

# Assessing the feasibility and development of an Inter-professional placement program to support Nursing students' understanding of medication safety and quality use of medicines

Gosford Hospital Pharmacy Department

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## Background and Aim

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It is widely recognised that optimal patient care is not a solo endeavor, but one that requires professional collaboration. This teamwork can provide, not only, enhanced patient care, but also improved staff satisfaction, effective and efficient use of resources as well as providing a synergistic model that can operate well into the future, core philosophies of the Central Coast Local Health District (CCLHD, 2015).

Nursing staff undertake a prominent role in ensuring the quality use of medications (QUM) through their involvement in medication administration and monitoring of the patient (NSW Nurses and Midwives' Association, 2012). This intimate involvement in patients' medication management means it is crucial for nursing staff to be alert to the risks of medication error.

Current observational research (Durieux et al 2008) suggests that the most common cause of medication administration errors are due to a lack of knowledge and understanding of the medication itself. This includes lack of awareness of medication interactions, incorrect medication strengths and forms, incorrect mixing, inappropriate crushing, incorrect timing of medication administration, overly rapid infusions and inadequate knowledge and understanding of how to access relevant medication information and local guidelines and policies (Durieux et al 2008). Medication administration errors alone place a significant burden on the health system. In 2009 it was estimated that the cost of preventable medication errors in Australia was approximately \$350 million annually (Roughead and Gilbert 2009). Systematic review of 29 studies revealed the following drugs to be most commonly associated with severe

adverse reactions; cardiovascular drugs, analgesics, hypoglycaemic agents, IV electrolyte infusions, chemotherapeutic agents and anticoagulation drugs (Thomson et al 2007) (APINCH-2012).

Pharmacists have been specifically trained to help identify and minimise the risk of medication errors in healthcare settings. Their primary role is to aid in the safe, appropriate and timely access to medications and they undertake a variety of quality improvement activities, in collaboration with other healthcare professionals, to try and improve the quality use of medicines (SHPA, 2013).

Reviews have reported positive feedback from studies involving collaboration between nursing and pharmacy at an undergraduate level (Cooper et al, 2001; Ebert et al, 2014; Levett-Jones et al, 2013) and inter-professional education is now considered an essential part of health professional training (Garling, 2008; WHO, 2010; CHIC, 2010). Furthermore, recent research has suggested that targeted practical education during clinical placements involving inter-professional collaboration could be a more successful method of improving knowledge and developing communication and teamwork skills to be better prepared for collaborative practice, ultimately leading to improved health outcomes (CIHC, 2010; Levett-Jones et al. 2013; Gilligan; 2014).

For nursing students and newly graduated nursing staff it has been identified that a significant fear when starting work is making an unintentional medication error, resulting in patient harm (Leonard et al 2012). Current literature shows that increased training and a collaborative approach between pharmacists and nursing staff is a highly recognised need in improving confidence in nurses, with particular regard to, medication understanding, administration and safety. (Preston, R.M. 2004)

It is this data that has provided a basis for the proposed inter-professional collaboration between hospital pharmacists and nursing students and staff. The aim of this research was to identify current needs of nursing students with regard to medication safety, understanding and administration and to assess the feasibility of an inter-professional placement program led by the Gosford Hospital Pharmacy department, in collaboration with the University of Newcastle School of Nursing and Midwifery, that addressed such

needs and improved student confidence upon entering the workplace. Through the development of such a program, a core aim is to strengthen the inter-professional relationship between nursing staff and pharmacists in providing the common goal of excellence in patient care.

It is hypothesised that the findings of this preliminary investigation will support the value of an inter-professional placement program that would complement the current University of Newcastle clinical syllabus with regard to education on QUM and safe medication administration.

## Overview of the project

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The project was divided into two main parts

1. Evaluating current second year Nursing students with regard to:
  - a. Perceived Importance and current confidence in medication administration
  - b. Perceived importance and current confidence in understanding aspects of medication safety, in particular 'high-risk' medication.
  - c. Current perceptions of the role and responsibilities of the hospital pharmacist
2. Determining the feasibility of a pharmacy led inter-professional placement program for nursing students while on clinical placement at Gosford Hospital.

