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## Interprofessional Education in Critical Care: A Consensus Statement

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## **Abstract**

Interprofessional Education (IPE) is increasingly acknowledged as crucial for promoting and improving quality and safety in healthcare, building a collaborative, practice- ready workforce, and improving health outcomes. In the critical care environment, a Consensus Statement outlining best practice for IPE has been lacking. This absence of a best practice standard has hampered development, implementation, and evaluation of IPE activities in critical care.

The Australia New Zealand Clinician Educator Network developed a Consensus Statement through a collaborative, multidisciplinary working group who met in person and online for the purposes of outlining the best practices underpinning IPE in critical care. These recommendations were developed for consideration by clinician educators in the critical care setting when planning, implementing, and evaluating IPE activities.

This consensus statement recommends specific structural and processual requirements and evaluates outcomes using the domains of culture, education, quality and safety, based on current literature. The ultimate consequence of IPE in critical care is to improve patient outcomes and inform clinical education research, policies and procedures within a continuous improvement cycle.

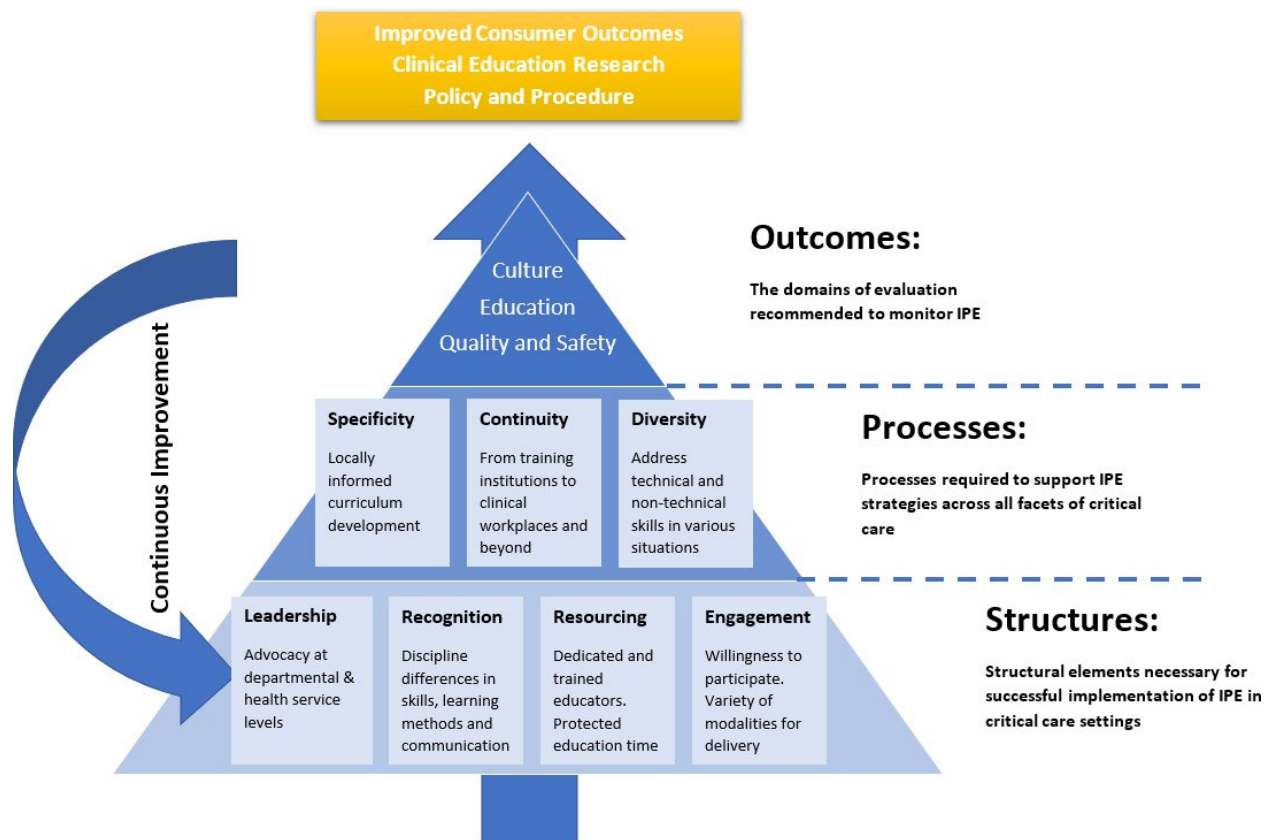
## I INTRODUCTION

Within critical care, Interprofessional Education (IPE) can be summarised as two or more professions cooperatively engaging in the acquisition of knowledge, skills, perspectives and attitudes to improve collaborative practice through learning about, from and with each other (IPE Collaborative Expert Panel, 2011; Thistlethwaite, 2012). The result of successful collaborative practice, improved interprofessional communication, equity within healthcare teams and team cohesion is improved patient outcomes (IPE Collaborative Expert Panel, 2011; Lingard et al. , 2004). Successful teamwork does not happen without investment and appreciation that this is a learned behaviour (Stocker et al.,2016). IPE is particularly apposite for critical care environments as these settings are crucial intersections within a complex system of interrelationships between healthcare subspecialties and disciplines, providing complex care for the highest acuity patients, utilising expensive medical resources and demanding highly qualified and skilled staff (Lingard et al., 2004).

Whilst high level recommendations exist for the use of IPE, there is a lack of specific guidelines for IPE in Critical Care in Australia, which this Consensus Statement is redressing. The Australia New Zealand Clinician Educator Network (ANZCEN) is a group of inter-professional healthcare clinicians with experience in critical care and clinical education practice with affiliations to universities, and critical care colleges and societies in Australia and New Zealand. This group has developed since 2014 as a collaborative virtual Community of Practice with developmental meetings including the ANZCEN Incubators