Co-design Partners in Care case study

A pharmacy service in ED makes a difference (Taranaki District Health Board)

Context

Adverse drug events are a leading cause of visits to the emergency department (ED), admissions to hospital, prolonged hospital stays, increased healthcare costs and injury/death.[1] ED is a high-risk area for medication errors.[2] There are multiple factors which increase the risk of adverse drug events/medication errors in ED:[3]

- Fast paced care
- Frequent interruptions
- Unfamiliarity with patients
- High patient turnover
- Multitasking
- Time pressures
- Access to incomplete patient information
- Unfamiliar prescribing/administration of various medications
- Increased use of high risk medications

ED based pharmacy services were first established in the USA in the 1970s and there is a growing body of evidence to support improved medication safety with pharmacist involvement in ED. The provision of pharmacy services in ED in Australia is becoming more common, although there are limited studies to report the impact of ED pharmacy staff involvement.[4] No official studies have been completed in New Zealand, although some hospitals do offer a pharmacy service in ED. Some hospitals have a pharmacist, either full time or part time based in the ED, while others also have a part time technician who helps complete medication histories.

Currently there is no pharmacy service provided in ED at Taranaki District Health Board (DHB) and all medication orders are supplied through the hospital pharmacy, or obtained from the automated dispensing machines (Pyxis). The pharmacist is an integral member of the multidisciplinary team in ED and can improve medication safety in this high-risk area, decreasing the likelihood of adverse medication errors.[5] Early intervention by a pharmacist in ED has the potential to decrease medication errors from the point of admission into hospital. The addition of a pharmacist to ED is a systems-level patient safety intervention which allows medication errors to be detected and corrected before harm reaches the patient.[6] ED pharmacists can also be involved in the transition of care process, ultimately resulting in decreased hospital re-admissions and repeat visits to ED.[7]

[1] Hohl, Wickham, Soboley et al., 2015; Hohl, McGrail & Soboley, 2015
[2] Proper, Wong, Plath, Grand, Just & Dulhunty, 2015
[3] Witsil, Aazami, Murtaza, Hays & Fairbanks, 2010; Proper, Wong, Plath, Grand, Just & Dulhunty, 2015
[4] Proper, Wong, Plath, Grand, Just & Dulhunty, 2015
[5] Proper, Wong, Plath, Grand, Just & Dulhunty, 2015
[6] Fairbanks, Rueckmann, Kolstee et al., 2008
[7] Hohner, Ortmann, Murtaza et al., 2016

Implementation of an ED pharmacy service has the potential for downstream effect on the ward pharmacists. freeing up their time to perform other activities such as participating in ward rounds.

In 2016, the Partners in Care programme offered Taranaki DHB the opportunity to engage with consumers and stakeholders in a project focussing on concept development and initiation of a new pharmacy service in the ED.

Taking part in the Co-Design project enabled us to develop a scope of practice for the ED pharmacy service, and evaluate the expectations of ED staff and how it will best benefit the patients that present to ED. For this project to work, we needed to form a collaborative relationship between pharmacy and ED to work out how best to implement this service and develop a list of valuable services that pharmacy could provide in ED.

The project aligns with the following initiatives:

TDHB Annual Plan 2016/17
(http://www.tdhb.org.nz/misc/documents/Annual_Plan_2016-2017.pdf)
The future vision for Taranaki health services places the patient/person at the centre of the system

1. 2B.2.19 Shorter Stays in Emergency Departments
   - Integrated and improved long term health conditions care and management
   - An effective and functioning Emergency Department
   - Improving community based discharge services and rehabilitation.
2. To prevent medication related harm.
3. To promote consumer engagement.

