



IPE *for* QUM

Facilitator Guide

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IPE for QUM

In the past most education in health care has been delivered using the learning objectives of a particular profession. This segregated approach is not appropriate in today's health care system. Health care workers who are educated to work together can reduce risks to patients (Australian Council for Safety and Quality in Health Care).

Medication safety is a global concern with interprofessional education (IPE) recognised as vital for preparing nursing, pharmacy and medical students for their roles in the medication team (Bellchambers & McMillian, 2007; World Health Organization [WHO], 2007). However, in Australia IPE is seldom used for teaching medication safety, despite evidence indicating that inadequate communication between health care professionals is the primary issue in the majority of medication errors (Leonard, Graham & Bonacum, 2004).

THE AIMS OF THE FACILITATOR GUIDE

This resource is designed to support educators in their use and integration of IPE and quality use of medicines (QUM) into their teaching. It outlines the clinical, educational, theoretical and political drivers for IPE and discusses IPE as an ideal platform for teaching medication safety to nursing, pharmacy and medical students.

These guidelines:

1. Define interprofessional education (IPE)
2. Provide a rationale for the integration of IPE and medication safety into curricula
3. Discuss the importance of teaching health professional students communication skills related to QUM
4. Provide guidance on the use of online IPE for QUM modules
5. Provide links to supporting materials and additional readings.

OUR LOGO

Our logo epitomises our philosophy; around the outside are three hands representing the three key professions responsible for medication safety (nursing, medicine, and pharmacy). The hands are reaching to each other, representing collaborative practice, and at the centre is the patient/consumer – an integral member of the QUM team and the focus of the care provided.

INTERPROFESSIONAL EDUCATION

Interprofessional education occurs when two or more professions learn with, from and about each other to improve collaboration and the quality of care (Centre for the Advancement of Interprofessional Education [CAIPE], 2002).

The World Health Organization recognises IPE as an innovative but essential strategy for preparing a collaborative practice-ready health workforce (WHO, 2010a). IPE is reported to enhance students' ability to communicate effectively and work as part of an interdisciplinary team (WHO, 2010a). The Canadian Interprofessional Health Collaborative describes interprofessional collaboration as a phenomenon that occurs when learners/practitioners, patients/clients/families and communities develop and maintain interprofessional working relationships that enable optimal health outcomes (Canadian Interprofessional Health Collaborative [CIHC], 2010). It would seem that in order to prepare learners (soon to be practitioners) for collaborative practice, IPE is a logical and essential step.

Garling's (2008) recent *Special Commission of Inquiry into Acute Care Services in NSW Public Hospitals* made clear recommendations related to IPE, stating that:

- education and training should be undertaken in a manner that emphasises interdisciplinary team-based, person-centred care.
- each member of the clinical workforce should be prepared to work within a multi-disciplinary environment as a member of, or as a contributor to, an interdisciplinary team responsible for the delivery of person-centred care.

The *Review of Australian Higher Education* conducted by Bradley in 2008 (Australian Government, 2008) also stressed the need for more effective partnerships between the professions, in order to develop graduate attributes that are relevant to changing professional practice.

True interprofessional collaborative practice requires a consistent culture between learning and practice that supports the development of interprofessional collaborative competencies (CIHC, 2010). Culture takes time to develop however, so the earlier that a culture of collaboration is initiated, the more likely it is that health professionals will attain the necessary knowledge, attitudes, and understanding to adopt a collaborative culture in their clinical practice.

Ideally, interprofessional educational opportunities should be provided in 'real' healthcare contexts during the experiential learning that occurs when students undertake clinical placements. In reality though, there are barriers to this occurring in a systematic or consistent way:

- Clinical placements are unpredictable and dynamic, providing varied and sometimes chaotic learning experiences (Levett-Jones, 2007).
- Opportunities for students to work as part of an interdisciplinary team are often frustrated by the constraints imposed by placement availability and large numbers of students (Levett-Jones & Bourgeois, 2011).