## Evaluating Perceptions of Nursing Students

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### Methods

Current second year Nursing students from the University of Newcastle were invited to take part in a survey while on placement at Gosford Hospital during the September and October 2015 rotation. The survey contained three key components. The first component aimed to assess perceived importance and corresponding confidence ratings with regard to medication administration, with a specific emphasis on different types of inpatient charts as well as dose calculations (Appendix 1). The second component aimed to assess perceived importance as compared to self-reported confidence scores with regard to medication knowledge, particularly, identification of 'high-risk' medications, potential medication related toxicity and adverse reactions to

medication (Appendix 2). The third component aimed to gain a better understanding into the current perceptions of nursing students with regard to the role and responsibilities of a hospital pharmacist and the relationship between pharmacists and nursing staff (Appendix 3).

Overall, the survey contained a mixture of close-ended questions, open-ended questions and rating scales to assess these key areas. This allowed for the data to be appropriately analysed and give insight into key learning areas that would provide the basis for the development of the placement program.

In order to analyse and assess current perceptions regarding importance and confidence in relation to medication understanding and administration, the Likert rating scale was utilised. Students were asked to indicate their perceived importance regarding the importance of medication understanding and administration (1=not at all important, 2=not very important, 3=neither important nor unimportant, 4= very important, 5=extremely important) as well as indicating their confidence with regard to medication understanding and administration (1=Not at all confident, 2=Satisfactory, but lacking in confidence, 3=Neither confident nor unconfident, 4=Confident in most cases, but would like more experience, 5=Fully confident). Students were also asked to indicate how much they agreed to statements regarding their perception of the roles of the hospital pharmacists using the Likert scale (1=Strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree). The students were also asked to complete open-ended questions related to factors they believed affected their confidence with regard to quality use of medication, their current awareness of resources available to them in the hospital setting as well as current perceptions regarding the roles of the hospital pharmacist and current relationships between ward pharmacists and nursing staff. Students were also asked to identify what they believed would help to better equip them upon entering the workplace.

## Results

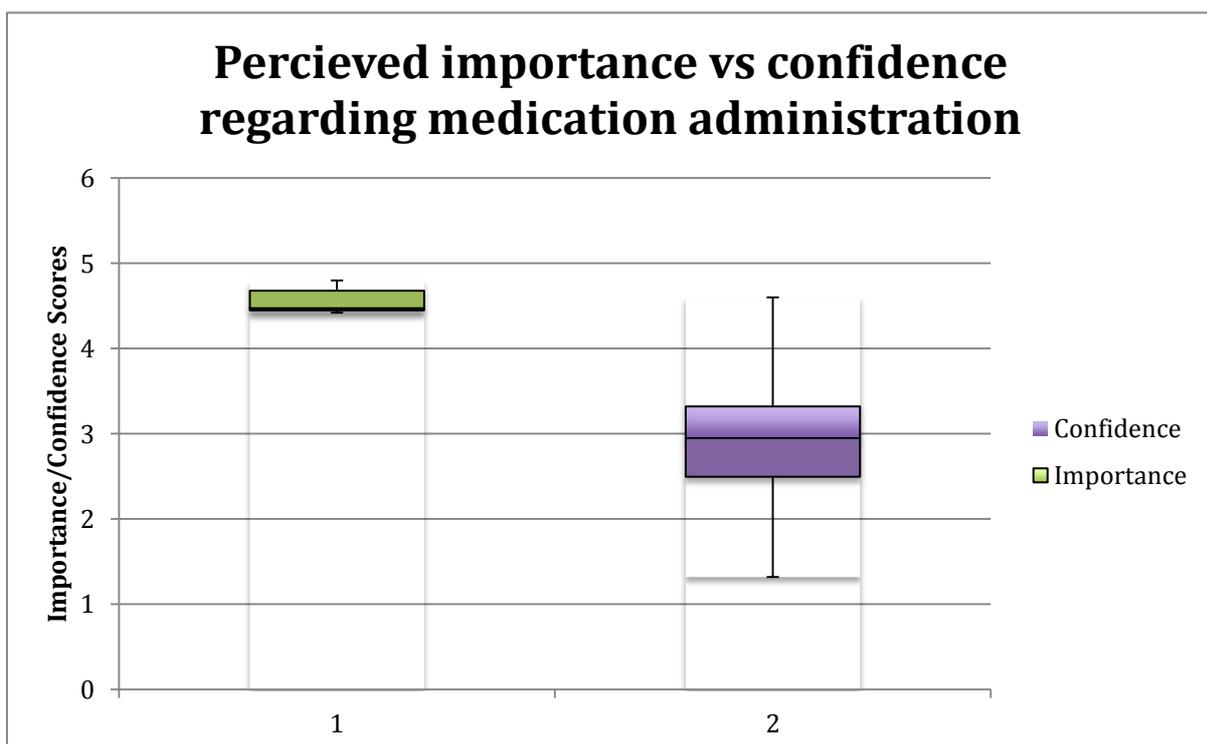
During the University assigned September/October 2015 clinical rotation at Gosford Hospital, 43 students consented to completing the survey. Results from these surveys are shown below:

### *Importance and confidence with regard to Medication administration*

**Table 1: Perceived importance and Confidence Scores with regard to Medication administration**

	Importance Scores		Confidence Scores	
	Mean	SD	Mean	SD
Following the 5 Rights when administering medication	4.71	0.44	4.6	0.48
Understanding and administering medication from a National Inpatient Medication Chart	4.48	0.49	3.9	0.73
Understanding and administering medication from a Parenteral Nutrition Chart	4.42	0.49	2.1	0.79
Understanding and administering medication from a Fluid chart	4.47	0.50	2.95	0.82
Understanding and administering medication from an Insulin chart	4.67	0.47	3.13	0.81
Understanding and administering medication according to a hospital protocol	4.8	0.39	2.63	0.64
Understanding and administering medication from a Heparin infusion chart	4.46	0.49	2.95	0.71
Calculating and administering medication doses	4.42	0.49	1.32	0.46

(Importance Scores: 1=Not important; 5=Very important, Confidence Scores: 1=Not confident; 5=Very confident, SD= Standard Deviation)

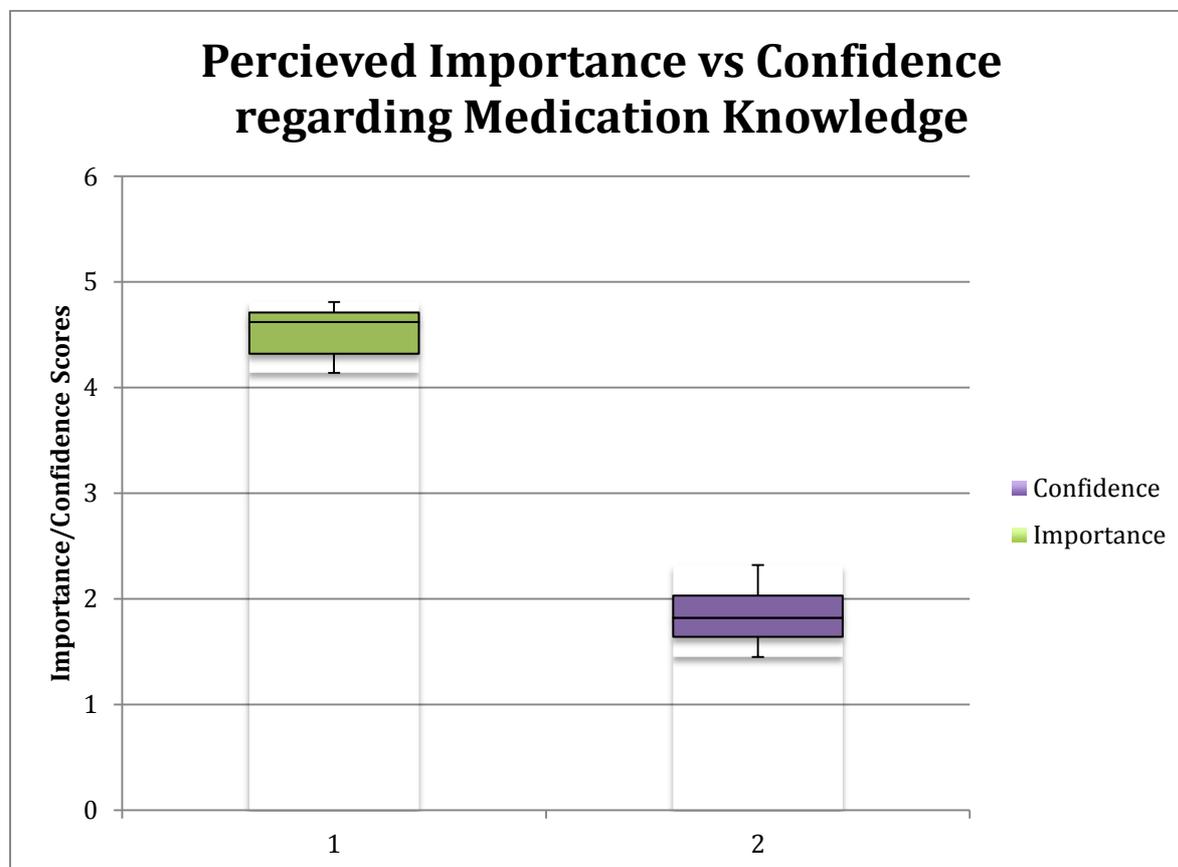


**Figure 1: Box Plots showing the results of the perceived importance in comparison to self assess confidence in with regard to medication administration. Median of Importance scores= 4.75, Median for Confidence scores=2.95**