New Zealand National Pharmacist Services Framework 2014

1. Core Clinical Pharmacy Services:
   - Medicine reconciliation initiation. Medicine reconciliation has been mandated by the HQSC.
   - Participation in clinical ward rounds or equivalent: actively providing pharmaco-therapeutic advice and support for patients
   - Medicine chart review providing an entry level safety check
   - Medicines optimisation
   - Therapeutic drug monitoring (TDM)
   - Patient medicines counselling before discharge
   - Medicines and clinical information support including medicines information provision and in-service education
   - Medicines guideline and protocol development
   - Adverse drug reaction monitoring and management.

New Zealand Health Strategy April 2016
Aligns with the following New Zealand Health Strategy key theme:

1. People-powered
   - Making new Zealanders ‘health smart’; that is, they can get and understand the information they need to manage their care
   - Understanding people’s needs and preferences and partnering with them to design services to meet these.

Aim

To work with staff from the ED and pharmacy and consumers to discover what might be the benefits of providing pharmacy support within the ED at Taranaki DHB.

- To support the Ministry of Health’s ‘Shorter Stay in ED’ targets.
- To contribute towards improving the quality of the patient experience in ED.

- To improve/develop multidisciplinary relationships within the ED to improve the journey for the consumer.
- To gain awareness and understanding of each health professional's roles within the current ED environment.
- To evaluate where pharmacy can positively contribute to patient health and wellbeing in the ED.

Engage

We had good engagement from ED staff. We did not have a doctor as part of our team, however we did have multiple doctors' who supported the project and were happy to talk and discuss ideas. The nurses were very supportive of the project.

Methods for engaging staff included:

- Online survey through Survey Monkey (link sent out by email).
- Meeting with ED Senior Medical Officers (SMOs) – approximately eight to ten attended.
- Attending one nursing handover – approximately seven nurses attended.
- Pharmacy staff survey.
- Ad-hoc visits to ED – helped build rapport between pharmacy and ED staff.

Engaging consumers/patients:

We met with two consumers and interviewed patients in ED and on the wards. It was clear that consumers do not fully understand the role of hospital pharmacists and they quite often assume we only supply medications. Consumers are not aware of the services the pharmacy provides to other wards, or the lack of a pharmacy service in ED.

One challenge is trying to explain our role as pharmacists and what we do in hospitals. We are hoping that once we implement some form of service in ED, consumers will have a better understanding of our roles and where we add value to them or their family/whānau.

Capture

We developed an electronic survey via Survey Monkey which was emailed out to ED staff. We also met with the ED SMOs and attended a nursing handover to try and boost response rates. There was a great response rate to the survey (approximately 40 per cent) and the majority of the comments were constructive. The results were displayed in a Wordle 'word cloud' using the text responses from the survey, specifically around what impact ED staff felt a pharmacy service would have on their day-to-day workflow and any extra feedback that they had regarding the introduction of a pharmacy service in ED. Words that appeared more frequently, such as medication(s); ED; time; pharmacy; patient(s); and pharmacists, are given more significance in bold/size than those that appear less frequently.

Similarly, we conducted a pen and paper survey with ward pharmacists (approximately 50 per cent response rate), although this data was not as useful as we had first expected, as it was harder to collate and format.

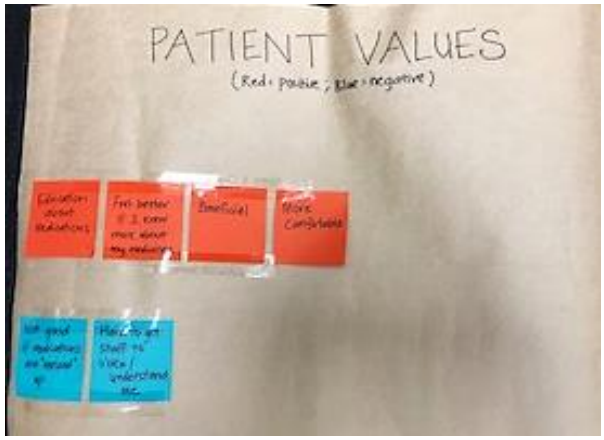
We realised early on that our ED staff survey gave us breadth, and in order to capture more depth we carried out in-depth interviews with some of the ED staff. We also spoke with patients who were either discharged from ED or admitted to the ward for further treatment.

