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| Dosing of rivaroxaban in relation to renal function and drug interactions during October 2020 |
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| Introduction |
| Clinical outcomes of the anticoagulant rivaroxaban correlate with plasma concentrations; which are known to be related to the dose regimen and renal function; and may be impacted by co-prescription with interacting medicines. An option to measure rivaroxaban plasma concentrations to optimise dose is available. |
| Aim |
| To determine adherence to rivaroxaban dosing guidelines with respect to indication and dose adjustment for renal impairment. To determine the frequency of co-prescription of potentially interacting medicines and how these relate to rivaroxaban dosing. To determine the frequency of rivaroxaban therapeutic drug monitoring. |
| Method |
| A retrospective review of rivaroxaban prescriptions commenced in October 2020 identified in MedChartTM at district hospitals was undertaken. Prescriptions ceased before the commenced time and ‘stat’ doses were excluded. Dosing in relation to the indication and eGFR were classified as ‘per guideline’, ‘low’ and ‘high’. Patient demographics, rivaroxaban indication at discharge, and whether any of the following were present at the point of rivaroxaban prescribing: recent estimated glomerular filtration rate (eGFR), co-prescribed interacting medicines and plasma rivaroxaban concentrations; were analysed. |
| Was ethical approval sought? |
| Yes |[ ]  Committee and approval number | Click here to enter text. |
| No |[x]  Reason approval not sought | Audit - ethical approval not required for audit |
| Results |
| Of 223 prescriptions, 165 met the audit criteria (for 135 patients). Included patients had a mean age of 72 years and a recent eGFR was available for all. Prescription indications were atrial fibrillation (60%), venous thromboembolism (VTE) treatment (35%) and VTE prophylaxis (5%). Prescription doses were ‘high’ and ‘low’, in ten (6%) and 33 (20%) prescriptions, respectively. Potentially interacting co-prescribed medicines were present for 60% of rivaroxaban prescriptions. Two patients had plasma rivaroxaban concentrations measured during admission. |
| Conclusion |
| Few prescriptions were ‘high’ in relation to indication and eGFR, while 20% were ‘low’. Those prescriptions may be clinically appropriate given borderline renal function, events such as stroke or bleeding, interacting medicines, and advanced age. Plasma rivaroxaban concentration measurement was utilised rarely to optimise dose. |

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| Risk Factors for Opioid Toxicity Requiring Naloxone Rescue in Adults  |
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| Introduction |
| Opioids are increasingly being prescribed for moderate to severe pain. With an increase in opioid-induced adverse effects, it is vital that the risk factors to reduce the incidence of opioid induced respiratory depression (OIRD) are identified. |
| Aim |
| To identify risk factors for OIRD in adults presenting to a metro hospital. |
| Method |
| A retrospective matched case-control study design was undertaken to identify risk factors for OIRD. Data were retrieved through reviewing patients’ electronic medical records and paper records for adult services within the hospital from 14 August 2015 to 20 April 2020. Cases were defined as patients who received naloxone for OIRD. These cases were matched 1:1 by age (+/- 10 years) to controls – patients on opioids who did not receive naloxone for OIRD. Bivariate and multivariate logistic regression analyses were undertaken to identify risk factors for OIRD. |
| Was ethical approval sought? |
| Yes |[x]  Committee and approval number | NTHX12345 |
| No |[ ]  Reason approval not sought | Click here to enter text. |
| Results |
| There were 102 patients included. Of these 62.7% were female and 37.3% were male. A total of 51 cases were identified where naloxone was administered. These patients were matched with 51 control patients. The cases compared to controls were more likely to have had a higher morphine milligram equivalent dose (MMED) (OR=1.02; 95% CI: 1.00-1.03; p=0.007). Cases were also less likely to have had previous opioid exposure (OR=3.38; 95% CI: 1.10-10.35; p=0.033). Lastly, cases were more likely to have had a higher serum creatinine level immediately before experiencing OIRD (OR=1.03; 95% CI: 1.01-1.04). |
| Conclusion |
| Three significant risk factors for increasing opioid induced respiratory depression were identified from the study: a high MMED, a high serum creatinine level and no previous opioid exposure. Potential strategies to reduce OIRD could be to explore non-opioid pain relief pathways, implement alerts within electronic prescribing systems to highlight risk factors, enhance monitoring and reduce the dose of opioids administered in those with risk factors for OIRD. |

