

A comprehensive education framework for clinical pharmacy services in an Australian women's hospital

Stephanie WK Teoh¹, Tamara Lebedevs², and Nabeelah Mukadam³

¹BPharm(Hons), MCLinPharm, Pharmacy Department, King Edward Memorial Hospital, Perth, Australia

²BPharm, PostGradDipPharm, Pharmacy Department, King Edward Memorial Hospital, Perth, Australia

³BPharm(Hons), MPhil (Pharmacy), Pharmacy Department, King Edward Memorial Hospital, Perth, Australia

Abstract

Background: A training program aimed at increasing the knowledge and skillsets of obstetric clinical pharmacists to ensure consistency and quality of service delivery is described here.

Methods: The pharmacy department developed a training program to increase the knowledge and skillsets of pharmacists, particularly those who have not worked as an intern or completed residency training in a women hospital. The training program was designed based on the services offered, departmental size, resources available, and time allotted for training. **Results:** Clinical practice guidelines, policy statements, and other sources were used to develop the training materials, consisting of an e-Learning package, followed by face-to-face teaching, demonstration and working under supervision. The self-directed learning module was endorsed by the North Metropolitan

Health Services Department of Learning and Development and the trainees who completed the program earned a certificate from the department. From its implementation in August 2023, the department has trained five pharmacists and four intern pharmacists using the new training program.

Discussion: The implementation of a training program to educate pharmacists in obstetric clinical services helped to ensure consistency and competency in the service provision of clinical pharmacists, while ensuring the sustainability of training in the department. Our experience in developing and implementing the education model fostered the transition to structured training in obstetric clinical pharmacy.

Keywords: Pharmacy, Education, Obstetric, Women Health, Clinical Pharmacy

Email: Stephanie WK Teoh (Stephanie.Teoh@health.wa.gov.au)

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Introduction

Undergraduate pharmacy studies cover competencies required for community pharmacists, hospital pharmacists, pharmacists in pharmaceutical manufacturing and in research, and skillsets involving medicine logistics, extemporaneous preparation of medicines, medication counselling, medication reconciliation, over-the-counter medicines and medication management for various medical conditions.¹⁻⁴ The universities allocate varying amounts of teaching and clinical hours preparing undergraduate students to work in a hospital. A recent study demonstrates that clinical pharmacy services are still underdeveloped and underutilized in countries including most of Central and Eastern Europe.⁵ Meanwhile, the lack of qualified and well-trained pharmacists has been

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identified as one of the key barriers to advancement of clinical pharmacy in a study evaluating the clinical pharmacy practice and education in Taiwan, Vietnam and Indonesia.⁶ A global survey involving 85 countries identified the opportunities for growth and development in hospital pharmacy to advance the profession and ensure that patients worldwide receive the care that they deserve.⁷

Pregnancy complications, comorbidities, and maternal morbidity have been on the rise due to increased age, higher rates of obesity and preexisting chronic conditions, and higher rates of caesarean delivery.^{4,8-9} Obstetric pharmacists are increasingly important in the medication management of obstetric patients, including profile review to identify and document past medical

history and play an active role in the medication management of diabetes, infection, prevention of venous thromboembolism and providing medicine safety advice for pregnancy and lactation.^{4,8-11} Obstetric pharmacy services have proved to contribute to fewer hospital days for mothers and their newborns, fewer admissions to the neonatal intensive care unit and more patient care time for the attending physician.⁸⁻⁹ Pharmacists providing clinical care for patients in a women's health hospital should have proficient knowledge and skills before practicing independently. A lack of training in obstetric clinical pharmacy may be a limitation to pharmacist involvement in this specialty.⁴ To advance their clinical skillset in obstetrics, pharmacists who have not completed internship or residency in a women's hospital¹² have sought attendance in seminars and short courses, and many learn through institution-based on-the-job training when working on the obstetric wards providing clinical pharmacy services. Pharmacists providing care to hospital patients should possess the knowledge and skills necessary to make that care safe and effective. The pharmacy department should provide adequate training for all staff members who may be called upon to provide care to hospital patients.