Understand

Based on the information we collected during the capture phase, common themes were identified such as:

- ED staff contact the pharmacy by phone or fax infrequently, that is a few times per month to a few times per year.
- The most common reason ED staff contact the pharmacy is for information regarding the 'supply and availability of medications'.
- There is a lack of knowledge within ED of what a hospital pharmacist can offer. There is a wide variety of services that a pharmacy could potentially offer in ED – no one service stands out from the rest.
- ED staff are concerned about the lack of a pharmacy service available after hours and in the weekends.
- The role of a pharmacist is stereotyped by consumers, and pharmacists are seen only as 'suppliers of medications'. Consumers appear not to know what the role of a hospital pharmacist is and what service they can provide to both staff and patients.
- There may be the potential for pharmacy technicians to provide/assist with certain services in the ED.
- Despite the lack of knowledge, the majority of feedback from ED staff was positive about the potential addition of a pharmacy service in ED, with very few negative comments.

We used the data collected from our ED staff survey and conversations with ED staff and patients to make two maps – one for staff and one for patients – and further split them into emotions and values. We used red post it notes for positive values/emotions and blue post it notes for negative values/emotions.



We collected stories from patients:

Patient 1	• Her son thought it would not be a good idea if his mothers medications were "messed up" • She had had a previous admission to ED with a medication allergy/reaction and it took a bit to get ED staff to listen/understand that it was a reaction to a medication • Would feel good/better if a pharmacy service in ED existed and they could find out about medication side effects and active ingredients etc
Patient 2	This patient knew what their medications were for but thought they would benefit from more information about their medications if it was offered
Patient 3	• This patient had a list of his medications from his GP and community pharmacy and also had their own medications with them. He didn't get asked any specific questions about his medications while in ED nor did the doctors look at his own medications. • His eye drops were omitted – although they were probably not on the GP's list as they were prescribed by an eye specialist. However, if the doctor had asked if the patient used any inhalers, eye drops, creams/ointments or herbal products they may have found out about the eye drops. • His Creon was omitted. This is important for the patient as he said if he doesn't take it he gets dysentery. He said the nurse asked him how many he took and they got it charted. He said that if he wasn't given it he would have asked for it as he knows the consequences of taking it! • His Fosamax Plus was omitted; he wasn't overly concerned as he usually catches up the next day when he forgets at home. • His inhalers were charted but the wrong strength was charted. He had them with him in ED but no one looked at them. • He thinks having a pharmacist in ED, would make it easier for the staff upstairs on the wards. He thinks a pharmacy service in ED would be beneficial
Patient 4	The nurse told the patient what medications they were receiving and why. The patient is a pharmacy technician so this made her feel more comfortable as she knew what they were talking about.

Improve

We have not yet completed this phase of the project, but have started a 'Plan, Do, Study, Act' cycle by carrying out a two-week snapshot in ED. We had a pharmacist on-site Monday to Friday from 8am to 10am and 1pm to 4pm, and they could be reached on a pager outside these hours. During this time, the pharmacist recorded all patient and non-patient specific tasks on template forms, looking at the type of task, who requested it, the time taken and how this task helped the staff member or patient. We then sent a survey out to selected staff that interacted with the pharmacist during this snapshot period asking for their feedback. The feedback from the survey supported the approach we were exploring, which is to offer a pharmacy service in ED – both to support staff and to improve the patient journey through the emergency department.

