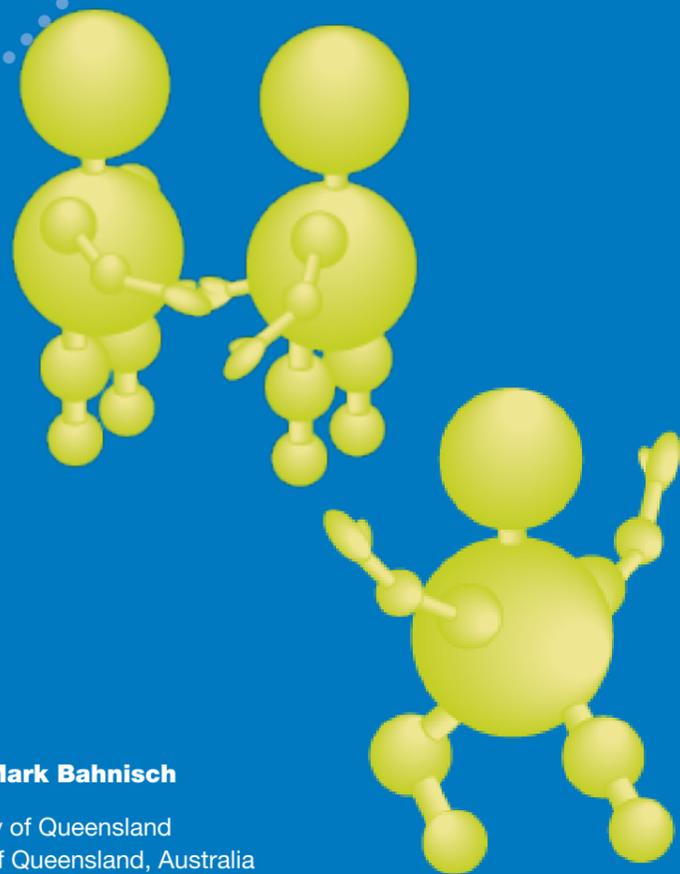


Exploring the Literature: Competency-based Education and Training & Competency-Based Career Frameworks

Report by the National Health Workforce Planning & Research Collaboration



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Table of Contents

1. Project Brief.....	4
2. Introduction.....	6
3. The Literature: Published and Unpublished.....	7
4. Competence and competency: Terms and definitions.....	8
5. Frameworks and taxonomies: Utilising concepts of competence and competency.....	10
6. Frameworks and taxonomies: Three illustrations.....	12
7. The competency movement : Historical background and policy context.....	16
8. Collaborative care and interprofessional competence.....	18
9. Benefits of competency-based approaches.....	22
10. Utilisation of competency-based frameworks in the health sector.....	23
11. Considerations of a whole-of-workforce framework for the Australian health workforce.....	26
12. Counterviews and barriers to the use of competency-based approaches in health.....	29
13. Resource and implementation considerations.....	31
14. Conclusions	33
15. Moving Forward.....	34
16. References.....	35

1. Project Brief

National Health Workforce Planning and Research Collaboration

The National Health Workforce Planning and Research Collaboration, a consortium comprising Health Workforce Australia (HWA), Australian Health Workforce Institute and PricewaterhouseCoopers Australia, is in the final year of its substantial three-year program of national health workforce planning and research projects.

Australian Health Workforce Institute itself is a consortium of The University of Melbourne and The University of Queensland and for the purposes of this collaboration has established links with Australian National University, The University of Adelaide and Monash University.

The projects informing this report are situated in the Year 2 stage of project work.

Contracted projects

The remits for the contracted work underpinning this report consist of two distinct health workforce projects, namely:

mapping health workforce competencies, with a view to developing a taxonomy (classification framework) for competency-based standards in health

exploring evidence-based options for competency-based health career frameworks in Australia.

As the projects were developed, the extent of synergy and overlap between the projects became increasingly obvious, and the contracting organisation, HWA, requested that a combined report covering both projects be produced, as outlined below. The projects are unique in their whole-of-workforce focus.

Project deliverables

The commissioned project deliverables included a review of the literature of relevance to the Australian health workforce, and publication areas for focus were as follows:

- competency-based education and training frameworks
- competency-based career frameworks
- a taxonomy (classification framework) for competency-based standards in health.

Project team

The aforementioned research projects involved work across several complex fields and was preceded by a comprehensive exploration of the literature, which was then updated after completion of the initial project report.