Aim

This report aimed to describe the development and implementation of a training tool to increase the knowledge and skillset of obstetric clinical pharmacists in an Australian Principal Referral and Specialist Women Hospital. The objective of the implementation of the training program was to ensure consistency and quality in service delivery.

Method

The study hospital, with 300 beds (including 100 neonatal cots), is the only tertiary maternity and gynecological hospital in the state. More than 6,000 births occur annually, and it is the only major referral center in the state for high-risk pregnancies. The Covid-19 pandemic has created job opportunities in the pharmacy department in the study hospital to cover sickness, staff furlough in the pharmacy and to assist with nursing and midwifery workforce shortages.¹³ This has resulted in the employment of new pharmacists who had not previously cared for high-risk obstetric patients, and who had not received formal training in caring for either of those types of patients during pharmacy school. The department had to explore an effective clinical pharmacy training program, other than the conventional training which only involved face-to-

face and on-the-job training. There was also the concern of training fatigue, with a small team of clinical pharmacists. The pharmacy department did not have the financial resources to invest in the services of staff from a school of pharmacy, so therefore had explored the creation of an in-house training module.

The training program was compiled by the Deputy Chief Pharmacist for Clinical Services as there was no dedicated Staff Development Pharmacist in the department. The development of the training module was prioritized, as accomplishing this task and assuring that our personnel were highly proficient, without compromising patient care, was highly important.

Clinical practice guidelines, policy statements, and other sources were reviewed to guide the development of the training materials. While published training for obstetric clinical pharmacists for other hospital settings was not located, the training program (Figure 1) was compiled according to the national standard of practice in women's and newborn health for pharmacy services.¹⁴ The training program involved an e-Learning package compiled by the pharmacy department, followed by face-to-face teaching, demonstration, and working under supervision. The contents of the e-Learning package are shown in Figure 2.

The learning objectives of the training program included: (1) Gain an overview of hospital pharmacy practice; (2) Understand medication management in a clinical setting; (3) Outline the processes involved with medication reconciliation, medication history taking, and discharge medication reconciliation; (4) Describe processes involved with medication supply for in-patients; and (5) Identify resources available to support clinical decisions, and to provide medicine information to healthcare professionals and patients.

The progress of the training was communicated with the pharmacy team via departmental meetings and emails. This enhanced the opportunity for the innovation and development of system-based solutions, and translated to ownership of the process and successful implementation.

This activity was exempted from ethics review, conducted as part of an educational training program for operational requirements, where any

outcomes or documentation were provided for training use only.

Results

From August 2023, the trainee pharmacist received the training program outline with the link to the e-Learning package at least one week prior to starting obstetrics clinical training. The trainee pharmacist would complete section one of the training program by accessing the self-directed learning module. One important component of the training is to ensure the pharmacists are familiar with the available information sources, which are readily accessible to all pharmacists, supporting research on medication-related issues, and facilitating the provision of pharmacy care in the medication use process. The self-directed learning module was endorsed by the North Metropolitan Health Services Department of Learning and Development (NMHS L&D) and is published on the L&D training hub. The trainees who completed the program earned a certificate of completion.

Following the self-directed learning modules, the pharmacist would shadow an experienced senior clinical pharmacist on the ward, learning by observation, demonstration and performing the duties under supervision. Finally, the pharmacist would be evaluated using a departmental assessment tool, miniCEX (Figure 3).

MiniCEX evaluates the pharmacists' skillset while performing medication reconciliation, clinical review, clinical handover and discharge planning. Learning objectives of the training program were reviewed in the delivery of patient care, problem solving and professional skills. We hope the pharmacists are sufficiently skilled to ensure quality and safety of medication management in patient care, emphasizing collaborative care and patient interaction.

