisciplinary working between the pharmacy and nursing team. Limitations included the constant change in the number of patients on wards, unable to obtain specific times medication reached the ward, length of time each intervention was carried out for and new staff being unaware of the ordering process. The numbers of missed doses were high on Mondays regardless of intervention, as the dispensary had a higher workload from the weekend and were unable to prioritise inpatient dispensing. To improve, it is beneficial to involve the distribution and dispensary teams and continue the interventions for another 3 months to evaluate the long-term impact. Also, explain in the ward weekly governance meeting about ordering medicines during the weekend to reduce workload on Monday. The results and required actions should be disseminated to appropriate individuals e.g., nurse-in-charge and dispensary manager.

Contact Details

Jeril Jose

North Cumbria Integrated Care NHS Trust

jjerilmaria@yahoo.co.uk

The Use of Screening Tools to Direct Pharmacy Counselling Services in Order to Improve Medications Adherence

Abstract

The Use of Screening Tools to Direct Pharmacy Counselling Services in Order to Improve Medications Adherence

Author: Kate Wright Supervised by: John Stapleton

Introduction

Medication adherence in the UK is problematic both to patient care and NHS budget. Studies suggest 50% of medications in the UK are not taken as directed (1) with factors such as attitude, adverse reactions, drug effects and lack of symptoms contributing. Additionally, age, cognitive ability, depression, substance abuse, race and socio-economics influence medications adherence (2, 3, 4). Evidence suggests a role for pharmacists in the prevention of this (5).

There is a desire from a cardiac pharmacy team in a large teaching hospital to target medications adherence due to the complexity of cardiac medication regimens (6) and their socio-economically deprived location. Therefore the objective of this project is to assess whether the implementation of a non-adherence screening tool can help direct pharmacy counselling, with the overall aim of improving medicines adherence. Ethical approval was not required.

Analysis and Assessment

Adherence was measured using a tool based on MMAS-8 (7). Control data was collected by a pre-registration pharmacist over one week by screening appropriate admissions to CCU (Coronary Care Unit) to identify poor adherence. This was compared to counselling data obtained by pharmacy to assess how many 'poorly-adherent' patients were missed.

Intervention

The following week, data was shared with the pharmacy team (by flagging notes via the attachment of an 'alert sticker') to direct to poorly-adherent patients, results were compared with counselling data to identify how many 'poorly-adherent' patients were seen compared to baseline. This was repeated with nursing staff integrating the screening tool into clerking documents.

Results were reflected upon and used to create another cycle incorporating the tool into the medicines reconciliation.

Measurement of Improvement

Initial data; 50% of admissions (n=22) were suitable for screening. Patients were deemed unsuitable due to recent surgery, nil regular medications or cognitive impairment. 21% (n=3) screened were deemed non-adherent, 100% of non-adherent patients received no pharmacy counselling when not flagged to pharmacy.

This was replicated when using the external flagging system within the pharmacy team, with 100% of non-adherent patients (n=3) not receiving counselling. When repeated with nursing staff, nil tools were implemented leading to 100% of non-adherence being missed.

When built into medicines reconciliation, 66% of admissions were assessed with 55.5% (n=5) of these being appropriate for screening, 20% (n=1) of these met criteria for non-adherence. Of these 100% were counselled.

Evaluation

Results show that identified issues with medication adherence are poorly actioned. This study shows that external flagging from pharmacy and nursing staff is ineffective. Staffing levels, project timing (Christmas) and the COVID-19 pandemic have contributed to the lack of uptake.

Incorporation of screening into the medicines reconciliation process showed promising results. However, these results have been concluded from small samples. These were a result of aforementioned limitations and lack of staff availability/time.

Future Action

To develop this research further, expansion onto further cardiac wards to overcome aforementioned limitations will be undertaken. Additionally, an information booklet has been created as an alternative to face to face counselling to reduce time and staff pressures, pending board approval and professional printing, the implementation of this booklet gives scope for further research.

Contact Details
Kate Wright
South Tees NHS Foundation Trust
katewright1995@gmail.com

A study comparing the effectiveness of two different teaching strategies on safe insulin administration presented to nursing staff within an acute hospital.

Abstract

According to the Nursing and Midwifery Council (NMC), as part of nurses' revalidation processes, a minimum of 35 hours of continued professional development every 3 years must be completed, with 20 hours committed to 'participatory' learning activities such as seminars or workshops [1]. The current state of apprehension due to the COVID-19 has led conventional face to face teaching approaches to be substituted for virtually led methods [2].

In response to growing numbers of insulin administration errors within hospitals, steps were taken to facilitate the learning of nursing staff within one trust, surrounding insulin administration to prevent future administration errors and to support nursing revalidation. Different teaching methods were provided and compared to determine the most effective form of teaching. The purpose of this study is to identify the most effective form of teaching within a hospital setting through both quantitative and qualitative data. Identifying the most effective and favourable

teaching method will allow future teaching events to be facilitated and tailored to meet the needs of nursing staff and other healthcare professionals.

A face-to-face insulin teaching session versus a virtual teaching aid were presented to nursing staff on different wards. Both teaching strategies were complemented with the same pre- and post- assessment to measure the effectiveness of the two teaching strategies. The face-to-face teaching was presented to a total of 20 nursing staff members. The virtual teaching aid was emailed to a total of 14 nursing staff on a different ward. The same assessment was provided before and after each session for both teaching methods. The assessment comprised of 10 questions regarding the different types of insulins, the gathering of insulin doses from appropriate sources, and the identification of appropriate and inappropriate insulin prescribing.

In addition, a post session questionnaire was provided to the nurses to collect their thoughts and insights into the different teaching methods. The questionnaire consisted of 7 questions, exploring the effectiveness of the session. Overall, results determined that the face-to-face teaching method was most favourable and nursing staff on average had a greater difference in mean score between the pre- and post-assessment provided (4.45) when compared to the virtual aid (3.67). Moreover, greater participation was achieved in the face-to-face teaching with attendance of a total of 20 nurses in three different teaching sessions during nursing 'breakfast breaks', in comparison to only 6 responses from staff nurses emailed regarding the online teaching session. In the face-to-face teaching method, there is strong evidence ($t=-8.62$, $p=<0.00001$) that the teaching intervention made a difference and the assessment scores of the nursing staff improved. Similar findings were presented for the virtual teaching aid presented in another arm of this study.