The pragmatic constraints inherent in university curricula and contexts also limit opportunities for health professional students to learn collaboratively. Not all universities offer concurrent nursing, pharmacy and medicine programs, and even when they do, timetabling restrictions, resource implications and large student cohorts can act as barriers to IPE.

INTERPROFESSIONAL COMMUNICATION AND MEDICATION SAFETY

Communication errors are identified as the root cause of 70 per cent of sentinel events in health care settings (Leonard, Graham & Bonacum, 2004).

Medication errors are one of the most common types of adverse events reported in health care. The following statistics provide evidence that justify efforts to improve medication safety:

- More than 50% of all medications globally are either prescribed, dispensed, administered or used inappropriately (WHO, 2010b).
- 30% of hospital patients will experience an adverse drug event. (Classen, Pestotnik, Evans, Burke & Battles, 2005).
- Medication incidents remain the second most common type of incident reported in Australian hospitals (Roughead & Semple, 2008).
- Medication adverse events cost approximately \$6 billion dollars per year and inappropriate use of medicines \$380 million (National Health and Hospitals Reforms Commission, 2008).

- In any two week period medications have been taken by 70% of the population and more than 90% of older persons (Runciman, Roughead, Semple & Adams, 2003).

Medication errors and adverse patient outcomes result from multiple factors. They are related to knowledge and skill deficits, inadequate clinical reasoning skills (del Bueno, 2005), ineffective teamwork, and poor communication between health professionals and between health care consumers and health professionals (WHO, 2007). However, while knowledge and skills related to medication safety are currently addressed in academic programs, interprofessional communication has not been given the same attention. There is no evidence that education focused on increasing students' knowledge about medications has translated into a reduction in medication errors (Ross & Loke, 2009). Similarly, attention to medication calculation skills without consideration of the broader context of safe medication practices has not resulted in improved outcomes (Armitage & Knapman, 2003).

Research indicates that many medication-related errors are potentially preventable through effective collaboration and communication (Dieleman, et al., 2004). Deficiencies in communication between health professionals and recommendations for improvement are major findings in many health care quality improvement investigations (Office of Safety and Quality in Healthcare, 2008) with communication errors identified as the root cause of 70% of sentinel events in health care settings (Leonard, Graham & Bonacum, 2004). Research also indicates that inadequate communication (verbal and written) between health care professionals and with health care consumers and/or family members is the primary issue in the majority of medication errors, adverse reactions, and near-misses (Benjamin, 2003).

The National Medicines Safety and Quality Scoping Study Steering Committee (2009) advocates for the inclusion of safe medication practice in curricula for health professionals. IPE approaches that emphasise the importance of teamwork and communication are essential in the preparation of health professionals. In the Quality Use of Medicines team the four primary stakeholder groups are those who prescribe, dispense, administer and consume (i.e. patients/clients). While each member of the team has unique responsibilities for ensuring medication safety, IPE increases the likelihood of effective communication, safe practice and improved patient outcomes.

IPE for QUM RESOURCES

'It is in the formative years of undergraduate education that attitudes are forged and skills imparted which shape the quality of engagement with patients for years to come.' (The Bristol Royal Infirmary Inquiry, 2001)

We have created a series of modules that are designed to help students learn about medication safety and prepare for interprofessional clinical practice. The resources take into account the barriers to bringing different health professional students together to learn by providing a 'virtual' and 'vicarious' IPE experience. The multimedia resources provide opportunities for students to learn *from* and *about* each other even when they do not have the opportunity to learn *with* each other.

The resources give students a window into how health professionals communicate and work collaboratively to promote QUM and ensure medication safety. Each module is based on an actual clinical situation; a number are re-enactments or adaptations of coronial inquests or incident reports. The skills inherent in safe and effective medication and communication practices are illustrated with positive and negative examples. Although each module is distinct the resources use a consistent pedagogical approach and are supported by critical thinking questions designed to promote reflection and discussion. Each module was developed collaboratively and reviewed for content accuracy, relevance and authenticity by an expert panel consisting of clinicians and educators.