From the implementation in August 2023, the department has trained five pharmacists and four intern pharmacists using the new training program. These pharmacists and intern pharmacists were able to meet the departmental requirements, and all have been rostered on the ward areas following the training program. Feedback was sought from the pharmacists following the implementation of new training program in the fortnightly Clinical Pharmacist Meeting. The training program was received positively by the department as the new program was readily accessible online, enabled the trainee to develop basic concepts of clinical pharmacy before being orientated to the ward, and

enabled the trainer pharmacist to deliver training more effectively and sustainably in a structured manner.

Discussion

The implementation of a training program to educate non-residency trained pharmacists in obstetrics enabled the consistent and high quality of pharmacy services, while ensuring the sustainability of the training provided by the department. The training program was designed based on the services offered, departmental size, resources available, and time allotted for training. The training package was a valuable tool to provide established, structured procedure for orienting new personnel to the pharmacy, the hospital and health system.

Inadequate FTEs for training module development and competing responsibilities for the clinical supervisors were among the various challenges of implementation. Other implementation challenges related to the time demands required to complete the self-directed learning training course. This was addressed by recognizing the need of dedicated desktop time for the trainee, instead of starting training on the ward in conventional clinical training. Another limitation of this implementation is the lack of formal evaluation of the effectiveness or impact of the training. Future study in the evaluation, including pre-post self-assessment data or qualitative feedback from participants and trainers, is warranted. The user experience of the initiative is specific to a single hospital, with a small number of staff, therefore the formal recognition and applicability needs to be conducted with a larger number of pharmacists to ensure institutional utility in other settings.

Our experience in developing and implementing the education model fostered the transition to structured training in obstetric clinical pharmacy. Through these activities, we hope to further develop pharmacists' knowledge and skills necessary to make that care safe and effective for the patient, and that they are competent and feel more confident in performing clinical pharmacy services.

Conclusion

The unique challenges of the maternity population require careful consideration for hospital pharmacists and pharmacy departments. The pharmacy department must ensure the clinical pharmacy services meet the needs for obstetric populations. The implementation of a training program to educate pharmacists in obstetric clinical

services helped to ensure consistency and competency in the service provision of clinical pharmacists, while ensuring the sustainability of training in the department.

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Figure 1: Clinical Pharmacy Training Log

Name of Pharmacist / Intern:

Section 1: Self-directed learning - Complete this in 'MyLearning' so completion is documented on your profile

Please complete Section 1 within 1 month of clinical training on the ward

Section 2: Learning by Observation and Demonstration

Please complete Section 2 within 1 month of clinical training on the ward

Section 2 Topics	Date	Pharm 1 initial	Pharm 2 initial
Ward Imprest List on Formulary 1			
Ward Handover and patient test results (including therapeutic drug monitoring) - iSoft Clinical Manager and Bossnet			
Journey board on ward – symbols (e.g. PLS), coloured dots			
Ordering - Imprest & Non-Imprest, Imprest Day for the ward			
Go through NMHS SCGH standards Med Rec MMP, Chart annotation and Discharge reconciliation documents <i>(For the first half of the year, our pharmacy interns would review the medication chart, annotate the chart, and get the supervising clinical pharmacist to sign "Pharmacy" and "Pharmaceutical Review section")</i>			
Medication reconciliation on admission <ul style="list-style-type: none"> Perform three med rec on admission under supervision 			
Medication review and chart annotation <ul style="list-style-type: none"> Perform three medication review and chart annotation under supervision 			
Medication reconciliation on discharge <ul style="list-style-type: none"> Perform three med rec on discharge under supervision 			
Clinical Handover (Teams, ICM and Isobar for complex patients)			
Documenting in Patient's Medical Records - Documentation in medical record examples (and on Bossnet)			
Delivery of S8/S4R impost and discharge medications to ward			
Documentation of Intervention & Documentation of KPI			
Basics of clinical check of CIVAS orders for postnatal ward babies, ensure pharmacist have access to CIVAS REDCap project			

Option of communicating with patients with droplet precautions (e.g. ward telephone number)			
Housekeeping: <ul style="list-style-type: none"> • Discharge medication baskets • Medication and vaccine fridge • Patient's own locker (POM) & key to POM • Uncollected POM/discharge medication for discharged patient to ward coordinator/return to pharmacy (at least once a week) • Midwife handover times • Ward specific orientation, e.g. toilet code, Ward 5 pharmacist office door code, Imprest cupboard code • Friday checklist: Check sufficient S8 and S4R for the weekend, Provide weekend Handover on Microsoft Teams 			

Clinical Pharmacy Orientation (Section 1 and 2) Completed:

I acknowledge that I have been orientated to the KEMH Clinical Pharmacy Service.