This study has shown that nursing staff have benefitted from both the teaching sessions and are more confident in their knowledge regarding insulin and insulin administration. The study also shows that face-to-face teaching is potentially more useful and engaging in comparison to virtually led teaching. However, due to the size of this study more work is required in the future to establish a solid foundation.

Contact Details
Welayah Ali
JCUH
welayahahmed.ali@nhs.net

A service improvement project to improve user experience of Omnicells based on staff feedback

Abstract

Background

At a large teaching hospital, there were concerns raised that ward based staff were struggling to adjust to the new practice of using Omnicells opposed to traditional drug cupboards, and the implementation had caused an increase in incident reports and complaints from staff in certain areas. Omnicells have been found to reduce medication errors and relocate clinicians time to patient care[1]. The aim of this project is to identify and resolve issues on a specific ward identified as an area of concern. Additionally the aim is to improve usage and user experience with the Omnicells, therefore improving patient safety by reduction of medication errors and providing clinicians more time dedicated to patients. No ethical approval was required.

Analysis and assessment

Pharmacy staff and nurses were targeted to gather feedback. Feedback was gathered at the beginning of the project, both verbally and through a questionnaire – however, verbal feedback proved more useful as response rates to the questionnaire were low (20 were distributed, 3 returned from nursing and 4 from pharmacy). All verbal feedback (from 30 nurses) was noted and entered into a document for review. On analysis staff members highlighted 2 main key themes with Omnicells;

1. Uncertainty on how to use the Omnicell.
2. Stock issues – including stock levels and stocked items.

Intervention

The two key themes highlighted from the feedback were addressed:

1. Ward staff were directed to the newly available Omnicell policy[2] on the trusts intranet. A poster was designed to be used as a quick reference guide for users – this was initially shown to 5 nurses on the target ward and received positive feedback. The poster was issued to the ward and will now be provided to all other wards across the trust.
2. Stock discrepancies were resolved, and stock levels have been reviewed by a senior pharmacist.

Measurement of Improvement

The first draft poster was well received on the target ward, and positive feedback was given from staff regarding the contents. The next goal is to provide the poster to all wards with an Omnicell – once this has been done, more feedback can be collected to determine if ward staff have found the poster beneficial. All other specific issues mentioned during initial feedback were addressed with the target ward. Ideally, more questionnaires would have been distributed to assess the outcomes; however it was difficult to elicit responses from staff due to the pressures of the current pandemic.

Conclusions

This project has shown areas to improve Omnicell training, and how implementation can be improved; including offering staff more support immediately after the Omnicells have been fitted on the wards and providing more training sessions. A monthly newsletter has now been devised, this will provide staff with updates and key information on the Omnicell, as staff feedback emphasised that staff were unaware of certain key points, for example who to contact out of hours for Omnicell assistance.

Contact Details
Ella Farrell
South Tees NHS Foundation Trust
ella.farrell@nhs.net

Use of Proton Pump Inhibitors in paediatric home Parenteral Nutrition patients

Abstract

Background and introduction

This service improvement project took place in a hospital's outpatient clinic for children on long-term home parenteral nutrition(PN). The aim is to improve patient safety and promote appropriate prescribing of medicines.

Proton Pump Inhibitors (PPIs) may be prescribed, either as licensed or off-label use, for gastro-intestinal dysmotility, gastro-oesophageal reflux disease (GORD), oesophagitis, history of gastrointestinal bleeds or for protection against gastric ulcers (1,2). The objective of this work is to identify the indication for the prescribed PPI and ensure it is still valid and the dosing regimen is appropriate. Prolonged use of PPIs in adults is associated with adverse effects such as increased susceptibility to infections, especially Clostridium difficile, impeded absorption of nutrients, which could lead to hypomagnesaemia, osteoporosis, Vitamin B12 and iron deficiency, as well as liver disease and rebound acid hypersecretion (3–5), however similar side effects are reported in children (6). Small bowel bacterial overgrowth is another serious complication to prolonged exposure to PPIs in children (7).

Methods

Twenty-eight current paediatric home PN patients were identified. The outpatient clinic letters were reviewed to assess if a PPI was prescribed. The following details were recorded: medicine, indication, dose, frequency, length of prescription, as well as additional demographic data. A virtual meeting with the clinicians who look after those patients was organised with the aim to discuss possible interventions.

Results

Eighteen patients were prescribed a PPI (64.3%) of whom sixteen had acceptable indication and two had no clear indication, either present or historical. Gradual dose reduction could be considered in 9 patients and PPI stopped completely in 2 patients. In three patients, it was felt that weaning may be challenging due to parent anxiety. Seven patients required no change to treatment.

Discussion and conclusion

Appropriate prescribing of medicines can target symptom relief and treat an underlying condition. Reviewing the toxicity or intolerance to medicines is where pharmacists can impact patient care in hospitals (8,9). PPIs have significant benefits in therapy, however they have been largely overprescribed in adults without an appropriate ongoing indication (10).

The objective of this project is met as eleven patients were identified as suitable for an intervention, whilst seven patients required no changes to treatment. Further work has been identified in order to achieve the project's aim. It will take an estimated nine months to gain consent from patients' parents to make changes to their treatments. Parental anxiety to changing drug treatment was identified as a primary challenge. Educating parents about the benefits of deprescribing PPIs is an objective for future work. In order to review the progress of the patients, a follow-up audit will be performed.

Based on the findings of this work, prescribing of PPIs in the patient population studied, is largely appropriate even without a Trust guideline available to assist prescribers. Creating a Trust guideline is another objective for future

work because it would make reviewing whether patients are prescribed appropriate doses and regimens for their indications, easier (11), and hopefully be able to assist prescribing more cost-effective alternatives.