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2. Introduction

This paper examines literature of relevance to two specific constructs that are core to the current innovation and reform discussions and agenda of Health Workforce Australia (HWA). The two constructs are:

- competency-based education and training frameworks
- competency-based career frameworks.

The topics are explored within the context of the Australian health workforce, and commentary is included on the scope of the workforce.

The paper refers to literature pertaining to the following matters:

- growing development and increasing use of competency-based education and training frameworks within the Australian health workforce
- current considerations and options that are emerging in the development and use of competency-based career frameworks in the Australian context
- inclusion of levels of both knowledge and competence inherent within all frameworks. (A hierarchy of such levels is commonly known as a taxonomy or classification system and is clearly modelled within the recently revised Australian Qualifications Framework.)

The cited literature is drawn from both published sources and available grey literature, and covers a number of genres including definitional terms, the historical and policy context, the mechanics of development, underpinning rationale and debates, current trends, resourcing considerations, and implementation enablers and barriers. Each of these bodies of literature could be developed as a comprehensive publication in its own right. This paper also includes case study examples of relevance to the Australian health workforce and the addressing of policy considerations.

The cited literature was initially sourced to inform the main project commissioned by HWA and carried out by researchers from the Faculty of Health Sciences at The University of Queensland. That project was commissioned to explore the utility of competency-based education frameworks and competency-based career frameworks for the Australian health workforce, with a specific focus on the development of options and recommendations for a whole-of-health workforce approach. Results of this research project are comprehensively reported in *Competency-based Education and Competency-based Career Frameworks: Informing Australian Health Workforce Development*.¹ The material presented in that report informs this paper and vice versa.

Difficulties in the definition of competence and competency concepts are discussed, with a range of relevant definitions included in this paper to inform the discussion. The historical context and policy drivers underpinning the competency movement are discussed, along with the underpinning rationale, oppositional concepts, debates and current trends. Specific sections pertaining to competency-based education and training frameworks, competency-based career frameworks and the concept of health workforce taxonomy are included.

Resourcing requirements are also examined, along with literature pertaining to implementation enablers and barriers. Three case studies are described as exemplars of current tangible examples of both education and training and career frameworks. The paper highlights a range of valuable development and implementation lessons, along with issues that the sector would need to address before its progression to a whole-of-workforce approach. Conclusions include an outline of benefits, or a value proposition of relevance, to a whole-of-workforce framework, and a summary of key points.

3. The Literature: Published and Unpublished

Literature to inform this paper was obtained from two sources; specifically:

- published literature
- available unpublished or grey literature pieces, which were sourced directly from key informants and their organisations.

Published literature was found through searches of MEDLINE, Web of Science, PsycINFO, PubMed, CINAHL Plus, and Australian Public Affairs Information Service databases, using the terms competence, competency, competency framework, standard, education, training, health, pathway, framework, career framework and workforce. The reference lists included in a number of the sourced publications also provided leads for the procurement of further items of relevance. Use of the 'Summons it' function in The University of Queensland library provided further leads to published literature.

While valuable, the search of published literature found information of relevance primarily to the first construct of competency-based education and training frameworks. The research team initially adopted a search strategy consistent with the compilation of a systematic literature review. However, it became quickly apparent that this would not capture many of the salient articles and reports published. It also became clear that, for projects of this nature, ranking studies according to evidential quality could provide misleading results, in that few papers have a comparable methodology to scientific studies, and many are policy or organisational documents. For instance, much less academic literature emerged in competency-based career frameworks. In the absence of published literature, access to available grey literature became essential to enable understanding of this second construct, which was core to the commissioned research project.

In response, a process of qualitative research inquiry was utilised to uncover grey literature via key informants. This process was of assistance in filling some of the gaps in the published literature and in enabling a more comprehensive understanding of the specific questions of policy concern to the workforce reform and innovation work program of HWA. A sample of 40 informants were sourced from five key groups, namely, educators and curriculum developers, health workforce employers, health professional representative bodies, health regulating agencies, and representative bodies of the future health workforce (that is, organisations representing health professionals in training). The sample was generated initially from the identification of key informants by project staff, and continued through snowballing until saturation of themes was reached.