The communication skills illustrated in the IPE for QUM modules are based on the Oxford NOTECHS (Non-Technical Skills) scale. This Scale was originally used to describe the teamwork skills essential to aviation safety, and have since been adapted and used in healthcare settings (Mishra, Catchpole & McCulloch, 2009). Table 1 presents the key teamwork and communication skills inherent in safe medication practices, structured to align with the Oxford NOTECHS scale. The elements within each domain have been expanded in the modules to exemplify both positive and negative communication behaviours. The framework provided in Table 1 can be used by educators as prompts for reflection and discussion and/or as a way of assessing students' communications skills in relation to medication safety in virtual, simulated or actual clinical learning environments. The elements in the framework are specific, measurable, achievable, realistic and timely (SMART) (Levett-Jones & Bourgeois, 2011); they are designed to provide clarity to communication processes that are often vague and somewhat difficult to quantify.

Table 1. Teamwork and communication skills inherent in safe medication practices

Domains	Elements
Person-centred care	<ul style="list-style-type: none"> Including patient/family in discussion Seeking and considering patient's social and medical history Equipping patients with the skills to identify problems and to play an active role in their medication management
Teamwork and cooperation	<ul style="list-style-type: none"> Awareness of and respecting the roles of team members Supporting others Understanding needs of the team Managing conflict Asking for help Valuing others' contribution Sharing accountability and responsibility
Communication and interaction	<ul style="list-style-type: none"> Maintaining eye contact Demonstrating open body language Being polite and friendly Active listening Discussing together Asking questions Coordinating actions Expressing concerns freely Speaking up when unsure Communicating openly – including handover (ISBAR)
Leadership and management	<ul style="list-style-type: none"> Taking the initiative Maintaining clinical standards Delegating Demonstrating gradated assertiveness Creating a "no-blame" culture
Problem solving and decision making	<ul style="list-style-type: none"> Collaborative problem solving Shared option generation Shared risk assessment Shared decision making Reviewing outcomes
Situational awareness	<ul style="list-style-type: none"> Noticing Anticipating – identifying future problems and discussing contingencies Recognising the capabilities of others, cross-checking, and contacting outside sources when necessary
Adherence to guidelines	<ul style="list-style-type: none"> Being familiar and adhering to relevant guidelines, policies and evidence-based resources
Documentation	<ul style="list-style-type: none"> Documenting clearly, accurately, contemporaneously and concisely Accessing and clarifying medical records

IPE for QUM – CURRICULUM INTEGRATION

Digital technologies are particularly important for the development of IPE and in the flexible delivery of health professional education (Learning & Teaching for Interprofessional Practice [L-TIPP Aus], 2009).

It is recognised that curricula differ substantially across Australian medical, pharmacy and nursing programs, with students learning about interprofessional communication and medication safety at different stages. For this reason the IPE for QUM modules have been flexibly designed so that educators can select the most appropriate resource to align with the particular learning objectives of their program, course or unit. The modules can be used as an e-learning resource or as stimulus materials in face-to-face lectures or tutorials. Both modes of delivery have merit and have been positively evaluated by students. The modules can be used in a self-directed way but also promote vigorous dialogue and debate when used for group work. Although these IPE modules provide an ideal platform for students from two or more disciplines to learn together, they are also effective when used for teaching single disciplines as they make explicit the roles and contributions of all members of the medication team.

The modules can be used in ways that vary in complexity. For example, at a basic level students can be guided to observe and discuss communication behaviours. As students progress they can have the opportunity to analyse communication factors (human and system) that led to a medication error/adverse drug event; and in this way a deeper understanding of the complexities of each topic and medication area can be developed. Table 2 demonstrates this through application of Blooms' taxonomy (Krathwohl, 2002). The level of complexity to which students explore each module can be decided based on student level and learning objectives. A module may be revisited at various stages of a health professional program, gradually increasing in complexity as students progress.