Contact Details
Viktor Georgiev
Newcastle Upon Tyne NHS Foundation Trust
v.georgiev1998@gmail.com

An evaluation of the medication counselling service provided by stage three pharmacy students in a tertiary centre teaching hospital in the North East of England.

Abstract
Background
The General Pharmaceutical Council outlined in 2017 nine new standards for pharmacy professionals.(1) As a result, the way placements are delivered for pharmacy undergraduates has been reworked to best incorporate these to ensure that training is fit for purpose.
Seventy stage three pharmacy students participated in these new ward-based placements within a tertiary teaching hospital in the North East of England between October 2020 and January 2021. The aim of the study was to conduct a service evaluation of the student interactions with the patients.
The intervention
In small groups (n=2-3), students reported to a ward and conducted drug histories on a number of patients. Where the students identified patients using inhalers or taking direct oral anticoagulants (DOACs) or simple analgesia, they were able to provide simple medication counselling. These medications are associated with a high-risk of harm when used incorrectly.(2) Students were trained to provide this counselling before the placement sessions.
Methods
After the patient was counselled by the pharmacy students, they were invited to participate in the online survey by one of the pharmacy staff. They talked them through the survey and pre-populated some information on the patient's behalf. The survey asked about the patient's medication history, their adherence and how their medicines were managed pre-admission (e.g. independently or via a compliance aid).
With regards to the medicine they were counselled on, they were asked to rate statements using a 5-point Likert scale from 'strongly disagree' to strongly agree'. These included being aware of side effects, adverse effects and if the counselling would change the way the medicine was taken. The survey also asked the patient if they had been counselled previously during the admission. There was also the opportunity to add free-text comments.
Results and discussion
Thirty-one patients completed the survey between October 2020 and January 2021. The majority received counselling on simple analgesia (48.3%, n=15), some on inhalers (25.8%, n=8), some on DOACs (9.7%, n=3), or a combination of all (16.1%, n=5). Twenty-seven of the patients (87.1%) reported 'strongly agree' to being overall satisfied with the counselling. In terms of being told new information, only 3 patients (9.7%) reported 'agree' or 'strongly agree' that the advice given would change the way the medicine was taken. This suggests that patients are already informed on how to use their medicines and that the students are reinforcing this information.
When asked if they had been counselled on the medicine during the admission, only 4 patients (14.8%) selected 'yes'. This could reflect that patients are routinely counselled on their medications upon discharge rather than during an inpatient stay.
Free-text comments reported that patients enjoyed the company of the students, particularly during a time of restricted visiting due to the COVID-19 pandemic.
Conclusion
The service provided shows no harm to the patients in terms of refreshment of pre-existing knowledge of their medicines with the students contributing few new pieces of information. In some cases, patients did benefit from the service as they reported a greater understanding of their medicines after the student interaction, although this was small.

Contact Details
Emma Lewis
NHS
emma.lewis47@nhs.net

Evaluating warfarin anticoagulation in Atrial Fibrillation (AF).

Abstract

The vitamin K antagonist, warfarin, has been used as a medication in humans since the mid-1950's (1). The prevalence of its use has increased, thanks to its impressive ability to prevent strokes in patients with atrial fibrillation (AF). Approximately 1% of the UK's population receive warfarin treatment and of those aged 80 and over, 8% were receiving treatment (1). Treatment of AF reduces the likelihood of an adverse event and can help prevent haemodynamic instabilities which present as shortness of breath, chest pain or loss of consciousness (2).

AF prevalence increases two-fold with each consecutive decade, and 9% of those aged 80-89 have a diagnosis of AF (3).

An aging population equates to an increasing number of diagnosis and greater numbers of patients to treat. The disadvantages associated with warfarin treatments initiated a change of practice. Consequently, the majority of newly diagnosed AF patients are started on a novel anticoagulant (NOAC). Table 1 compares key pharmacological features of two classes indicated for AF treatment.

Table 1(4) – clinical features used when explaining and discussing pros and cons of anticoagulation treatment

	Warfarin	NOACs
Onset of action	Slow	Rapid
Dosing	Variable	Fixed
Food interactions	Yes	No
Drug interactions	Many	Few
Routine laboratory monitoring	Yes	No
Duration of blood-thinning effect	Long	Short
Reversal agent available	Yes	No
Cost	$	$$$

Patients on warfarin, with a poor time in therapeutic range (TTR) present an increased risk of complications (insufficient or excessive anticoagulation) (5). Supratherapeutic levels of warfarin can precipitate complications, such as haemorrhagic stroke or major bleeding (5). Conversely, subtherapeutic levels can present a greater risk of thrombotic events, for example ischemic stroke.

SystmOne was used to identify all patients diagnosed with AF who were not housebound and on warfarin treatment. 67 potential patients were identified. Each patient was considered individually, studying their age, renal function, body weight and their TTR was calculated for the past 6 months. Current guidance (6) suggests a patient with a TTR below 65% would be suitable to consider swapping anticoagulants. Of the 67 identified patients, 25% of them were deemed to be below the threshold, however due to other eliminating factors (contraindications including active cancer or mechanical valve replacements) some were screened as being unsuitable. Ultimately 29.4% of the identified potential candidates were given the option to change anticoagulation.

Each patient was contacted directly, their individual situation and options were discussed. Once they opted to swap, appointments were booked for blood tests. With the results reviewed, each patient was to attend the subsequent warfarin clinic to be counselled on their new medication and supported through their medication change.

As a result of this work 5 patients were swapped from anticoagulant and changed from warfarin to a NOAC. Consequently, of patients identified with a low TTR, 29.4% had their risks of complications reduced.

In total, 7% of the established cohort had their anticoagulation switched. This should provide the patients with a more consistent anticoagulation and greater protection from adverse effects associated with poor warfarin control.