The key purpose of the semi-structured interviews was to gain insights not otherwise available in the published literature and to provide leads related to key issues for consideration and exploration. A useful by-product of the interview process included access to a range of grey literature of relevance to competency-based career frameworks. Despite the results of this process of discovery, the literature remains scant, with significant need for further research and publication in competency-based career frameworks—an area of specific policy interest to the workforce reform and innovation agenda of HWA. While numerous suggestions are made in the project report for further research, this paper synthesises the results of the literature search to give a picture of the state of the debate as reported in both peer-reviewed and grey literature. This paper takes the form of a policy-relevant literature review, and in the process of evaluating literature, the researchers used policy relevance as a heuristic measure for assessing the value of articles.

Full details regarding informant profiles, interview structure, and ethics can be found in the report by the National Health Workforce Planning and Research Collaboration, entitled *Competency-based Education and Competency-based Career Frameworks: Informing Australian Health Workforce Development*.¹

4. Competence and competency: Terms and definitions

Up until the 1980s, 'competence' and 'competency' tended to be interpreted narrowly in terms of demonstrable skills or personal attributes, reflecting its association with training.²⁻⁴ Since then, competency research has considerably expanded and deepened, and a broader range of variables has been identified that can constitute competence. These include factors such as personal competence, job competence and meta-competence^{5,6}. The further application to formal systems of competency-based training has expanded exponentially and now pervades most educational sectors across Australia, United States, United Kingdom, Canada and beyond.⁷⁻¹⁰

Despite the competency movement growing over the past several decades, the burgeoning uptake of competency-based training models and the ongoing attempts to specify the type, components and meaning of competencies and related terms, contestation over their meaning persists.¹¹ Definition of concepts such as competency, competence, competency-based education and training frameworks, competency-based career frameworks and many related terms emerges as a complex task bedevilled by significant divergence of views. Authors frequently assert that the one commonality of view is that there is no common definition of competence.^{5,12-15}

Definitions are no clearer in the field of health professional education where additional terms such as clinical proficiency, judgement, performance and reasoning abound, appearing interchangeably without clarification.^{16,17} In this literature, competency has recently been highlighted as 'complex and ill-defined because of varying contextual factors and philosophical approaches'.¹⁸

American researcher Lawrette Axley notes that 'unfortunately, there is no officially agreed upon theoretical or operational definition of competency among nurses, educators, employers, regulating bodies, government, and patients' (p. 216).¹⁹

A consensus view exists on a nationally accepted definition within the Australian vocational education and training (VET) sector. This definition is facilitated and supported by the Community Services and Health Industry Skills Council, which also carries responsibility for the definition of a competency framework across the Australian VET health workforce.²⁰ However, this degree of clarity and consensus is not shared across the higher education and broader health sector.

Given the ambiguities, lack of consensus and existing definitional complexities, the development of shared understandings is increasingly essential in order to inform ongoing discussion, health workforce policy and program development.¹

Considering the current variances, this paper does not attempt to promote a single definition; rather, it includes several relevant definitions as an aid, or platform, to inform ongoing discussions, consultation, and consensus formation. The following definitions are selected and included on this basis. Definitions have been selected and constructed with both international comparability and relevance to the Australian health workforce in mind.

Competence: a dynamic combination of knowledge, understanding, skills and abilities. Fostering competences is the objective of educational programs. Competences will be formed in various course units and assessed at different stages.²¹

Competence: a generic term referring to a person's overall capacity to perform a given role, including not only performance but also capability. It involves both observable and unobservable attributes, such as attitudes, values and judgmental ability.²²

Competence: the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and community.¹⁷

Competency: an observable quality of a health professional, integrating multiple components such as knowledge, skills, values and attitudes. Since competencies are observable, they can be measured and assessed to ensure acquisition by a professional. Competencies can be assembled like building blocks to facilitate progressive development.¹⁸

Competency: the consistent application of knowledge and skills to the standard of performance required in the workplace. It embodies the ability to transfer and apply skills and knowledge to new situations and environments.²⁰

Competency: a component part of competence. It refers to specific capabilities in applying particular knowledge, skills, decision-making attributes and values to perform tasks safely and effectively in a specific health workforce role.^{23,24}

Competency: the ability to consistently perform work activities to agreed standards over a range of contexts and conditions.^{25,26}

Competency: the concept of competency focuses on what is expected of an employee in the workplace rather than the learning process, and embodies the ability to transfer and apply skills and knowledge to new situations and environments.²⁷

Competency: the ability to perform the activities within an occupation or function to the standards expected in employment.²⁸

Competency in the clinical setting: the ability to handle a complex professional task by integrating the relevant cognitive, psychomotor and affective skills.²⁹

Axley¹⁹ asserts that 'quality care can only be accomplished if the providers of care are deemed to be competent to provide the best possible standard of care' (p. 214) and then points out an unarguable reality, specifically, that 'the absence of competency results in serious medical errors, poor patient outcomes, and an inability to make sound decisions' (p. 220).