and ANZCEN Unconferences (Ross et al., 2020). ANZCEN has recognised the gap in practice standards and guidance for implementation and delivery of IPE in critical care in Australia and New Zealand. This Consensus Statement writing group initially met in 2018 with an expression of interest process via the ANZCEN Network. The cooperative, multidisciplinary group met in person and online (utilising Zoom™ and Slack™ collaborative tools) for almost two years. These recommendations were developed for consideration by clinical teachers in the critical care setting when planning, implementing, and evaluating IPE activities. There have been earlier attempts to develop an Australian and New Zealand approach to general healthcare IPE but not one specifically for critical care (Nisbet et al., 2007).

The World Health Organisation (WHO) describes IPE as an important element in building a collaborative, practice-ready workforce, improving health outcomes, and promoting the quality and safety of healthcare (Gilbert et al., 2010). IPE reduces fragmentation of healthcare by encouraging collaboration between disciplines, resulting in more patient-centric care, improved health outcomes for patients, and increased job satisfaction for health professionals (Irajpour et al.,2019). Lingard et al. (2004) advise that the level of collaboration in both internal and external teams in the intensive care, for example, is strongly influenced by knowledge, resources, time, authority, education and patient needs. IPE provides an opportunity for professionals to share knowledge and skills, which builds a shared mental model, in addition to understanding and respect for others' roles (Bridges et al., 2011). In this Consensus Statement we aim to address some of the key influences by describing the underlying principles of IPE in the critical care environment, the scope of practice, processes, resources and outcomes, and by providing a framework to assist with curriculum development, implementation, and evaluation. Figure 1 outlines these requirements for IPE within a continuous improvement cycle. The document is divided into recommendations for best practice and provides examples in each section based on the working group's collaboration and review of the relevant literature.

**Figure 1**  
**Requirements for IPE**



## II INTERPROFESSIONAL EDUCATION IN CRITICAL CARE

IPE delivered in the critical care context provides the building blocks for interprofessional collaborative practice by addressing relational factors, organisational factors and processual factors (Stocker et al., 2016). Critical care teams are different to predictable, consistent, and steadily operating teams of personnel. Critical care teams have considerable variability in experience, skills, and training, and many different professions involved, in addition to rotating roles in each clinical shift, which make effective teamwork vital to the provision of high-quality care (Stocker et al, 2016). IPE facilitates effective teamwork by sharing of expertise and perspectives between professions and helps to reduce the knowledge compartmentalisation that commonly occurs between professions (Lima et al., 2018).