Contact Details

Adam Gardner

County Durham and Darlington Foundation trust

adam.gardner@nhs.net

The impact of a pharmacy-led campaign on the review and use of PRN medication in a mental health trust in the UK

Abstract

Background

Medicines are a cornerstone of treatment within the NHS. Pro re nata (PRN) or 'when required' medications are given in response to a patient's needs, rather than scheduled for administration regularly. These are often used to manage symptoms and behaviours in acute psychiatric patients and have a number of benefits including increased

accessibility, flexibility to treat symptoms causing distress or pain, and giving patients increased autonomy over their treatment choices. (1) Despite a number of benefits, there are also risks associated with the prescription of PRN medications including increasing polypharmacy, (2) medication errors, and above-recommended total doses. (3)

It has been found that 23-50% of patients who are diagnosed as seriously mentally ill are administered at least one psychotropic medication as PRN during hospital admission. (4) Regular review of these medications ensures they are still appropriate, reducing the likelihood of adverse events.

The aim of this project is to assess and quantify the documentation of review of PRN medications in a mental health trust in the North East and mitigate against poor practice.

Method

In November 2020, staff within the pharmacy department at a large inpatient mental health trust in the UK were asked to record the nature of PRN prescribing and whether a review of PRN medication had taken place and been documented over the last 7 days for 5 patients on each ward.

Identified barriers were used to design an educational multimedia animation which was to be distributed to pharmacy staff encouraging the review of PRN medicines and providing a template for review. Due to COVID-19, animation distribution was delayed, with an educational intervention distributed to pharmacy staff in March 2021 as the initial PDSA cycle of a larger quality improvement approach ensuring increased review of PRN medicines.

Results

Prior to intervention, 99.3 % (n = 280) of patients were prescribed at least one PRN medication. Of these patients, 67.9 % (n = 190) had received at least one dose in the last 7 days. This decreased to 94.8 % (n = 146) and 57.5 % (n = 96) respectively post-intervention.

The number of patients administered at least one psychotropic medication as PRN decreased after intervention from 38.3 % (n = 108) to 31.8 % (n = 48).

Of patients with a PRN medication prescribed, 48.9 % (n = 137) had had a documented review in the last 7 days, decreasing to 36.3 % (n = 53) post-intervention.

Conclusion

The review and documentation of PRN medications is a multifactorial process which involves a number of members of the multidisciplinary team. This intervention alone, having only targeted the clinical pharmacy team, was not sufficient to influence change within wards across sites. The timing of intervention and re-audit may have contributed to decreased availability for documentation of review as clinical members of the multidisciplinary team were involved with COVID-19 vaccine rollout.

Future work includes distribution of a multimedia animation to all clinical staff in the trust, along with a review template to encourage PRN review.

Contact Details
Laura Temple
Northumbria Healthcare NHS Foundation Trust
Laura.Temple@northumbria-healthcare.nhs.uk

Evaluating the Effectiveness of Melatonin Prescribing in Paediatric Patients.

Abstract

Background

Melatonin regulates circadian rhythm and is used in chronic sleep disturbance or delayed sleep onset when non-pharmacological methods have failed(1,2). Melatonin oral solution was the third most produced special for the quarter of September 2020 and has seen considerable off-licence/unlicensed paediatric use(3).

In a large teaching Hospital, Circadin© is used first-line and unlicensed liquid is second-line. Circadin© is preferred as it has a product license and is more cost effective. Circadin© can be crushed (becoming unlicensed) so the liquid formulation is intended to only be used in PEG and gastrostomy tubes(4).

In March 2020, a Shared Care Agreement (SCA) was established between the trust and the neighbouring Clinical Commissioning Groups to reduce the prescribing burden for consultants, decrease hospital costs and allow patients to collect from local pharmacies.

Melatonin liquid is suspected to be predominantly prescribed over Circadin©. This project aims to evaluate prescribing practises and, from this, produce a prescribing guideline in line with the SCA which can emphasise areas needing improvement.

Analysis

A report of the 50 patients who received Melatonin in September 2020 was generated using Ascribe© (pharmacy system) and their notes were reviewed using Evolve© (electronic notes software) to collate the information relating to the patient demographics, indication, formulation, dose, amount supplied, cost, monitoring, primary diagnosis, swallowing capabilities and (if taking liquid formulation) whether Circadin© was trialled. The suitability of transferring care through the SCA was also assessed according to the documented requirements.

49 patients were eligible under the SCA. If they were managed within the community via the SCA, the hospital would reduce prescribing costs by £25,002.50 annually. Additionally, this would make collection of prescriptions more convenient for patients.

78% of patients were prescribed the liquid formulation. 95% of those patients were initiated immediately without trialling Circadin©. This did not follow the guidance set out in the SCA and increased annual drug costs for the hospital by £4296.96.

Intervention

The two areas for intervention were: prescribing Circadin© first line, and transferring patients to SCA. A prescribing guideline was produced outlining the process of initiating, monitoring and adjusting newly-prescribed melatonin which would meet the requirements for the SCA. Prescribing Circadin© first-line was emphasised to prompt prescribers.

An alert message is being developed for Evolve© which flags up patients still prescribed liquid melatonin before consultations. Plans are arranged to provide melatonin teaching for consultants to encourage good prescribing practises.

Measurement of Improvement

Due to long-term prescriptions, a measurable effect of the prescribing guideline will take time as patients may wait 6 months for their next review. This is beyond the timescale of this project but a sample will be taken in September 2021 to compare with the previous data set.

Conclusions

Prescribers of melatonin often do not initiate Circadin© first-line. A prescribing guideline and training with prescribers intended to positively influence prescribing practises in the hospital and increase the number of patients taking Circadin© and transferred to the SCA.

The data obtained was a snapshot of one month and data may vary. The project could be extended by reviewing a year of prescribing.

Contact Details
James Scott
South Tees NHS Foundation Trust
james.scott31@nhs.net

How have essential pharmacy led outpatient services been sustained throughout the COVID-19 pandemic?

Abstract

Background

The COVID-19 pandemic has placed increasing stress on the services provided by the NHS and initially forced many services to cease to maintain patient safety. Of these, outpatient (OP) services were substantially reduced, with services running at 41% of the previous year's average in April 2020. (1) However, the warfarin monitoring service and rheumatology prescribing service are two key OP services that could not be stopped due to the high-risk nature of the patients they monitor and provide for. (2, 3)

Objective

This study aims to identify the adaptations made to each service to enable them to continue providing a high standard of care and assess patient experience of the OP service during the pandemic.