*Importance and confidence with regard to Knowledge and Understanding of Medication*

**Table 2: Perceived Importance and Confidence scores with regard to Knowledge and Understanding of Medication**

	Importance Scores		Confidence Scores	
	Mean	SD	Mean	SD
Identifying High risk medication	4.81	0.39	1.45	0.49
Knowledge and understanding of monitoring required for specific medication	4.61	0.48	1.68	0.55
Knowledge and understanding of potential side effects of medication	4.14	0.77	1.72	0.68
Knowledge and understanding of serious side effects of medication	4.62	0.48	2.32	0.63
Knowledge and understanding of signs of toxicity related to medication	4.81	0.39	1.95	0.71
Knowledge and understanding of Time-Specific medication	4.67	0.56	2.27	0.74
Knowledge and understanding of which medications can be crushed	4.28	0.54	1.91	0.66
Knowledge and understanding of important drug interactions	4.33	0.47	1.54	0.49



**Figure 1: Box Plots showing the results of the perceived importance in comparison to self assess confidence in with regard to medication knowledge. Median of Importance scores= 4.62, Median for Confidence scores=1.82)**

*Perception and understanding of the role of the Hospital Pharmacist*

**Table 3: Perception scores with regard to Pharmacists in the hospital setting**

Perception Score (1=Strongly disagree; 5=Strongly agree)	Mean Score	SD
I know about how the pharmacist can help me on the ward	2.61	0.48
I know about how the pharmacist can help the patient on the ward	3.53	0.49
I know how to contact the ward pharmacist	1.38	0.48
I believe nurses and pharmacists currently have a cohesive and collaborative approach to patient care	3,62	0.62
I feel comfortable to contact my ward pharmacist regarding medication queries	4.46	0.49
I believe working in collaboration with the pharmacist will improve patient care	4.54	0.49
I believe an inter-professional placement program between Pharmacy and Nursing would help improve my medication knowledge	4.69	0.46
I believe an inter-professional placement program between Pharmacy and Nursing would improve my confidence regarding medication administration	4.69	0.46

**Qualitative Feedback from Nursing Students**

Students were asked to identify three factors they believed impacted their confidence with regard to medication administration. The most common responses included:

- “Not knowing what the drugs do”*
- “Calculating doses”*
- “Confusion between drugs and different drug names”*
- “Too much pressure to know all the drugs”*
- “Lack of exposure and experience”*

Students were also asked what their current understand was with regard to the role of the ward pharmacist. The most common responses included:

- “To supply and deliver medication when charts are faxed”*
- “To supply discharge medications”*

*“To check medication charts”*

When asked if students knew how to contact their ward pharmacist, 41 out of the 43 students were unsure of how they could contact the ward pharmacist.

Finally, students were asked what they believed would help them better prepare for starting work as a nurse in regard to medication understanding and administration. The most common responses included:

*“Tutorials while on clinical placement”*

*“More exposure to medication and administration in a practical setting”*

*“Having concise handouts with key points”*

*“More knowledge about overall drug classes and important interactions”*

*“Regular interactive tutorials while in the hospital”*

*“Learning how to access the pharmacist and resources while in a clinical setting in reality”*

## **Discussion**

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With regard to nursing students assessing the importance and confidence in relation to medication administration, results showed that all students understood the importance of following the ‘5 rights’ principal and felt very confident in following this principal when in the work environment. Furthermore, results showed students perceived the ability to understand and administer medications charted on various inpatient charts as extremely important. Students were shown to have a much higher level of confidence administering from commonly used inpatient charts such as the National Inpatient Medication Chart, but were significantly less confident when asked about understanding and administering medications charted on less commonly used charts such as heparin infusion charts, insulin charts and especially parenteral nutrition charts and hospital protocols. Results also indicated that students understood the importance of being able to calculate medication doses however felt a strong lack of confidence in this area.