Overall our exploration does suggest that the ED would benefit hugely from having a pharmacist onsite. There is potential for improvement in a range of areas:

- Earlier medicines reconciliation, fewer admission medication errors, and prompt resolution of any discrepancies (this would ultimately improve patient safety and quality of care).
- Pharmacist input for those patients who are directly discharged from ED.
- Pharmacist input as part of the allied response team (ART) and liaison with community pharmacies and general practitioners (GPs).
- Pharmacist input in ED would hopefully reduce the next day's ward workload for pharmacists, allowing extra time for patient focussed care at discharge, including counselling, making yellow cards and facilitating with community pharmacies and GPs, ultimately improving a patient's experience at discharge.

- Partnership formed between admitting doctors and the pharmacist to improve efficiency by reducing the time needed to chart medications and reducing duplication of work involved in checking medication histories. Ideally the pharmacist would complete the medication history before the patient is admitted so that the admitting team has an accurate list of medications to base therapy around.
- Improved prescribing practice in the ED both legally and clinically.
- Staff education and teaching, that is, knowing where to find relevant protocols.
- Pyxis – review of what medications are stocked in the Pyxis machine in ED and any user issues.
- Bilateral knowledge progression of both ED and Pharmacy roles and priorities.
- On-the-spot guidance when needed.
- Improved access to medication history templates for all ED patients.

We are in the process of meeting with the acting head of ED and the nurse manager to share our findings and co-design an improvement together. The next stage of the project involves a longer pilot phase of three to four weeks. A pharmacist will be based in ED Monday to Friday during working hours and we will also trial having a part time pharmacy technician there to help with medication histories.

Working as a co-design team

Co-design is a new concept for Taranaki DHB and its staff. This project has highlighted the value of working alongside each other with a common purpose in mind and allowing each respective party to have the same journey (and a similar version of it).

We could have placed a pharmacy service into ED with some discussion and organisation, and it may have worked fine, but perhaps not to the same inclusive extent with what we have gained and experienced within this project. Our study has suggested that there has been significant benefit in terms of building relationships, understanding and knowledge between the ED and pharmacy staff and has especially highlighted the perspective and range of abilities that pharmacy staff can bring to the ED environment. This was reinforced during our two-week snapshot. It has increased awareness of what pharmacists can do and where we can contribute to the patient's journey within Taranaki DHB.

Measure

Our initial two-week snapshot 'Plan, Do, Study, Act' cycle has provided valuable learning about where the most significant benefits lie in having a pharmacist in the ED (see pages 8-11). We plan to carry out a longer pilot study (three to four weeks). We will collect key performance indicators (KPIs) and contribution and intervention data during this time, as well as staff feedback. Comparisons will be made with pre-pilot data to see if any impact has been made during the admission process, and if this has any flow-on effect to the wards.

The feedback we have collected so far along with the data we will collect from this next phase will be used to create a business proposal supporting the implementation of a pharmacy service in ED and allowing recruitment of appropriate staff.

We also plan to present the co-design project to the ward pharmacists and to clinical staff at a Grand Round later in the year.

Information from the two-week snapshot period (1 to 12 May 2017):

- 25/54 responses to the staff Survey Monkey.
- The pharmacist completed 45 medication histories while working in ED.
- The pharmacist liaised with ED management regarding the new ED CAS cards and the implementation of the national day stay medication chart and the use of stamps and stickers versus handwriting standing orders.
- The pharmacist started a Pyxis Medstation review and liaised with ED nurses about any changes they thought were important.

Patient story 1:

93 year-old man presented to ED with SOB/productive cough. The pharmacist completed the medication history and found out that patient was taking his medications incorrectly. Dabigatran was meant to be 110mg BD but the patient was only taking 110mg OD every second day; Diltiazem was meant to be 360mg OD but the patient was only taking 120mg OD every second day. Frusemide was meant to be 60mg MANE but the patient was only taking 40mg MANE every second day. The ED SMO was very grateful for this information as potentially the patient could have been charted three times the dose of what he had been taking. The Dabigatran also needed reviewing in light of the patient's reduced renal function and non-compliance.