Critical care team members, in this Consensus Statement referred to as “critical care clinicians”, includes clinicians caring for patients who require time-critical assessment, decision-making, and/or interventions. This may include, but is not limited to, the specialised care of adult, paediatric and neonatal patients with life-threatening conditions in healthcare settings such as: Intensive Care Units (adult, paediatric, neonatal, and special care units), Coronary Care Units, High Dependency Units, Burns Units, Emergency Departments, Pre- hospital and Inter-hospital Retrieval Medicine, Surgery, and Peri-operative Care (including pre and post Anaesthetic Bays). Clinicians may be from any discipline involved in that care, including Allied Health, Nursing and Medicine.

Critical care IPE can be facilitated in a variety of formal and informal educational and clinical settings depending upon the purpose and goals of the IPE. To maintain professional competence in IPE theory and practice, clinician educators should provide and attend relevant workshops, seminars, and conferences, in addition to offering and seeking role modelling and coaching with other clinician educators. Clinician educators involved in IPE should also receive and provide

clinical professional supervision and clinical training assessment, with a focus on building skills in facilitation rather than didactic teaching skills.

IPE theory and principles are to be integrated into clinical programs, assessment, and curriculum design sessions in the workplace via multiple modes. Modes include IPE tutorials, lectures, slide presentations, videoconferencing, e-learning platforms, mobile device applications (apps), podcasts, social media, news, games, hobby sites, physical activity monitoring software applications, practice applications, and course applications.

IPE may be addressed via simulation-based education (SBE) with associated best practice in debriefing to develop reflective practice. Simulations may be included in in-situ programs; programs in a specialised clinical simulation centre; using resources such as part-task trainers; manikin-based; simulated patients/actors; augmented reality (AR) training; virtual-reality (VR) training; online simulations; and skills labs e.g., procedures course (Boet et al., 2014; Brazil, 2017).

IPE can also be facilitated during telephone and tele-health consultations and via quality and safety initiatives (from departmental to executive level) to IPE. This may be in the form of multi-disciplinary team (MDT) sentinel event case review; MDT morbidity and mortality meetings; student-led departmental case presentations and reviews; simulation and scenario-based training; MDT patient safety committees; MDT policy development; simulation for health system design and improvement (translational simulation (Brazil, 2017; Nickson et al, 2021)).

### **III STRUCTURES OF IPE IN CRITICAL CARE**

To facilitate the successful implementation of IPE for patient-centred collaborative practice, structural conditions such as leadership, recognition, resourcing, and engagement are required, as shown in Figure 1. These enablers of IPE include advocacy at the highest level in the health department and health service to operationalise IPE within strategic and operational plans. This will help to provide resourcing and protected education time for IPE within critical care. Appropriate governance and training should ensure the availability of dedicated, responsible educators from each critical care discipline (medical/nursing/allied health/operational staff) with specific training on how to deliver, advocate for, and lead IPE. Health service governance can also influence, and even mandate, inter-departmental and cross-departmental collaboration and engagement.

These structural conditions and associated roles will help to overcome some of the barriers to IPE such as the variations in interprofessional language and differing learning and teaching preferences within the discrete health care disciplines and within other departments. IPE leadership, recognition, resourcing and engagement will help to promote the use of common terminology in all interprofessional communication and demonstrate a willingness to collaborate and develop new educational pathways that recognise technology's role in promoting IPE, for example, smart phone applications (apps), podcasts, social media sites, news, games (Gilbert, 2005; McLoughlin et al., 2018; Chesters & Murphy, 2007).

### **IV PROCESSES OF IPE IN CRITICAL CARE**

This working group identified that specificity, continuity, and diversity are processes required to support IPE strategies across all facets of critical care (see Figure 1). IPE activities should utilise educational strategies which facilitate health professionals to reveal different perspectives on patient care. These strategies aim to develop mutual understanding of professional roles, break down the 'silo' paradigm that dominates critical care, and encourage the building of a shared "mental model" (Bridges et al., 2011; Lima et al., 2018). Shared mental models are critical components for effective teamwork along with a sense of inclusion, respect, and genuine understanding of others' roles (McComb & Simpson, 2014). IPE in this context presents an important opportunity for each team member to recognise the different skills and perspectives of

their colleagues which will support development of a collective team identity, vision, and a collaborative community culture (Stocker et al., 2016).