New Pharmacist Name:	
New Pharmacist Signature:	
Clinical Pharmacist Full Name:	
Clinical Pharmacist Signature:	
Date:	

Minicex to be organised within 6 weeks of orientation

Minicex on ward processes, medication reconciliation, handover and discharge planning completed

Pharmacist Name:	
New Pharmacist Signature:	
Clinical Pharmacist Full Name:	
Clinical Pharmacist Signature:	
Date:	

Figure 2: Modules in the Self-Directed Learning Package

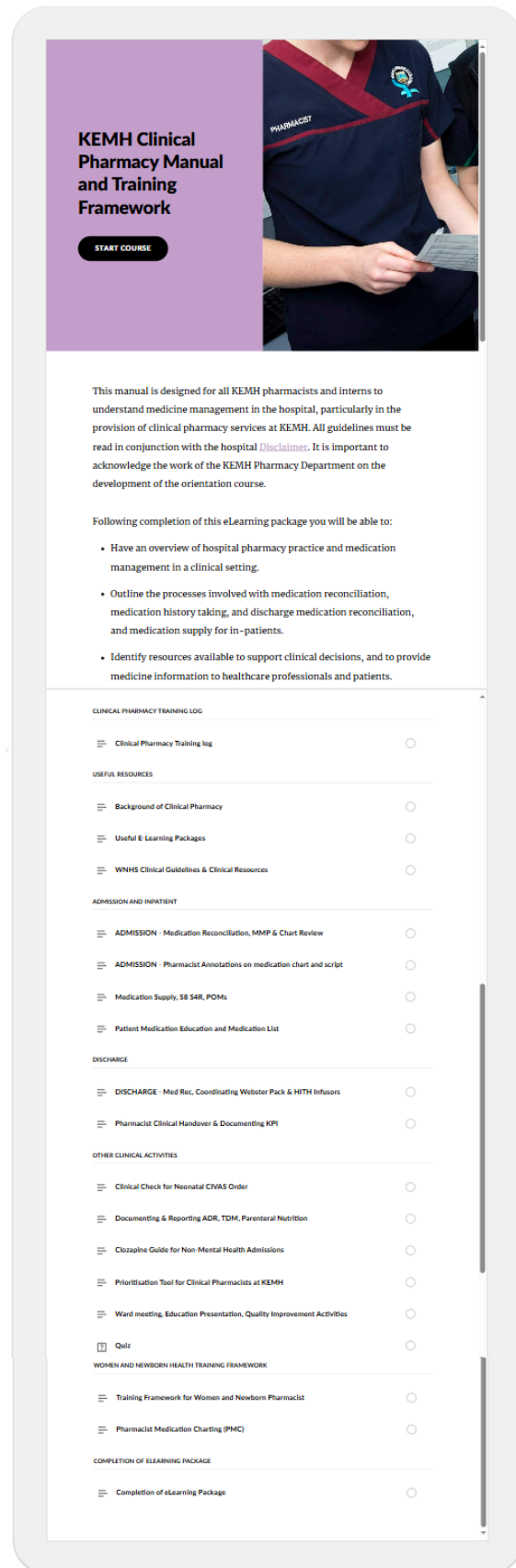


Figure 3: Mini-Clinical Evaluation Exercise (mini-CEX)

Mini-Clinical Evaluation Exercise (mini-CEX)