Patient story 2:

58 year-old male presented to ED from Hawera with NSTEMI and SOB. The pharmacist completed the medication history and noted that the patient's weight was 91kg but that he had only been given 70mg enoxaparin in Hawera Hospital before been transferred to Base. The pharmacist relayed this information to the admitting doctor who then charted another 20mg enoxaparin so that the patient received a full treatment dose.

Patient story 3:

55 year-old female who lived out of town presented to ED with psychosis. The pharmacist rung the out-of-town GP and community pharmacy and was able to tell the doctors and mental health team what current anti-epileptics the patient was on.

Patient story 4:

60 year-old female presented to ED with current falls, cause unknown. The ED doctor referred the patient to the allied response team who consulted the pharmacist as they could find no mechanical reason for her falls and wondered if her medications could be contributing to her falls. The pharmacist completed the medication history and found that the patient was on phenytoin and clobazam for epilepsy. Phenytoin toxicity can cause ataxia and confusion. The patient had not had a phenytoin level since March 2016 and clobazam can increase phenytoin levels. A phenytoin level was taken in ED but at the incorrect time so the pharmacist liaised with the patients GP who arranged for a blood test in the community and a follow up appointment with the GP to arrange blister pack prescriptions.

Quotes from staff after the two-week snapshot:

A very valuable member of ART team especially when cause of falls or patient's vulnerability in own home is associated with medications

Lisa assisted the ART team on multiple patients where the potential for medications was having an impact of their mobility/function etc therefore impacting on their ability to safely manage at home. Lisa was able to phone the GP and gain clear information and report back to the ART team and ED team appropriately. She was able to speak with ART patients about their medications and educate them on this while the ART assisted with planning for discharge with a package of care for example. She came and spoke to family to ensure they understood the correct routine of medications. I think pharmacy would be a great service to have alongside the ART team!

The quality of care and safety issues would greatly benefit from a pharmacist in ED. In a snapshot trial the other roles were not observed due to time constraints, but it would definitely benefit the admitting registrar to obtain regular medications when the patient is being assessed in ED with no clear regular medication documentation.

I think having a pharmacist in ED is a great idea and improves patient safety hugely. So many medications get missed/charted incorrectly on admission - and it makes far more sense to have a pharmacist on hand during the admission process to correct mistakes before they happen. I hope this initiative continues.

Extremely helpful - speeds up admission process and ensures that patient receives correct medication from day one of admission rather than waiting for a med rec/post-take house officer to correct their medications

An up-to-date, accurate medication history on admission and can ask clinical questions about prescribing. Patients often do not have their medications and greatly reduces the time of reviewing medical patients in ED by having their medication history already taken!

Lisa fitted into the ED team well and was greatly received, she was for the most part busy with reviewing patient's meds, assisting staff and researching what meds patients were on. We had a psychotic patient that was particularly unwell and was unable to tell us anything. Lisa resourced the meds she was on with the patient's pharmacy in Te Kuiti and had it all written up for when she was transferred to TPW, IPC. The psych team were very grateful for all the work that had already been done, they asked me to feed back their gratitude. By doing this we were able to medicate the patient with her normal anti-epileptic medication in the ED. I have seen the staff looking for Lisa to help with a medication query, and have missed her presence in the department in the last 48 hours.