Specificity refers to the principle of developing locally informed curriculum for IPE. Each learning environment is unique and critical care educators are encouraged to design and implement strategies contextualised for their environment and for their personal knowledge and skills (Ford & Gray, 2021). It is recommended that training institutions and critical care educators consider the following elements when designing and implementing IPE: cultural awareness; operational issues such as appropriate group sizes; educator / facilitator training; curriculum development to ensure content is appropriate for participants; organisational support; quality and safety issues and support; and organisational strategic goals awareness and education (Lewis & Stone, 2007).

During curriculum development, the following factors should be considered: the local patient case mix (consideration to be given to both high-volume patient presentations and low- volume, high-risk patient presentations); developing situational awareness across the continuum of critical care (Bekkink et al.,2018; Herath et al.,2017; Muya et al.2018). It is also important to consider routine procedures and care including points of care transitions (handover, discharge planning, and specific situations such as end of life care); availability of local human resources and clinical/educational supplies must also be considered with curriculum designed to incorporate local needs and resources (Bekkink et al.,2018; Herath et al., 2017; Muya et al., 2018).

Practical considerations such as “space and place” are important considerations that affect learning, but are often not acknowledged (Kitto et al.,2013). Careful planning by critical care educators is essential to ensure participants are appropriately oriented to place and that their basic needs are met.

Continuity refers to the inclusion of IPE in every level of healthcare education such as tertiary and training facilities, workplaces, courses and conferences. Clearly defined learning objectives should be used for all sessions utilising Bloom’s taxonomy to enable educators to scaffold learning activities and assess learners based on transparent, reliable, and validated assessment criteria (Lingard et al., 2004).

Analysis of available evidence suggests work-based experiences, and those of longer duration, or spaced at regular intervals, are more effective in bringing about a sustained change in individuals, organisations, and patient care (Kerfoot et al., 2010). Targeting experienced learners at the continuing professional education level is also more effective when compared to engaging more junior learners (McPherson et al., 2001).

It is essential that IPE activities address both technical and ‘non-technical’ skills, which is defined as diversity in this paper. Technical knowledge is an important component of the critical care IPE and needs to be clearly defined and articulated. The technical skills required will differ between critical care environments and be dependent on clinician learning needs and patient populations. Scenario- or problem-based IPE, encompassing the variety of skills required by the interprofessional team within an applicable context, should also be developed (Ford & Gray, 2021). Key ‘non-technical’ skills should be explicitly labelled in IPE activities and focused on collaborative care, teamwork, cultural safety, psychological safety, and communication (Lingard et al., 2004). When educational initiatives are developed using interdisciplinary approach, knowledge of different disciplines are re-connected and learning is contextualised and focused on real world problems and solutions (Lima, 2018; Lee et al., 2013). IPE encounters should be developed that are equally relevant to all professions rather than implying that the event has been designed with one profession in mind, but other disciplines “can join in” (Ford & Gray, 2021). It is further advised that activities encourage participants to contribute their own professional expertise as equals and have an authentic role in any IPE activity, that is, not “pretending” or working outside of their usual scope or expertise (Hammick et al., 2007, in Ford & Gray, 2021).

## **V OUTCOMES**

This consensus statement recommends the adoption of the WHO's "Framework For Action" model to identify the evaluation outcomes of IPE in the critical care environment, which highlights quality and safety, culture, education, policy, and communities of practice as areas to be considered when evaluating the outcomes of IPE (WHO, 2010; Gilbert, et al., 2010). There are two forms of evaluation that are required of any educational initiative (Thistlethwaite & Moran, 2010). The first is an evaluation of the program itself with an emphasis on learning outcomes, interprofessional content and engagement, the other is evaluation or assessment of the learner and the knowledge, skills and/or attitudes gained from the educational program with a focus on the significance for future practice (Thistlethwaite & Moran, 2010; Ford & Gray, 2021). Literature on critical care patient outcomes, the end-goal of IPE, is sparse, although it is acknowledged that IPE has a crucial role in influencing patient safety (WHO, 2011). There is an urgent requirement for high quality research evaluating the impact of IPE on critical care patient outcomes.