Method

Patient satisfaction questionnaires were used to engage patients. Patients under the warfarin service were handed a 6-question survey at clinics, whilst rheumatology patients were consulted via telephone using a similar 6-question survey. Questions focussed on the perceived impact of COVID-19 on the services, the support provided, ease of communication, and overall satisfaction.

Results

Of the 111 (67 warfarin and 44 rheumatology) patients across both services were contacted, 98% were satisfied or very satisfied with the overall delivery of the services over the pandemic. Of the 67 patients who attended regular appointments, 98.5% said they felt safe doing so with the measure put in place and a further 98.5% felt supported

by the service during the pandemic. 90% of patients using the rheumatology prescription service received medication promptly, however, 10% missed a dose due to not receiving medication. Despite this, 97.7% found the service easy to use during the pandemic. Although the overall satisfaction of the OP services was high, only 69% of patients felt informed about how the services would be run during the pandemic.
Conclusion
Each service adapted differently to the COVID-19 pandemic, with both managing to provide a patient-centered approach in which patients were satisfied. The introduction of social distancing at warfarin clinics enabled vulnerable patients to attend safely. Shielding staff took upon the administrative running of the service, managing the home patient clinic, answering machine queries and clinical correspondences. This enabled non-shielding staff to focus on running the clinics, both of which contributed to the service being supportive for patients. The perceived negative impact on the warfarin service stems from the closure of certain GP sites and changing of clinics, meaning patients were transferred to alternative clinics which were less convenient to them. Due to the instruction to shield, clinically vulnerable rheumatology patients were offered a delivery service via the OP pharmacy, reducing their exposure to the hospital setting. Overall, patients are highly satisfied with the outpatient services provided throughout the pandemic, with the majority of patients feeling that there has been no negative impaction. The changes made for the safety of the staff and patients have allowed for the services to continue undisrupted.

Contact Details
Aidan Lindsley
Queen Elizabeth Hospital, NHS Gateshead health foundation trust
Aidan.lindsley@nhs.net

Pharmacists role in reviewing and switching intravenous antibiotics to oral preparations and general de-escalation of treatment

Abstract
Background:
Antimicrobial stewardship promotes the rational use of antibiotics by ensuring the most suitable antibiotics are used at the correct dose, for the shortest effective course via the most appropriate route of administration.[1] In practice this involves implementing intravenous to oral antibiotic switches (IVOS). Implementing early IVOS has positive outcomes for both patients and the National Health Service by reducing hospital stays by 3.4 days,[2] course lengths by 33%, reduced medication spending and risk of cannula-associated infections.[3] Pharmacists in a hospital setting, including prescribing pharmacists, are well placed to be involved in the implementation of IVOS due to their expert knowledge of medication pharmacokinetics and formulation, clinical understanding of treatment of infections and their presence on wards regularly reviewing patients.[4] Despite this, pharmacist involvement in IVOS is underutilised.
Objective/Aim:
The aim of this project was to identify perceived barriers preventing pharmacist involvement in IVOS and any solutions which could overcome them.
Method:
A qualitative study was undertaken to identify perceived barriers which prevent pharmacist involvement in IVOS within a North East hospital trust and identify solutions to these barriers. This was part of a wider quality improvement project on reducing intravenous antibiotic prescribing. A two-stage questionnaire process was initiated in November 2020 and concluded in February 2021. In stage-one, open ended questions were used to identify perceived barriers faced by the practicing hospital pharmacists and potential solutions. These barriers and solutions were collated into eight themes, generating eight standardised statements regarding barriers and five possible solutions. These were then shared with pharmacists in accordance with Delphi methodology. Pharmacists were then asked (in stage-two) to state their level of agreement with each barrier and rank the solutions in order of impact each intervention would have on increasing pharmacist involvement in IVOS.
Results:
In total, thirty pharmacists completed the stage-two questionnaire. Responses were analysed in Microsoft Excel. Lack of consistency on wards due to the rotational role, timing constraints, concerns regarding patient deterioration if switched prematurely and lack of pharmacists' presence on ward rounds were the key identified barriers. Development of clearer guidelines which stipulate when pharmacists can initiate an IVOS was identified as the most impactful solution (mean rank (MR) 2.37), by both prescribing and non-prescribing pharmacists (MR 2.53 and 2.08

respectively). This was closely followed by increasing pharmacist presence on ward rounds and gaining experience of assessing clinical improvement of infections (MR 2.73 and 3.00 respectively).
Conclusion:
This study identified several perceived barriers which pharmacists felt prevent their involvement in the decision making of IVOS and solutions have been identified to overcome these. Implementing clinical guidelines, which state appropriate conditions for pharmacist to initiate IVOS, is thought to be the most impactful solution to increase pharmacist involvement in IVOS. Further work is needed to explore what impact these solutions would have on current practice and the most effect way of implementing these changes. The results of this study will be utilised by a broader quality improvement project to develop plan-do-study-act cycles for reducing inappropriate intravenous antibiotic use.

Contact Details
Jordan Rooney
Northumbria Healthcare NHS Foundation Trust
jordan.rooney@northumbria-healthcare.nhs.uk

Assessing the impact of an intervention on the number of pharmacist falls medication reviews conducted on inpatient wards.