The critical thinking questions integrated throughout the modules have been designed to reinforce the key concepts and to extend understanding and application. It is anticipated that educators will develop supplementary questions that align with the learning objectives of their own course or unit.

Table 2. Application of the cognitive domain of Bloom's Taxonomy to the assessment of communication skills and medication safety

Domain	Example
Creation	Proposes a novel solution to prevent a medication error from recurring Develops an innovative communication strategy
Evaluation	Conducts or participates in a root cause analysis to identify the various communication factors (human and system) that led to a medication error/adverse drug event Judges the merit of different approaches for enhancing interprofessional communication and teamwork
Analysis	Categorises the causes of medication errors as human or system Compares the effectiveness of different communication strategies or styles Contrasts the outcomes of positive and negative medication scenarios
Application	Practices ISBAR in making a phone call Provides examples of factors that contribute to medication errors Demonstrates appropriate communication when taking a medication history
Understanding	Explains the roles and responsibilities of the members of the QUM team Discusses the potential consequences of poor interprofessional communication Identifies the errors evident in a medication scenario
Knowledge	Lists elements of effective communication Recalls the meaning of the acronym ISBAR Identifies the '5 Rights'

A NOTE OF CAUTION ...

It is not unusual to adopt an overly simplistic and reductionist approach to adverse patient outcomes and in particular medication errors. Too often medication errors are attributed to (and blamed on) the person who administered, prescribed or dispensed the medication without taking into account the multiple contextual and system-wide factors that create the conditions where medication errors can occur. Similarly, without appropriate guidance students may well take a simplistic view of the medication errors they vicariously experience through the IPE for QUM Modules.

We suggest that students are introduced to Reason's 'Swiss Cheese Model' (Reason, 2000; Reason, Carthey & de Leval, 2001) as they analyse the medication incidents portrayed in the modules. In Reason's model of system failure every step in a process

has the potential for failure, to varying degrees. The ideal system is like a stack of slices of Swiss cheese. Each hole is an opportunity for a process to fail, and each of the slices is a “defensive layer” in the process. An error may allow a problem to pass through a hole in one layer, but in the next layer the holes are in different places, and the problem should be caught. Each layer is a defence against potential error impacting the outcome.

For a medication error to occur, the holes need to align for each step in the process allowing all defences to be defeated and resulting in an error. If the layers are set up with all the holes lined up, this is an inherently flawed system that will allow a problem at the beginning to progress all the way through to adversely affect the outcome. Each slice of cheese is an opportunity to stop an error. The more defences you put up, the better. The fewer the holes and the smaller the holes, the more likely you are to catch/stop errors that may occur. Figure 1 provides an example of how inadequate communication can result in medication errors.