## **VI CULTURE**

Quality IPE in critical care will enrich practitioners' abilities to understand and provide culturally safe care through the promotion of critical care without walls, improving the work environment and culture for collaboration, wellbeing, and resilience. An overarching aim of IPE in critical care is development of non-technical skills such as communication, situational awareness, teamwork, leadership, decision making, and improvement in knowledge, skills, and attitudes about culturally safe care. All of these factors are essential in improving psychological safety and increasing understanding, appreciation, trust, and respect between colleagues; and greater understanding of own and others' roles and capabilities (Brewer & Jones, 2013).

## **VII EDUCATION**

Ford and Gray (2021) warn that "simply bringing different professions together to learn something they all need is not IPE." Rather, consideration for uniprofessional knowledge and skills of participants, acknowledgement of what can be learnt from equal interactions with each other, and how participants work together is required for effective IPE in the critical care environment (Ford & Gray, 2021). Existing competency frameworks and models for IPE education programs provide elements to assess. Examples include asking participants to describe the areas of practice of other health professions, explaining interprofessional practice to patients, families, and other professionals. It is essential that critical care practitioners can express professional opinions competently, confidently, and respectfully whilst avoiding discipline specific language. The development of a clear plan for patient care goals and priorities with involvement of other health professionals is also an essential outcome of IPE. The importance of identifying opportunities to enhance the care of patients through the involvement of other health professionals and being able to recognise and resolve disagreements in relation to patient care that arise from alternate perspectives should be one key outcome indicator of a successful IPE (Gilbert, 2014; O'Keefe et al., 2017; Sherbino, 2014).

## **VIII QUALITY AND SAFETY**

Quality and safety are an important outcome of any educational initiative. We recommend that IPE in critical care focus on evaluating quality and safety outcomes by assessing improved service user satisfaction for example, staff and patient satisfaction; evaluating the incidence of adverse events and major adverse events; and identifying any improvements in technical and non-technical skills. Collaborative competencies or capabilities and improvement in patient-centred care and patient engagement should also be increased as a result of IPE initiatives (Brewer & Jones, 2013).



## **IX CLINICAL EDUCATION RESEARCH**

There is much scope to improve the knowledge around IPE in critical care, with the development of collaborative, multicentre education scholarship and research recommended (Rosen et al., 2008; Rosen et al., 2010). Developing and implementing best education practice for the enhancement of workplace education in relation to simulation, clinical supervision, assessment, and curriculum design are other key potential areas for investigation (Salas & Rosen, 2013; Cheng et al., 2014; Cheng et al., 2017; Rosen et al., 2008; Rosen et al., 2010; Thistlethwaite, 2012; Rosset et al., 2013). This consensus statement working group identified that it would be useful to develop registries of IPE learning activities that are linked to patient outcomes. Research to evaluate the multimodal and blended learning platforms for IPE, and the investigation of the impact of IPE on practitioners' ability to reflect critically on their relationship within a team and ability to transfer that IPE knowledge to the clinical setting would contribute to the body of knowledge of IPE in critical care.

## **X CLINICAL GOVERNANCE, POLICY AND PROCEDURES**

For IPE to be advanced in the critical care setting, this philosophy needs to be formally recognised by organisations and IPE integrated into relevant education governance, policy, and curricula. Governing bodies and education networks need to model inclusion of appropriately representative interprofessional colleagues and pre-existing policies, and consensus frameworks examined and updated (Boots et al., 2016).

## **XI SUMMARY**

The principles of shared mental models, team collaboration, inclusion, respect, and understanding of others' roles, are all crucial for educational and work experiences that lead to improved patient outcomes and are embedded within this Consensus Statement for IPE in critical care. This document reflects the collaborative position of clinical educators within the Australia New Zealand critical care community. This is the current consensus from which the Clinical Educator role in our context of critical care will be developed.

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