Abstract
Background
In 2018, 2198 per 100,000 people aged over 64 in the UK had an emergency hospital admission related to falls and the World Health Organisation highlighted that falls were the second leading cause of accidental or unintentional injury deaths worldwide.(1,2) Falls cost the NHS £235 million each year and reduce quality of life.(3)
Medication falls reviews have been shown to prevent falls in the elderly.(4) They identify medications that can increase falls risk or risk of harm from a fall, enabling medicines optimisation. Furthermore, they ensure appropriate bone protection is prescribed, reducing fracture risk which impacts morbidity and mortality.
A review of incidents within the Trust highlighted several falls admissions in patients who had not had a medication falls review or anticholinergic burden (ACB) score calculated in previous admissions, suggesting previous missed opportunities.
This study aimed to identify whether providing education and support materials to pharmacists and pharmacy technicians would increase the number of inpatient medication falls reviews, hereby referred to as falls reviews, thereby reducing further falls risk.
Analysis and assessment
A baseline audit was completed on four wards over two weeks with the aim of identifying numbers of falls reviews completed. To prevent bias participants were asked to record all clinical activities.
Intervention
A falls review guide was developed and a falls teaching session delivered to pharmacists and pharmacy technicians. The following key messages were delivered for falls patients:

- Calculate the ACB score on admission during medicines reconciliation
- Technicians to identify patients needing a falls review and document this

Measurement of improvement
A second audit was completed to identify numbers of falls reviews completed post-intervention over two weeks, and compared with the baseline audit.
Pre-intervention, 6 falls reviews were completed across the three intervention wards over two weeks whilst 22 were completed post-intervention. The fourth ward did not receive the intervention. They recorded 4 falls reviews in the baseline audit and 1 falls review in the second audit, thus being the only ward not to show an increase.
Each ward had two pharmacists and 1-2 pharmacy technicians. Low numbers of pharmacy technicians attended the teaching session, therefore their potential impact was not assessed in these audits.
Conclusions
The increase in falls reviews by those wards that received the falls materials and education session imply the intervention had a positive impact. Furthermore, the decrease observed on the non-intervention ward appears to corroborate this. Due to the low numbers of pharmacy technicians at the teaching session, a further session was held outside the data collection period.
Each audit only covered two weeks, so only a small snapshot of activity was obtained. A longer timeframe would be necessary to measure any meaningful change. Additionally, no measurement of opportunity to carry out a falls

review was obtained, meaning any impact on those potentially missed was not assessed. Finally, this study only explored the impact of pharmacists on falls reviews, there is still scope for further work in ensuring the remaining elements of a falls review, such as sensory assessments, are completed.

Contact Details
Victoria Ashworth
County Durham and Darlington NHS Foundation Trust
victoria.ashworth2@nhs.net

Assessing the need and producing a guideline for the use of NSAID's in the management of adult non-malignant acute pain: A quality improvement project.

Abstract
Background: The pharmacological treatment strategy of acute pain is formulated around the WHO pain ladder1,2. Nonsteroidal anti-inflammatory (NSAID's) medications are fundamental in the initial management of acute pain and may be underutilised3,4. In comparison recent studies have shown increasing rates of opioid prescribing, often linked with unfavourable issues including misuse/addiction/overdose and poor side effect profiles5,6.
In this research, the opinion and tendency of prescribers within a large teaching hospital will be examined. The aim is to identify potential barriers to prescribing NSAID's, promote their safe/effective use and determine if underutilisation of NSAID's, has accelerated opioid use. The research also purposes to demonstrate the value of a NSAID's guideline. Assessing the need for a guideline within the local vicinity was achieved through dialogue with surrounding hospitals, finding none had viable articles of this specification. A more expansive search of published literature on a national level, yielded only two guidelines of significance7,8 however they lacked specificity.
Analysis and Assessment: Assessment took place via a questionnaire using open/closed questions and utilising a Likert scale9. It was distributed to the target population of prescribers, commonly treating acute pain. Each voluntary participant received an identical survey. Data collected over four days, detailed individual patient interventions and was explored to determine if NSAID's were utilised suitably when managing acute pain. Data obtained from patients experiencing acute pain (n=49) included their current treatment, contraindications and suitability for NSAID use10,11.
Analysis of the questionnaire (n=36) disclosed 94% of prescribers agreed that "NSAID's have a role in the management of acute pain" and believed a "prescribing aid would be useful". 17% of prescribers indicated they "didn't know the contraindications" identifying a potential barrier to effective prescribing and supporting the rationale for an NSAID guideline.
Analysis of the questionnaire established only 16% of patients were prescribed NSAID's, however 90% received opioid based treatments. Further analysis identified that NSAID's were actually applicable for use in 43%, demonstrating underutilisation of NSAID's and extensive opioid use.
Intervention: The information collected supports the rationale for a guideline for the use of NSAID's. The decision aid guides the optimal use of NSAID's by the prescribers.
The guideline was checked for appropriateness by the specialist pain pharmacist and an acute pain consultant, it is now awaiting trust approval. Successful implementation of the guideline will require promotion, via teaching events, posters and handouts.
Measurement of Improvement: Upon implementation of the NSAID guideline, effectiveness of change will be measured by repeating the questionnaire and data collection 6 months post-utilisation and comparing with baseline results.
Conclusion: Within this organisation, the requirement for a guideline and rationale for its use have been clearly outlined. Once implemented, it aims to optimise NSAID prescribing.
This study collected data from prescribers in similar locations and within a narrow timeframe - to establish more robust conclusions and increase transferability, longer studies with greater sample sizes should be sought.
Limited sample sizes can be partially attributed to the Covid-19 pandemic – resulting in ward closures and restructuring. Further work should undertaken to investigate barriers of NSAID prescribing as they appear to be poorly understood.

Contact Details
Luke Alderson
South Tees Hospitals NHS Foundation Trust
luke.alderson1@nhs.net

Service improvement project to assess effectiveness of face to face teaching session vs online teaching session for nursing staff on the topic of insulin at a large teaching hospital

Abstract

Background:

Due to the Covid 19 pandemic, scheduled teaching sessions within a large teaching hospital were changed from face to face learning opportunities to online sessions. As learning plays a vital role in overall safety and care of patients, it is important to assess the effectiveness of online sessions ensuring improvement in knowledge and patient care. HEE states training and education can be utilised to help break down barriers to providing safe care [1] and studies conducted to evaluate quality of care concluded better care is offered in teaching hospitals vs non-teaching hospitals. [2]

Analysis and Assessment:

A teaching session was delivered face to face and online, with the chosen target group being nurses on an acute ward. Insulin was the chosen topic due to recurrent insulin incidences reported on datix, with the intention to assess teaching methods and help improve knowledge regarding this topic and in turn improve overall patient care. This arm of the project focuses on the production and delivery of the online teaching session.