When assessing students’ perceived importance with regard to their of understanding medication and their level of confidence, overall students indicated that a broad

understanding of medication was extremely important, with a particular emphasis on importance on identifying 'high-risk' medications and recognising signs of medication related toxicity. When asked to assess their levels of confidence, students indicated that they did not feel confident when assessing their knowledge of medications. Areas that were shown to have the lowest level of student confidence were in identifying high-risk medications, knowledge and understanding of medications that need to be specifically monitored and knowledge and understanding of potential signs of toxicity relating to medications. Furthermore, qualitative data collected from the students indicated that, for many, trying to know and understand all medications seemed overwhelming and discouraging and this greatly affected their confidence in the workplace.

Finally, students were asked to indicate their current perceptions regarding the role of the hospital pharmacist in a clinical setting. Results showed that students were unaware that the ward pharmacist is an available resource and many students were unable to identify how they would contact the ward pharmacist should they need to. Qualitative data suggested that the primary perception of the roles and responsibilities of the ward pharmacist was largely confined to medication supply. When students were asked about their perceptions regarding a Pharmacy-Nursing placement program, results showed that students strongly agreed that the development and implementation of such a program would improve patient care, improve medication knowledge and improve confidence levels with regard to medication administration as well as overall confidence when entering the workplace.

Overall, the findings of this preliminary investigation support the value of an inter-professional placement program that would complement the current University of Newcastle clinical syllabus with regard to education on Quality Use of Medicines and safe medication administration

It is anticipated that such a program will improve collaboration and co-ordination between the Gosford Hospital Pharmacy department and the School of Nursing and Midwifery to provide nursing students access to medication information as well as available policies and guidelines to support nurse's knowledge and skills as well as increase confidence in the workplace. Such a program would also improve inter-

professional working relationships between hospital pharmacists and future registered nurses.

Data from the Nursing student survey provided key insight into areas where students felt they lacked confidence and as such, will provide the basis of the proposed Pharmacy-Nursing placement program. With regard to medication administration, it was found that the program should familiarise students with unique inpatient charts such as Heparin charts, Insulin charts and parenteral charts. It was also found that students felt they would benefit from receiving more exposure to practical examples of dose calculations, another area the proposed program aims to address and support. Survey results also found that the proposed placement program would be most beneficial in improving students' confidence with regard to medication knowledge and understanding by practically going through 'high-risk' medication, medications that require specific monitoring as well as identifying serious and potentially fatal signs of toxicity related to medication. Furthermore, it aims to show students' how and where they can access information regarding medication and medication protocols available to them. It is envisaged that such clinical placement sessions will address the lack of confidence with regard to medication knowledge by providing practical exposure in an open-forum setting, where students should also be able to discuss and ask questions, to consolidate their University teaching as well as their time on the ward. By providing this supportive program whilst students are on clinical placement, a primary outcome will be to strengthen the inter-professional relationship between pharmacists and nurses as well as give Nursing students greater insight into the roles and responsibilities of the pharmacist, not only as a means of medication supply but as a resource of medication knowledge.

The proposed program aims to be implemented during University of Newcastle second year nursing students' clinical placement during semester two. Gosford Hospital Pharmacy department, with the support of Newcastle University School of Nursing and Midwifery will provide weekly one hour sessions over the students' four weeks of placement at Gosford Hospital. It is proposed that nursing students will meet with pharmacists at the hospital during their clinical placement to establish a holistic understanding of the patient's medication journey, from prescribing of medication to the administration of medication. This would include a tour the Pharmacy department

to gain an understanding of the role of the pharmacist and pharmacy technician and the key medication management processes. Students will also partake in interactive tutorials of real-life challenges, focusing on 'high risk' medications involving a review of medication charts, including National Inpatient Medication Charts and especially less commonly used inpatient charts such as, parenteral nutrition, insulin and fluid charts, followed by assessment activities requiring students identify common medication related errors and dose calculation errors. It has been identified that the hospital has sufficient teaching and training infrastructure to accommodate tutorials, workshops and the necessary department visits.

#### *Future evaluation and development of the program*

The current proposed program aims to be piloted from July to October 2016. Following the implementation of the program, students will be asked to re-assess their confidence with regard to medication administration, knowledge and perception of pharmacists, in order to evaluate the effectiveness of the program in achieving its proposed outcomes. Further than that, students will be asked to provide feedback with regard to areas of the program that may need to be re-evaluated and designed to best support Nursing students' and their clinical placement experience. It is expected that such a program will be easily transferrable across sites and be implemented in other healthcare facilities across the Central Coast Local Health District.