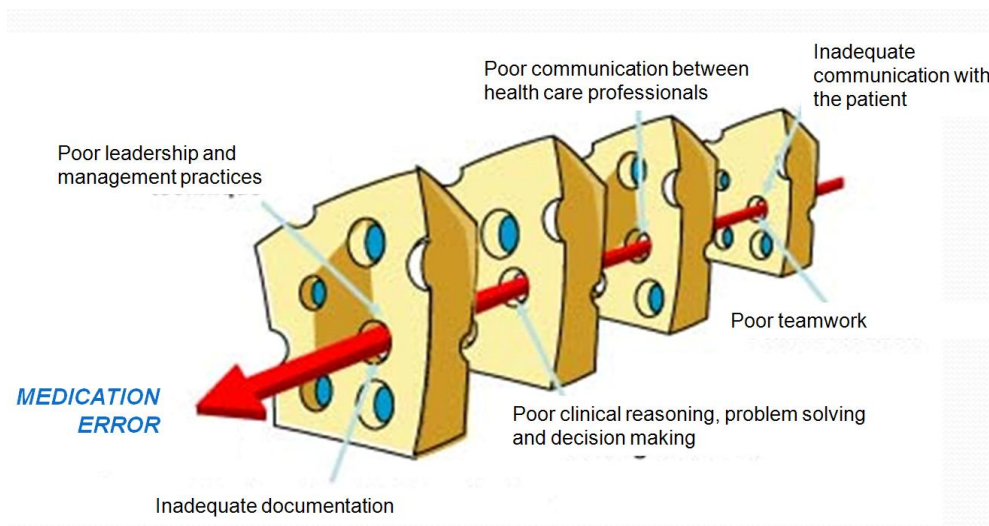


Figure 1: Reason's Swiss Cheese Model applied to IPE for QUM. Adapted from Reason (2000)

PROJECT EVALUATION

There is a need to explore the impact of IPE participation on teaching and learning experiences. Currently data collection is 'patchy' and not widely available in the public domain as published data. Even when there are good evaluation processes in place the results are rarely published (L-TIPP Aus, 2009).

The learning modules and supplementary resources have been developed to align with evidence-based pedagogical and error-reduction literature. They have been pilot tested as part of a multi-stage project funded by the Office of Learning and Teaching and this research is continuing. However, your insights and perspectives will also be valuable in taking this work forward. We invite you to e-mail your feedback and suggestions to the project leaders: Tracy.Levett-Jones@newcastle.edu.au or Conor.Gilligan@newcastle.edu.au

GLOSSARY OF TERMS

Term	Definition
Adverse drug event (ADE)	An adverse drug event involves harm caused by a drug (adverse drug reactions and overdoses) and harm caused by the use of the drug (including dose reductions and discontinuations of drug therapy) (Nebeker et al., 2004).
Interprofessional collaboration	When healthcare providers, patients, and their families work together in the provision of coordinated and integrated care to enable optimal health outcomes (WHO, 2010a).
Interprofessional education	When two or more professions learn <i>with</i> , <i>from</i> and <i>about</i> each other to improve collaboration and the quality of care. IPE enhances students' ability to communicate effectively and work as part of an interdisciplinary team (CAIPE, 2002).
Interprofessional team	Different professions with specialised knowledge, skills and abilities; each contributing to a common goal which cannot be achieved when one individual profession acts alone (WHO, 2010a).
Medication error	Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, or systems, including prescribing, order communication, product labelling, packaging, compounding, dispensing, distribution, administration, education, monitoring, and use (Kiersma, et al., 2008).
Medication safety	Activities to avoid, prevent or correct adverse drug events that may result from the use of medications (National Prescribing Service, 2008).
Multidisciplinary health care team	Individual health professionals working together but who make autonomous or separate decisions (McCallin, 2005).
Quality Use of Medicines	The processes and procedures in place to ensure safe and effective prescribing, dispensing and administration of medications (Department of Health and Ageing, 2008); includes: selecting management options wisely, choosing suitable medicines if a medicine is considered necessary, and using medicines safely and effectively to get the best possible results (Commonwealth of Australia, 2002).
Sentinel event	Sentinel events are unanticipated incidents that may result in death or serious physical or psychological outcomes for patients, or the risk thereof. The event occurs independently of a patient's condition and may reflect hospital system and process deficiencies. The events are called 'sentinel' because they signal the need for immediate investigation and response (Joint Commission, 2011).
Uniprofessional education	Uniprofessional education involves members of a single profession learning together without interactions with any other discipline (Wee & Goldsmith, 2008).
Root cause analysis	A process used to identify the underlying factors that cause serious incidents and adverse events (sentinel events). It guides solutions to address system failures and inefficiencies by asking what happened, why it occurred, and what can be done to prevent it from happening again (Wu et al., 2008).

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