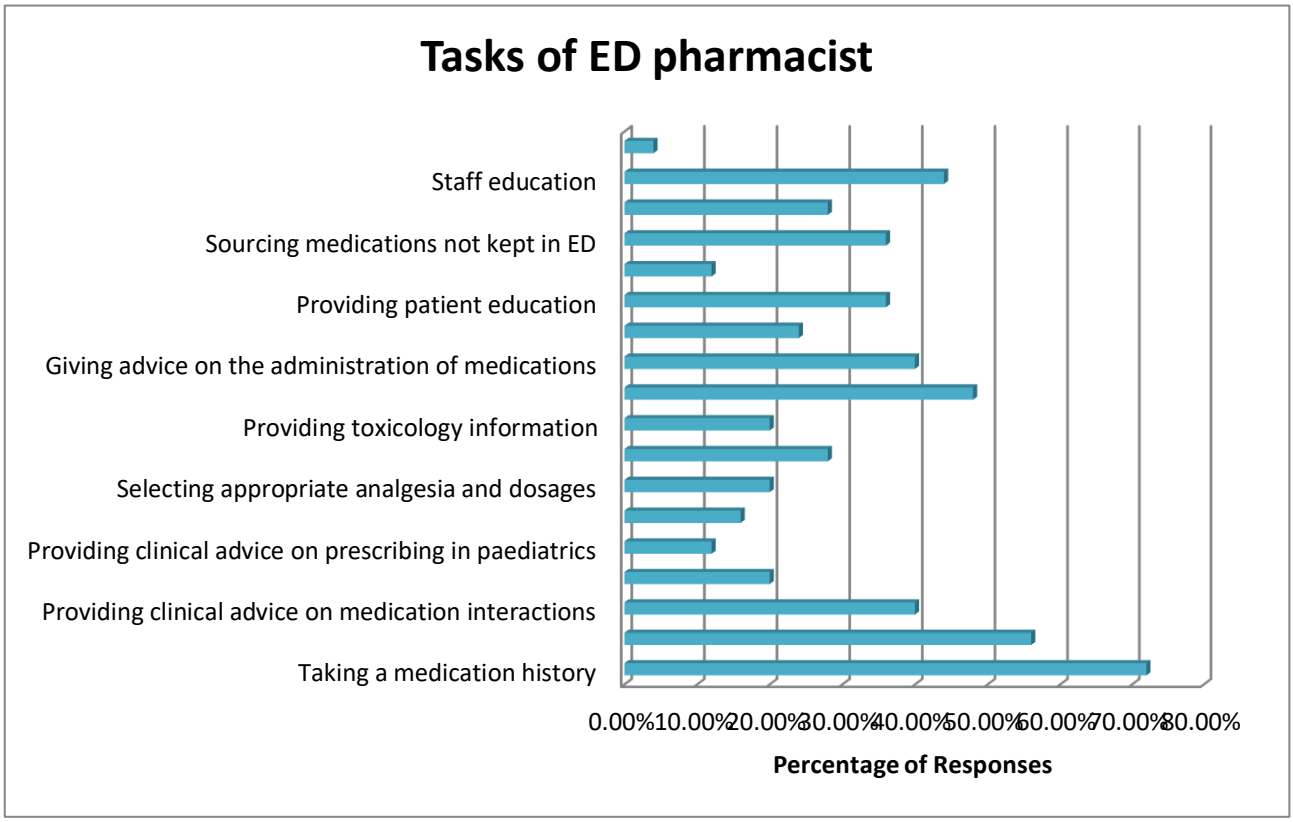
It has been great, Lisa is a key part of the team and I feel as though it would benefit the department to have her here in a permanent position.