Intervention:

A presentation was created addressing key errors within the trust in relation to insulin administration and prescribing, including a voice recording for additional information. In order to assess the effectiveness of this learning resource, a questionnaire was completed before and after the presentation. This was emailed out to 14 selected nurses with a set deadline of two weeks

Measurement of Improvement:

Of the 14 nurses who were emailed the online session, 6 participated. Before the session, 0% of nurses achieved 100% over 10 questions with an average score of 4/10.

When comparing this to face-to-face session, 20 nurses took part, and similarly 0% of nurses achieved 100% with a slightly lower average score of 3/10. After completing both sessions, there was a noticeable improvement over both groups, with an average score of 8, and an average improvement in scores being 4 and 5 for online and face-to-face sessions respectively.

Conclusion:

These findings demonstrated a clear improvement from both sessions, with a marginally greater improvement of 10% with face-to-face sessions. Despite the 10% greater improvement, this is not statistically significant which leads to the conclusion that further investigative work is required to determine an overall result.

Limitations to this study include, poor compliance as nurses were given a two week period yet only 6 completed this. This may be due to increased work pressures from Covid-19, which is another limitation itself. As only 6 nurses completed the online session, in comparison to 20 for the face-to-face session, direct analysis of the two is not a true reflection of improvement.

Another limitation includes the assumption that the score obtained directly after the sessions is an accurate representation of the knowledge obtained long-term.

In order to assess long-term retention of knowledge, a further study could be conducted to build upon this project and re-assess knowledge again in 1-3 months' time.

Contact Details

Romana Mahmoud

James Cook University Hospital

romana.mahmoud@nhs.net

Increasing utilisation of Nervecentre to aid handover between admission ward pharmacists and base ward pharmacists.

Abstract

Background

Handover is the transfer of responsibility for immediate and ongoing care between healthcare professionals [1].

A standardised handover process is vital to ensure the transfer of care occurs accurately, thereby reducing the likelihood of error and improving patient safety [2]. Within this secondary care setting, Nervecentre is the software of choice for recording observations, documentation of care plans and handover. It does not replace patient notes

but should be used in conjunction to ensure key information is transferred between healthcare providers. A standard Nervecentre template is available to pharmacy staff; however, its use is variable and often omitted entirely.

Aim and Objective

To evaluate use of Nervecentre handover amongst pharmacy staff, with the aim of improving the template to ensure consistent and standardised use.

Analysis and Assessment

An initial two-week evaluation demonstrated that use of Nervecentre was variable. This evaluation included a quantitative review of use, a qualitative survey of pharmacy staff opinions and comparative studies with similar centres.

The evaluation found:

- 39% of patients observed had Nervecentre handover page completed
- 31% of pharmacists actively used Nervecentre for handover despite 86% of pharmacists stating they use Nervecentre for handover

Intervention

Data was collated, reviewed and a formal request for change submitted to Systems. The amendments proposed:

1. New additions to current template:
   - A. Creatinine Clearance
   - B. Patient's medications brought from home (multiple dropdown options)
   - C. Anticoagulation (multiple dropdown option)
2. Amendments to current template:
   - A. Antibiotics: update current list and addition of "Not applicable" option
   - B. Falls review: addition of multiple choice answers and option to document Anticholinergic Burden Score
   - C. Discharge information: addition of multiple choice answers
   - D. High Risk Medications: update current list
3. Additional change requests:
   - A. Visibility of High Risk Medication section on nursing template
   - B. Availability of a printed version

Following approval of the changes, an improved template for handover was drafted. At the time of writing, this template is awaiting final sign off from the Systems manager, with an expected launch on 1st of May 2021.

Education about the importance of handover and the potential changes to the system, is organised for delivery once the system goes live.

Measurement of Improvement

Due to COVID-19 and Systems staff redeployment, proposed changes to Nervecentre will not roll-out until 1st May 2021. Following this, uptake will be measured over a two-week period in June and again in 12 months. This will comprise of repeated qualitative and quantitative data collection as per the initial evaluation.

Importantly, the proposed changes were developed in collaboration with pharmacy staff and an improved use of the system was noted as the initial quantitative study progressed.

Conclusions

There is a need and a willingness among staff to utilise a standardised handover. This evaluation and change aims to facilitate this for all pharmacy staff. Continued monitoring and regular review of the template will ensure it remains accessible and user-friendly. Initial education, and recurring updates to all staff will be incorporated into common practice in order to stimulate and encourage habitual use.

Contact Details

Eleanor Mulligan

County Durham and Darlington Foundation Trust

eleanor.mulligan@nhs.net

'Inpatient ordering innovations'

Abstract

Project Title

'Inpatient ordering innovations' – This project was designed to investigate the benefits of introducing nurse-led electronic ordering for inpatients

Background

The introduction of electronic medicines ordering (EMO) has been recent at QE hospital (QEH), Gateshead. Prior to this, ward staff hand-wrote temporary stock orders to request medicines. Consequently, this was error-prone due to factors such as handwriting which reduced the safety and effectiveness of medicines ordering. The aim of introducing EMO was to produce a fast and efficient method of ordering medicines for inpatients. Currently we use the JAC system to prescribe, monitor and order medications. It also aids medicines administration. The purpose of this audit was to assess whether the new system resulted in a more effective, safe and fast way of ordering medicines to wards and if this improved the level of patient centred care.

Analysis and Assessment

To assess the performance of the current medicines ordering process, surveys were distributed to nurses on the same ward before and after the implementation of EMO.

Intervention

A study carried out in the Netherlands focused upon the cost-effectiveness of an EMO in hospitalized patients. The study concluded that an EMO contributed to a decreased risk of preventable harm while despite the extra costs of an EMO it was acceptable for the harm it prevented (1). EMO was introduced at QEH in March 2020; eradicating the use of handwritten temporary stock orders.

Measurement of improvement

Prior to the introduction of EMO qualitative and quantitative assessments were taken. With the qualitative assessments were carried out using surveys which. Surveys were redistributed after the implementation of EMOs to measure if they actually improved medicines ordering. Quantitative findings focused on the time difference between ordering medicines via EMO to the time taken for physically printed orders.