## References

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**APPENDIX 1- Part One of survey given to Nursing students**

**Assessment of perceived Importance and Confidence with regard to Medication Administration**

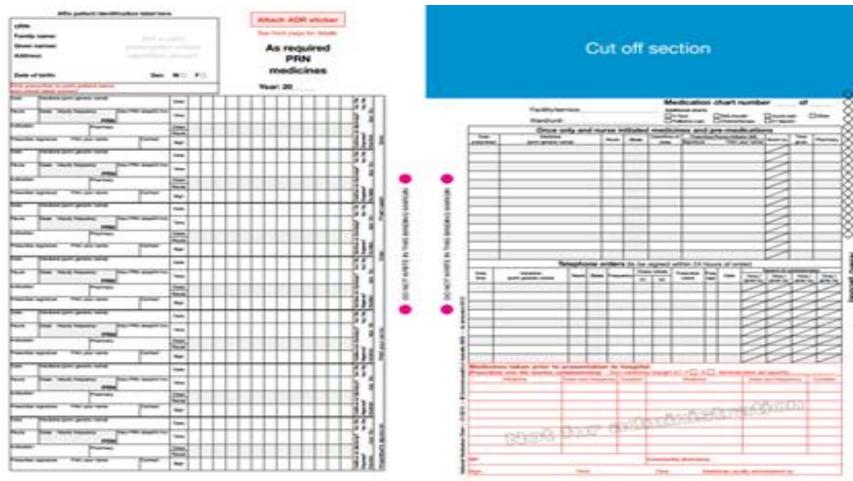
1. We would like to find out how important you believe it is to Follow the Five Rights when administering medication

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

2. How confident do you feel Following the Five rights when administering medication?

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

**The Following questions are related to National Inpatient Medication Charts (NIMC):**



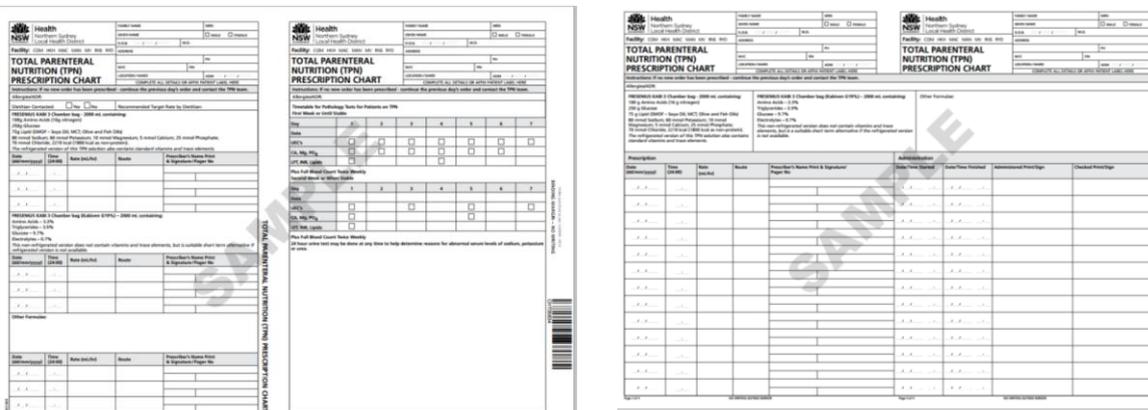
3. Please score how important do you believe it is to Understand and administer Medication from a **National Inpatient Medication Chart**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

4. Please score how confident you feel administering Medication from a **National Inpatient Medication Chart**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

The Following questions are related to Total Parenteral Nutrition Charts:



5. Please score how important you believe it is to understand and administer medication from a **Total Parenteral Nutrition Chart**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

6. Please score how confident you feel administering medication from a **Parenteral Nutrition Chart**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

The following questions are related to Fluid Charts:



7. Please score how important you believe it is to understand and administer Medication from a Fluid Chart

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

8. Please score how confident you feel administering medication from a **Fluid Chart**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

The following questions are related to Insulin Charts:

9. Please score how important you believe it is to Understand and administer Medication from an **Insulin Chart (Subcutaneous and infusion)**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

10. Please score how confident you feel administering Medication from an **Insulin Chart (Subcutaneous and Infusion)**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

11. Please score how important you believe it is to understand and administer medication according to **hospital protocol**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

12. Please score how confident you feel administering medication from a **hospital protocol**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