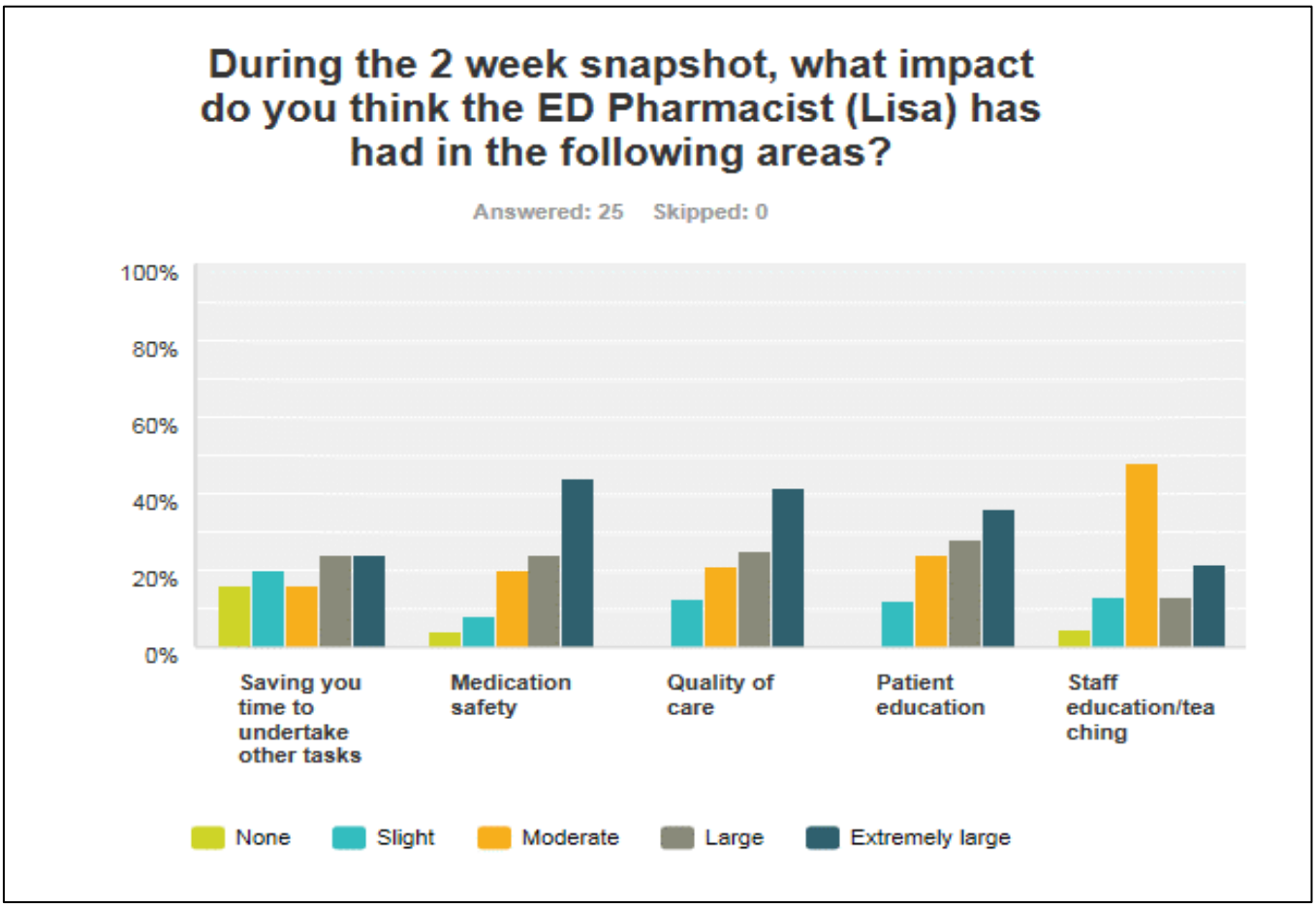
Was a lot easier to clarify which medications a patient is on at admission so it was clearer if some were stopped or withheld that it was intentional, therefore ward house surgeons weren't pestered about regular meds of patients they don't know.

Didn't flow that nicely because it wasn't a permanent thing so Lisa didn't really have a base to carry out her work and was almost interrupting the nurse's history/assessment/interventions, but I think that if she stayed and had proper policies and time to see the patient and her own seat and computer, maybe things would flow better. Also, needed to finish her medication histories before patients were due to go to ward because a few times she slowed patients going to ward due to not being finished getting med history.

Only issue was a patient waited over an hour to get to the ward in order to have their medications filled out by pharmacist so the med reg could do the emed chart. patient had to go up to ward anyway otherwise they would have breached.

Survey Monkey Results:





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