The requirement and responsibility to ensure competence across the Australian health workforce is obvious. Given the considerable differences in views, definitions and interpretation of concepts such as competence and competency, initiatives to develop more universally agreed definitions are of increasing importance, with efforts ensuring consensus beginning to appear in the literature.³⁰

Arguing that a consensus definition has utility, Frank and colleagues³⁰ report on an international consensus conference designed to examine competency-based medical education regarding conceptual issues and current debates, and highlight the potential benefits and challenges of taking a competency-based approach to medical education. Simultaneously, Frank and co-authors also report a systematic review of published definitions³¹ and identify themes of use to health workforce policy makers and health professional educators contemplating and enacting the use of models of competency-based education and training in health workforce clinical education.

The work of Frank et al. builds on the impetus of the increasingly widely disseminated CanMEDS Physician Competency Framework used by the Royal College of Physicians and Surgeons of Canada,³² which has been adapted to inform a number of other frameworks, including many of the Australian postgraduate medical colleges, and due to its proven utility is being increasingly adopted and adapted by other professional groups.

5. Frameworks and taxonomies: Utilising concepts of competence and competency

As the competency movement has progressed, an array of terminology and jargon has emerged, which given the aforementioned definitional ambiguities has the capacity to confuse even the most informed members of the health and education communities.

The terms frameworks and taxonomies are now commonly used in discussions pertaining to the health workforce. Competency-based education and training, competency-based career development, and whole-of-workforce taxonomy are core to the current reform and innovation agenda of HWA. Therefore, it is essential that these concepts are fully understood if a reform agenda is to be effectively progressed. What exactly do these terms mean? What is a framework? What is taxonomy? What is meant by the terms competency-based education and training framework and competency-based career framework?

The authors of this paper have attempted to either locate or construct as clear a description as possible from which to guide investigation and discussion. As with attempts to clearly define concepts of competence and competency, the literature yields a similarly confusing and ambiguous picture for notions of competency-based education and training frameworks and competency-based career frameworks. The notion of whole-of-workforce taxonomy has not been located in the published literature. Where no definitions exist, the authors have suggested definitions for these recent terms, and on this basis the following definitions are included or suggested. Again, a number of definitions are included with a view to increasing clarity of understanding while avoiding any assertion that any particular definition is the single best definition for adoption in this early stage of sector-wide discussion.

Framework: a structure for supporting or enclosing something else; a fundamental structure, as for a written work; and a set of assumptions, concepts, values and practices that constitutes a way of viewing reality.³³

Educational frameworks: carefully designed structures for enclosing and supporting sets of concepts, values, assumptions, roles, competencies and/or practices. They are a useful way of arranging curricula and expected learning outcomes. They can guide providers and/or participants in the content and standard of what is to be taught, learned, assessed, demonstrated and/or practised. This definition was provided by The University of Queensland research team.

Competency-based education and training frameworks: frameworks that are constructed to specify competencies relevant for registration, assessment of practice and curriculum design, and education and training. This definition was provided by The University of Queensland research team.

Competency-based career frameworks: a framework with clearly defined levels at which a role could be performed from initial entry level roles to the more expert of specialist level roles. They can be used to aid workforce flexibility, provide a common currency to map competence portfolios of employees, and identify areas of transferability to other job roles. This allows progression in directions that may not have been identified through traditional routes.³⁴

Taxonomy: the practice and science of classification and a taxonomic scheme, or a particular classification ('the taxonomy of') arranged in a hierarchical structure.³⁵

Taxonomy: when applied to learning, is a systematic classification of what is learned. Classification sorts the kinds of capability that the individual acquires or demonstrates as a result of the events of learning.³⁶

Scaffolding: has an important role in the development of meaningful learning activities. The term emphasises the cumulative nature of learning and competence acquisition. One experience builds on the other to advance the learner/practitioner to higher levels of skill and competence.^{36,37}

Taxonomy of educational objectives: a framework for classifying statements of what we expect or intend students to learn as a result of instruction and what we expect them to know after different levels of education.³⁸

Whole-of-workforce taxonomy: a framework for classifying levels of performance and accountability, which are generic to the entire health workforce (as defined by The University of Queensland research team).