Conclusions

The pre-EMO findings showed that 9 of 9 surveyed nurses believed the current system of medicines ordering wasn't an efficient method. However, only 2 of 9 nurses thought EMO would have no effect on the number of repeated orders. The post-introduction survey showed that the majority of the nurses believed EMO was more efficient and faster although 5 of 11 nurses believed that EMO did not reduce the amount of errors during medicines ordering. The qualitative data showed that the average time difference between the ordering of the medicines and the time they are printed in the pharmacy was 26.13 minutes across the admission's wards and also two of the base wards. Currently within the dispensary the time between the order being printed, dispensed and then checked is unable to be tracked therefore this should be the next area of investigation. For further data collection using a larger sample size, digital distribution would be used.

The overall picture from this project suggests that the introduction of EMO, albeit with some flaws, does allow for a more streamlined and efficient way of ordering medicines within an admissions and wider hospital setting.

Contact Details

Joshua Aldwinckle

QE Hospital, Gateshead

Joshua.aldwinckle@nhs.net

Reviewing the problems associated with outpatient prescribing - written and electronic prescriptions

Abstract

Background

There have been many issues outlined with outpatient prescriptions which has led to delays when dispensing and checking prescriptions. Various errors have included: no unique patient identifiers, legal errors such as not including words and figures for a quantity for a controlled drug prescription, no "D' number being identified which would take the pharmacist straight to the current episode for the patient. Due to errors like the above, the patient waiting area can become very busy which is not ideal due to COVID-19 and current social distancing guidelines. Due to COVID-19, there has also been an increase in the number of telephone consultations leading to remote prescribing.

As well as this, patients are more likely to complain and be unhappy with the service that is being provided, due to the prolonged waiting times.

Objectives

Identifying the problems associated with outpatient prescribing by using an error log to track errors

Grouping errors together to see if any problems are linked

Speaking to the relevant individuals involved to see if any solutions can be made

Implementing solutions if it is appropriate to do so.

Method

A total of 77 patients were included in this retrospective service improvement project. They were identified using the outpatient error log from a period between November 2020 to January 2021. The outpatient error log was initially a handwritten log; the data from this was formatted to a Microsoft Word document in order to visualise the data clearly. The data was then analysed according to types of errors made and what department these errors were originating from.

Results

42 errors were found from the outpatient error log which were from Ante-Natal, Maternity and Gynaecology. These errors were linked to specific medications which were being prescribed. Other errors were found from a variety of other departments. These were also linked to the types of medications being prescribed. Various errors found included items being dispensed at another site but patients presenting at the outpatient hatch on site. Clinical errors were found which needed to be amended by contacting prescribers leading to increased waiting times.

Conclusions

The errors found were related to specific medications being prescribed. There needs to be more communication between prescribers and pharmacy teams when trying to amend prescriptions in case of errors. Ultimately, this will result in better patient care and a greater service being provided. There needs to be increased communication between prescribers and patients so that patients are aware of what is expected of them when they are at the outpatient hatch. Patients should also be made aware of any issues in a timely fashion so they are kept up to date with regards to their prescription. There may also need to be signs put in place in the pharmacy department with regards to waiting times and any extra patient details which are needed such as an 'X' number or 'D' number.

Contact Details

Hajra Akram

South Tyneside District Hospital

hajra.akram106@gmail.com

Critical Care Transfers: An Opportunity to Reduce Medication Errors

Abstract

Background

The transition of care between critical care (CC) and ward-based care is particularly vulnerable to medication errors, with nearly half of all patients discharged from CC estimated to experience an error (1). CC-transfers are vulnerable to the unintentional discontinuation of medication for chronic conditions (2). Usually intended for temporary suspension whilst the patient's acute critical condition is treated, these medicines are often still suspended upon discharge. Patients are also susceptible to inappropriate continuation of medication specific to the CC environment upon discharge, including gastric acid suppressants for stress ulcer prophylaxis and antipsychotics for delirium which are intended for short term use (3). Such errors can result in serious patient harm, timely pharmacist intervention should help reduce these errors, yet they still occur (4,5). This project aims to identify the barriers affecting the appropriate review of CC discharges by pharmacists and implement measures which ultimately lead to the reduction of these errors.

Method

A questionnaire was distributed to the pharmacists of an emergency care hospital where these types of medication errors have been reported. Responses were gathered over a four-week period with respondents ranging from foundation pharmacists to senior pharmacists. Following the analysis of these responses, a checklist was created outlining key considerations of CC transfer patients and contained examples of CC-specific medications. A 1-hour teaching session was held by CC pharmacists which worked through a case study of how to review these patients in conjunction with the created checklist. A feedback survey was then sent out evaluating whether the checklist and teaching session had improved their knowledge.

Results

The initial questionnaire highlighted that respondents felt inadequate training was provided to pharmacists regarding CC-transfers, with 56% of respondents agreeing with this and 52% stating they only felt 'somewhat confident' reviewing these patients. A teaching session was held for foundation pharmacists following these results, and all 10 attendees reported their confidence and knowledge had improved as a result of the session. Attendees commented the checklist created was a useful resource and made the review process clearer. It is intended that the checklist will be finalised and distributed amongst the wider pharmacy team within the next 3 to 4 weeks. The questionnaire also highlighted CC-transfers are difficult to identify on NerveCentre, the electronic handover platform used by the hospital trust, resulting in the lack of prioritisation of these patients. Plans are currently in development to modify this platform and it is hoped that this change will be implemented within the next 1 to 2 months.

Conclusion

It was identified that the barriers impacting the review of CC discharges was multifactorial, the main barriers being the lack of pharmacist training along with ambiguity when identifying CC-transfer patients. These findings informed the interventions implemented to improve transfer of care; educational sessions, a checklist and improvements to the electronic pharmacy system to enable easier identification of these patients. It is hoped that upon future analysis the long-term effect of the implemented measures is the overall reduction of CC related medication errors across the trust.

Contact Details
Fariea Hussain
Northumbria NHS Foundation Trust
fariea.hussain@northumbria-healthcare.nhs.uk