The following questions are related to Heparin Infusion Charts

**INTRAVENOUS HEPARIN MEDICATION CHART**

**Intravenous Heparin Guidelines (DVT / PE / Cardiology)**  
 (See stroke guidelines please refer to the stroke protocol)  
 1. Use of Heparin for APTT: 100-150 units/kg (full blood count, LFT, Urea/Electrolytes, Prothrombin C, & factor V Level), must be done prior to initiation.  
 2. Once loading dose 5,000 units IV. Refer to local stroke protocols, refer to the stroke protocol.  
 3. Continue to infuse at 20-30 units/kg/hr (full blood count of high risk or 10-20 units/kg/hr for low risk at 6 hours post start).  
 4. Check APTT in 6 hours and adjust dose according to table if not in the therapeutic range. Repeat APTT in 6 hours until in the therapeutic range.  
 5. When APTT is in therapeutic range, review daily.  
 6. Check platelet count three times a week.  
 7. When at least 6 days of Heparin and 2 consecutive INR < 2.0 for oral target range and an additional 6 days Heparin.  
 For more detailed information, refer to NSW Anticoagulation Guidelines.

APTT	Rate	Rate Change	APTT
< 70	0	+10	< 70
70-79	0	+5	70-79
80-89	0	0	80-89
90-99	0	-5	90-99
100-109	0	-10	100-109
110-119	0	-15	110-119
120-129	0	-20	120-129
> 130	0	-25	> 130

13. Please score how important you believe it is to Understand and administer Medication from a **Heparin Infusion Chart**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

14. Please score how confident you feel administering medication from a **heparin infusion chart**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

15. Please score how important do you believe it is to **understand how to calculate and administer medication doses**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

16. Please score how confident you feel understanding, **calculating and administering medication doses**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

## APPENDIX 2: Part 2 of the Survey Given to Nursing Students

### Medication Knowledge and understanding

1. We would like to find out how important you believe it is Identify high Risk Medications on an NIMC

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

2. How confident do you feel Identifying 'High Risk' Medication on an NIMC?

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

3. Please score how important you believe it is to recognise and understand the **Monitoring required for specific medication**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

4. Please score how confident you feel recognising and understanding the **Monitoring required for specific medication**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

5. Please score how important you believe it is to recognise and understand the **potential side effects of medication**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

6. Please score how confident you feel recognising and understand the **potential side effects of medication**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident

1	2	3	4	5
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7. Please score how important you believe it is to recognise and understand **serious side effects of Medication**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

8. Please score how confident you feel recognising and understanding **serious side effects of medication**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

9. Please score how important you believe it is to recognise and understand signs of **Toxicity related to Medication**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

10. Please score how confident you feel recognising and understanding potential signs of **Toxicity related to Medication**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

11. Please score how important you believe it is to Understand which medications are **'Time-Specific'**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

12.

13. Please score how confident you feel recognising medications that are **'Time-specific'**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
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1	2	3	4	5
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**14. Please score how important you believe it is to Understand which Medications can be crushed**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

**15. Please score how confident you feel recognising which medications can be crushed**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

**16. Please score how important you believe it is to Understand important drug interactions**

Not at all important	Not very important	Neither important nor unimportant	Very important	Extremely important
1	2	3	4	5

**17. Please score how confident you feel recognising important drug interactions**

Not confident	Satisfactory, but lacking confidence	Neither confident nor unconfident	Confident in most cases but would like more experience	Fully confident
1	2	3	4	5

Perception Score (1=Strongly disagree; 5=Strongly agree)					
I know about how the pharmacist can help me on the ward	1	2	3	4	5
I know about how the pharmacist can help the patient on the ward	1	2	3	4	5
I know how to contact the ward pharmacist	1	2	3	4	5
I believe nurses and pharmacists currently have a cohesive and collaborative approach to patient care	1	2	3	4	5
I feel comfortable to contact my ward pharmacist regarding medication queries	1	2	3	4	5
I believe working in collaboration with the pharmacist will improve patient care	1	2	3	4	5
I believe an inter-professional placement program between Pharmacy and Nursing would help improve my medication knowledge	1	2	3	4	5
I believe an inter-professional placement program between Pharmacy and Nursing would improve my confidence regarding medication administration	1	2	3	4	5

APPENDIX 3: Part 3 of the Survey Given to Nursing Students

Perception of the pharmacist

**1=Strongly Disagree**

**2=Disagree**

**3=Neither Agree nor Disagree**

**4=Agree**

**5=Strongly agree**

1. Can you describe what you believe the role/responsibility of the pharmacist in the hospital setting is?

\_\_\_\_\_

\_\_\_\_\_

2. Do you know how to access your ward pharmacist? Y/N

3. Please identify the method/way you can contact your ward pharmacist?

\_\_\_\_\_

\_\_\_\_\_

- 4.