Thus, we can see that a framework is a method for sorting or structuring content, including curriculum information or content relating to sets of concepts, values, assumptions, roles, competences, competencies and/or practices. Within the health sector, professional groupings use frameworks to construct or specify competencies relevant for registration and assessment of practice.³⁹

If the framework includes curriculum content, such as education and training objectives, expected competence achievements or standards of performance, the framework is typically known as a competency-based education and training framework. The CanMEDS Physician Competency Framework used by the Royal College of Physicians and Surgeons of Canada is a clear example of a competency-based education and training framework.³²

If the framework includes practice standards, levels of work accountability and steps for career progression, it is more typically known as a competency-based career framework. The levels of work accountability or career steps may or may not be linked to an enterprise bargaining agreement, industrial award and/or specific remuneration provisions.^{40,41} The United Kingdom Skills for Health's Career Escalator is a clear example of a competency-based career framework.^{28,42}

Both competency-based education and training frameworks and competency-based career frameworks include a taxonomy, or classification system, within the framework, which in an educational or clinical training context usually pertains to levels of knowledge (educational application) or in an employment or clinical training context to levels of practice (workforce application).

The Australian Qualifications Framework is a clear example of a taxonomy classification system defining levels of learning and achievement that sit within the framework.⁴³ Given the underpinning aim of the recent Australian Qualifications Authority review process to assist in improved alignment and pathways between sectors, it seems essential that any future taxonomy of health workforce functioning and accountabilities is developed in a manner that aligns well with the same or similar levels within the revised Australian Qualifications Framework.⁴³ Such alignment is an essential aid for clear learning pathways, recognition of prior learning, and articulation for the engagement of the workforce between the health and education sectors.

6. Frameworks and taxonomies: Three illustrations

A more detailed portrayal of a small number of contemporary examples is useful in increasing clarity and shared understanding of the recurring terms within this paper, specifically:

- competency-based education and training framework
- competency-based career framework
- taxonomy.

These case studies have been selected as exemplary of typological variation between the types of frameworks identified through the process of definitional and policy review.

The CanMEDS framework: A competency-based education and training framework

Developed by the Royal College of Physicians and Surgeons of Canada for use by physicians, the CanMEDS framework focuses on defining the key roles and competencies required of physicians to meet the health care needs of the patients, communities and societies they serve. It is centred on seven key roles, which form the key framework domains under which a range of competencies and outcomes then flows. CanMEDS can be of use to educators, teachers and researchers, as a guide to curriculum development and a basis for clinical teaching, and to inform research on the development of health professions.

The CanMEDS initiative began in the early 1990s as a desire to reform medical education. It was then developed from 1993 to 1996 through extensive consultation with Fellows of the Royal College of Physicians and Surgeons of Canada from many specialties, as well with as expert stakeholders and health care organisations. Identification of core competencies and assembly into the roles framework of CanMEDS was facilitated by CanMEDS Roles Working Groups comprising hundreds of member Fellows. The framework itself was initially trialled in 1996–1997 in a number of small pilot projects in faculties of medicine across Canada. CanMEDS was then implemented in 1997–2002, during which time the Office of Education ensured that the CanMEDS roles and competencies were incorporated into all of the standards in residency education. Each specialty was involved in a five-year process to rework the CanMEDS standards specifically for that specialty. In 2003 the framework was revised by groups of expert volunteers, and in 2005 a new CanMEDS framework was approved.³²

In addition to its widespread use in Canada, CanMEDS has also been adopted internationally, with several countries including Denmark, the Netherlands, New Zealand and Australia adapting and using this framework as a model for postgraduate medical and other specialist education.⁴⁴ For example, the Royal Australasian College of Surgeons has customised the CanMEDS principles to suit its purposes, expanding the seven CanMEDS roles into nine attributes.⁴⁵ Similarly, developers of the Australian Curriculum Framework for Junior Doctors drew on CanMEDS to define three major areas and six categories.⁴⁶ Evidence exists that the CanMEDS model of competency is gathering increasing acceptance worldwide, and within the Australian context is increasingly being noted as a useful reference point for future framework development and implementation.²² Further evidence of its relevance and useability is highlighted in the recent Australian Medical Council (AMC) consultation document, which indicates significant AMC support for the framework, with explicit encouragement regarding its increasing use in the Australian context.¹⁸