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| Medication discrepancies at care transitions and associated factors among adult inpatients discharged from a large urban hospital |
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| Introduction |
| Medication discrepancies are common during care transitions. About 50% of medication errors and 20% adverse events are due to miscommunication at interfaces of care. There is a paucity of data regarding the prevalence, characteristics and predictors of medication discrepancies occurring at care transitions in New Zealand. |
| Aim |
| This study aimed to describe medication discrepancies and associated factors among adult patients discharged from a large urban hospital between 26 August and 24 November 2019. |
| Method |
| A retrospective review of medical records of eligible patients was performed between June and September 2020. Patients were included if they were 18 years or older, had at least one medication on their hospital chart or discharge summary and were discharged from general surgical or general medical wards. Data on sociodemographic, medication and hospital services information (e.g. medication reconciliation) were collected. Medication information on medicine charts and discharge summaries were compared. Discrepancies were documented as intentional or unintentional. Unintentional discrepancies were classified as omissions, additions, substitutions and changes of dose, frequency or administration route. Patient characteristics were summarised using descriptive statistics. Multivariable logistic regression analyses were used to identify predictors of medication discrepancies. |
| Was ethical approval sought? |
| Yes |[x]  Committee and approval number | NTHX98765 |
| No |[ ]  Reason approval not sought | Click here to enter text. |
| Results |
| Of 776 patients (447 medical and 329 surgical) included in the study, 62.67% had at least one unintentional discrepancy. Omission of medication was the most common type of discrepancy (n= 1248, 77.66%). Nervous system medications were the most frequently involved class of medicine. Polypharmacy (Adjusted odds ratio/AOR 2.70; CI 1.70, 4.29), length of hospital stay over 48 hours (AOR 2.58, CI 1.82, 3.66) and discharge from a surgical ward (AOR 4.77; CI 3.34, 6.79) were associated with higher likelihood of discrepancies. |
| Conclusion |
| The prevalence of unintentional discrepancies was high in the study population. Polypharmacy, longer hospital stay and discharge from surgical ward were common predisposing factors. Future research should focus on evaluation of severity of discrepancies, and the impact of medication reconciliation at discharge on medication errors and patient safety outcomes. |

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| Developing research capacity, capability and culture in hospital pharmacy staff  |
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| Introduction |
| Recently, an Academic Practice Unit was established between a School of Pharmacy and local hospital with the aim of developing the clinical research capability, capacity and culture of pharmacy staff at the hospital. While similar academic practice units exist internationally in pharmacy and other professions, this unit is a first for pharmacy in New Zealand. |
| Aim |
| To identify the barriers and enablers, and staff motivation to building clinical research capacity and capability at the hopsital. |
| Method |
| A working group was convened of interested staff representing a range of experience and specialities. The group participated in four facilitated workshops, exploring staff motivations and desires for research career pathways; the barriers and enablers to clinical research; and the resources and support needed. Field notes and workshop outputs were synthesised then taken back to participants for iterative review.  |
| Was ethical approval sought? |
| Yes |[ ]  Committee and approval number | Click here to enter text. |
| No |[x]  Reason approval not sought | Not required according to NEAC guidelines |
| Results |
| Thirteen staff participated in four workshops of 1.5-2 hours duration. There was desire from these staff for a research career pathway, ranging from exposure to research to the development into a clinical researcher. Several barriers to building clinical research capability were identified including not knowing where to start, lack of research skills, and need for support and guidance on how to undertake research. Participants identified a need for infrastructure and resources to support capacity and capability building of staff. Recommendations were made to develop a research career pathway and a guide to navigating research with supporting resources and infrastructures. |
| Conclusion |
| There is a clear desire from pharmacy staff at the DHB to develop their research capacity and capability. Several supporting factors were identified that need to be addressed to enable this. Work is underway to develop the recommended resources and structures |