What do you believe would help you better prepare for starting work as a nurse in regard to medication knowledge and administration?

\_\_\_\_\_

\_\_\_\_\_

## APPENDIX 4: Proposed Outline for Nursing Students' Clinical Placement Program

### **Newcastle University Nursing Students** **Weekly Program**

Week	Focus	Time	Key Objectives	Activities	Persons involved
1a	Introduction	0.5 hrs	<ol style="list-style-type: none"> <li>1. Introduction to the GDH Pharmacy Department</li> <li>2. Key principles of Medication administration and Medication Knowledge</li> </ol>	<ul style="list-style-type: none"> <li>- Tour of Pharmacy department</li> <li>- Going through the process of medication delivery (From chart being faxed to ward delivery)</li> <li>- Context, gravity, importance of Quality Use of Medication</li> </ul>	<ul style="list-style-type: none"> <li>- Clinical Services Manager</li> <li>- ED pharmacist</li> <li>- +/- Dispensary Manager</li> </ul>
1b	Inpatient charts and Special Charts	1 hr	<ol style="list-style-type: none"> <li>1. Understanding and appreciation of key features of NIMC chart</li> <li>2. Common errors that occur on NIMC</li> <li>3. Exposure to unique charts such as fluid, insulin, anticoagulation, production, TPN, chemotherapy charts</li> </ol>	<ul style="list-style-type: none"> <li>- Review of key chart features</li> <li>- Discuss 'real life' examples of errors on NIMC</li> <li>- Time in dispensary to observe inpatient chart processing</li> <li>- Review of key features of unique charts – fluid, insulin, anticoagulation, TPN, Production</li> <li>- Shown 'real life' examples of errors in these charts</li> <li>- <b>Review charts they collected themselves</b></li> </ul>	<ul style="list-style-type: none"> <li>- Clinical Services Manager</li> <li>- Dispensary Manager</li> </ul>
2	Medication Knowledge and Understanding	1 hr	<ol style="list-style-type: none"> <li>1. Understand the importance of recognising 'high risk' medication and related toxicity</li> <li>2. Understanding medications with narrow therapeutic index</li> <li>3. Examples of common errors that occur</li> <li>4. Understand where to access medication information</li> </ol>	<ul style="list-style-type: none"> <li>- Discussion on importance recognising 'high risk' medication.</li> <li>- View some 'real life' errors.</li> <li>- Review of accessible resources and how to best utilise each (e.g. Hospital protocols, MIMS)</li> <li>- Recognising signs of toxicity for narrow therapeutic medications</li> <li>- <b>Review charts they collected themselves and open forum discussion</b></li> </ul>	<ul style="list-style-type: none"> <li>- Clinical Services Manager</li> <li>- Dispensary Manager</li> <li>- +/- Ward Pharmacist</li> </ul>
3	Dosing calculations	1 hr	<ol style="list-style-type: none"> <li>1. Appreciate the importance of dosing</li> <li>2. Undertake calculations to decide correct dosages of medications</li> </ol>	<ul style="list-style-type: none"> <li>- Tutorials to be prepared in conjunction with the School of Nursing and Midwifery and marked.</li> </ul>	<ul style="list-style-type: none"> <li>- Clinical Services Manager</li> <li>- Dispensary Manager</li> <li>- +/- Ward Pharmacist (e.g. Pediatric, ICU)</li> </ul>
4	Evaluation	1 hr	<ol style="list-style-type: none"> <li>1. Evaluation of weekly sessions</li> <li>2. Evaluation of Nursing Students' confidence with regard to Quality Use of Medication after the program</li> <li>3. Summary of key prescribing points from weekly sessions</li> </ol>	<ul style="list-style-type: none"> <li>- Evaluation summaries completed</li> <li>- Feedback from calculations tutorial.</li> <li>- Discussion about what students enjoyed in program</li> <li>- Discussion about how program could be improved</li> <li>- Final discussion about importance Quality Use of Medication and re-iteration of key points from weekly sessions</li> </ul>	<ul style="list-style-type: none"> <li>- Newcastle University supervisor</li> <li>- Clinical Services Manager</li> <li>- Dispensary Manager</li> </ul>