United Kingdom Skills Escalator: A competency-based career framework

The United Kingdom has progressively adopted a suite of related measures designed to modernise pay scales,⁴⁷ enable interprofessional practice and modernise the health workforce and careers within the National Health Service (NHS), with an overriding goal of the promotion of patient-focused care. The country's policy initiatives began in the late 1990s, as the Labour Government elected in 1997 sought to ensure that large increases in health spending—designed to better approximate the European average and lift standards of population health and wellbeing—were not diverted largely into higher workforce costs. A substantial phased increase in core funding for health was accompanied by a devolution of governance, namely through the empowerment of Foundation Trusts and, later, Trusts generally ('Trusts' are the immediate employing bodies for health workers in particular regions and localities in the United Kingdom). At the same time, a process of political devolution with the inauguration of the Scottish Parliament and Welsh Assembly in 1999, and the subsequent reinstatement of self-governance in Northern Ireland, allowed for further flexibility and innovation across a unified health system responsive to the four Departments of Health.

Pay modernisation for the NHS under Agenda for Change (flagged in 1999 and implemented from 2004) led to three spines for the health system, but with one method of job evaluation, or 'banding'. Accompanying Agenda for Change was the development of a Knowledge and Skill Framework, which would enable employers to assess the comparative value of staff in terms of their skill and knowledge base and to attain parity of skills and costs when rationalising the remuneration of health workers across a large range of job titles and professional and semi-professional occupations. While the principles behind this modernisation agenda are centrally driven, and were negotiated with relevant unions, implementation has been gradual and localised, with several pilots and demonstration programs designed to accompany each phase of change.

The original NHS Knowledge and Skills Framework included the concept of a Skills Escalator, which had the intent of facilitating vertical escalation and horizontal integration and seeking to produce a win-win for both existing employees and for clinical and workplace planners in matching career aspirations with the deployment of skills to needs. The overall vision was for less rigid professional demarcations, greater career progression options for health professionals, and an articulation of patient care priorities and cost control, efficiency and quality assurance (for instance, through the integration of health and social care in some Trusts, allowing ongoing care for those with chronic conditions to take place in the community but integrated more seamlessly with primary and hospital-based care). A central agency, Skills for Health, later accompanied by Skills for Care,⁴⁸ exists to disseminate knowledge and provide tools for workforce planning and job evaluation by employers.

The intention was to design an overall competency-based career framework for the entire NHS to complement these other workforce measures. However, buy-in was not obtained successfully from medical doctors and nurses, and the process was halted for six months to explain the aims and goals of the framework and to dispel misconceptions about its implications. Informants to our project felt that success would have been more likely had this process taken place before implementation, and if greater effort had been made over a longer period of time to secure support across crucial professions. The result was a Career Framework for Allied Health Professions, published in 2008, which only now is starting to be trialled.

Skills for Health has now released a non-prescriptive Career Framework Tool, which enables individual employers to build on the range of measures available within their own specific workplaces. The workforce tools available are linked to education and training through specification of particular competencies from National Vocational Qualifications (NVQ) and tertiary degrees. NVQ are the British equivalent of the Australian vocational education and training, or VET, level certificates and diplomas.

The Australian Qualifications Framework: An educational taxonomy

As highlighted earlier, taxonomy 'is a framework for classifying statements of what we expect or intend students to learn as a result of instruction'.³⁸ Further, when applied to learning, it is a systematic classification of what is learned. Classifications sort the kinds of capability that the individual acquires or demonstrates as a result of the events of learning.³⁶

A taxonomy is of direct relevance to the concepts of competency-based education and training frameworks and competency-based career frameworks, on the basis that levels of knowledge, skills, performance, expected practice standards, job accountabilities and competence are contained within such frameworks.