Staff details:							
Pharmacist Name:			Date:				
Clinical setting/Ward:			Length of time in current setting:				
Details of patient case:							
Patient age			<input type="checkbox"/> Antenate <input type="checkbox"/> Postnate <input type="checkbox"/> Neonate <input type="checkbox"/> Gynae <input type="checkbox"/> Other				
Focus of encounter	<input type="checkbox"/> Medication reconciliation <input type="checkbox"/> Clinical review <input type="checkbox"/> Discharge planning		<input type="checkbox"/> Pharmacist Partnered Medication Charting (PPMC) <input type="checkbox"/> Pharmacist Initiated Medications (PIMs) <input type="checkbox"/> Other: _____				
Complexity of case	<input type="checkbox"/> LOW: single-system problem, minimal complications, < 5 drugs <input type="checkbox"/> MEDIUM: multi-system problems, some complications, > 5 drugs, potential for drug-drug/drug-disease interactions, consideration for dose adjustments <input type="checkbox"/> HIGH: multi-system problems, multiple complications, > 5 drugs, complex factors requiring analysis and interpretation of available evidence						
Area of Focus: Ward processes, Medication Reconciliation, Handover, and Discharge Planning							
Section 1: Delivery of patient care		Review by	Rarely	Sometimes	Usually	Consistently	Unable to assess
Patient history and reconciliation: Gaining patient consent, conducting a patient-centred consultation, exploring the patient's condition, considering the patient's own health beliefs, being aware of personal limitations and making appropriate referrals.		Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assessment of current medication management: Establishing the patient's background, taking a drug history and gaining the necessary information from a range of sources in order to decide on the appropriateness of drug therapy.		Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitoring of current drug therapy: Consider monitoring parameters required and relevant laboratory tests, need for dosage adjustment if required.		Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provision of drug product: Ensures medication supplies available for patient, including appropriate knowledge of imprest, BOR and non-impres orders.		Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provision of information/education to patients: Use of appropriate language, tone and terminology suitable to each patient. Delivers		Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

appropriate quality and quantity of information. Establishes good rapport with patients. Appreciates and responds appropriately to diversity in patients and its impact on communication.	Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discharge facilitation: Appropriate use of NaCS where applicable, liaison with relevant community stakeholders, ensure adequate medication supplies available to patient, communicates with ward staff.	Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Section 2: Problem Solving	Review by	Rarely	Sometimes	Usually	Consistently	Unable to assess
Knowledge: Knowledge of pathophysiology of common conditions encountered, pharmacology, side effects and drug interactions.	Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gathering of drug and patient related information: Accessing and summarising the information required from appropriate sources and ensuring the information used is up to date.	Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analysing and applying information: Ability to evaluate information gathered (reliability of source, relevance to patient care), correctly identifying the problem, appraising options, making appropriate decisions, incorporating individual patient factors and demonstrating a logical approach to overall patient's care.	Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provision of information to healthcare professionals: Provision of medicines and health advice to other pharmacy staff, medical and nursing staff, and other healthcare professionals.	Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Section 3: Professional skills	Review by	Rarely	Sometimes	Usually	Consistently	Unable to assess
Organisation: Manages workload, use of ISOBAR in communication and handover, methodical and logical approach to tasks.	Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Effective communication and appropriate communication style: Communicates respectfully with others using appropriate verbal, non-verbal and written methods. E.g. professional conversations with patients and colleagues, appropriate handovers, good phone manner, conflict management.	Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Professional qualities: time management, patient confidentiality, appropriate application of guidelines e.g. formulary etc.	Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Documentation: Appropriate annotation of charts, completion of MHMP, entry into medical record.	Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Areas performed well						
Evaluator comments:			Pharmacist comments:			
Suggestions for development						
Evaluator comments:			Pharmacist comments:			
Agreed action plan						

Assessed Pharmacist's signature/he number:	
Evaluator's Name:	
Evaluator's position:	
Evaluator's signature/he number:	
Time spent observing encounter:	
Time taken to provide feedback:	

Please email this form to the Deputy Chief Pharmacist.

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