Equally relevant is the recently revised Australian Qualifications Framework. The Australian Qualifications Framework has been revised to include 10 levels that are detailed as a 'taxonomy of learning outcomes and an explicit reference levels based structure'. The revised structure was approved by the Ministerial Council for Tertiary Education and Employment on 18 March 2011.⁴⁹

Significant literature regarding the notion of a taxonomy stems from the work of American educational psychologist Benjamin Bloom and his colleagues. Bloom's initial work was published in 1956 under the title, *Taxonomy of Educational Objectives: The Classification of Educational Goals*.⁵⁰ Since that time, Bloom's taxonomy has been used as the basis for curriculum development, instructional design, framework development, setting assessment levels and more.^{51,52} The original taxonomy includes the following levels, with health-related examples provided by fellow American educational researcher David R. Krathwhol to further clarify this discussion.³⁸

Knowledge: the recall of specifics or related facts. This process emphasises the psychological processes of remembering. It includes knowledge dealing with specific facts, trends, classifications and the tasks, as well as procedures employed in a specific subject field. Knowing the major risks for a patient with a particular illness would be an example of this level.

Comprehension: this represents the lowest level of understanding. Comprehension involves making use of an idea without necessarily relating it to other material or realising its full implication. Examples are interpreting the meaning of a graph or predicting the continuing spread of a contagious disease.

Application: the use of abstractions or principles to solve problems. These may be in the form of generalisations or theories that must be remembered and applied. Examples include applying scientific terms discussed in a paper to other situations or solving health problems using scientific knowledge.

Analysis: the breaking down of complex information into simpler parts to understand how they are related or organised. Analysis is intended to clarify and provide an understanding of the interactions between elements. An example would be relating a patient's previous symptoms to a current medical condition.

Synthesis: the process of combining concepts to constitute a new whole. This includes creating completely new products, such as writing a composition or developing a differential diagnosis for a patient.

Evaluation: making value judgements based on some given criteria or standard. Comparing two different medical procedures regarding patient prognosis is an example of this level.

The recent revision of the Australian Qualifications Framework went from 9 to 10 levels via a process involving two years of consultation. Revisions were 'developed in response to the need for improved linkages and connections between qualifications and sectors' and to achieve a

'Taxonomy of learning outcomes and an explicit reference levels-based structure'.⁵³

The final document regularly refers to the need for 'cross-sectoral linkages and pathways improvement policies'.⁵⁴ Consequently, it is imperative that subsequent developments in other areas and sectors (for example, Australian health workforce) are cognisant of the recent Australian Qualifications Framework changes and work towards optimal alignment of frameworks and taxonomies between sectors.

In addition to these cited examples of a competency-based education and training framework, competency-based career framework and a framework to illustrate application of a taxonomy within a national framework, the literature has also identified several other types of framework emerging from recent health sector developments. A key example is the Hunter New England capability framework.⁵⁵

Analysis of the literature and cited examples has led the authors of this paper to distil a number of guidelines, which seem fundamental to effective framework development; specifically, a framework should:

- be able to be adopted in multiple contexts to advance a range of purposes, rather than being of limited value
- be based upon a commonly agreed series of terms and definitions
- include a clear classification system (taxonomy) to acknowledge and accommodate varying skill levels from student, to beginning practitioner, through to expert
- acknowledge and accommodate the profession-specific attributes and unique contributions within the health sector
- accommodate lifelong learning—undergraduate, vocational, pre-vocational and postgraduate studies, and lifelong continuing professional development
- within the Australian context, align with and enhance existing nationally agreed developments, such as the Australian Qualifications Framework and the Community Services and Health Industry Skills Council-developed framework for the Australian VET health workforce.^{43,56}

7. The competency movement : Historical background and policy context

Some writers assert that the competency movement has its precursors in management, with moves towards greater task efficiency beginning early in the 20th century,⁵⁷ while others attribute the genesis of the competency movement to a wider range of other causes or settings.^{2,58-60}

In reviewing these works and in attempting to provide greater clarity to the origins of the competency movement and competency-based training, Hodge⁷ highlights the potential role that the world's first artificial satellite, Sputnik, created in the impetus for the birth of competency-based training. Simply put, the efforts of the Soviet Union to launch Sputnik into orbit around the earth (4 October 1957) in advance of the United States space program is postulated to have led to federal critique of the country's education system, which resulted in the introduction of nationally mandated competency standards and competency-based training across the system by the end of the 1970s.

Researcher R. J. McCowan traces the origins back to the work of theorists, such as Frederick Taylor's scientific management theory, Edward Thorndike's theory of behaviourism and John Dewey's progressive educational theory, as providing the foundations for the birth of the competency movement.⁶¹ Meanwhile, others highlight calls for increased public sector transparency and accountability as being key to the historical development and uptake of models of competency-based education and training.^{7,62-65}

Whatever the origins, a range of writers indicate that in the clamorous rush to implement competency-based training there has been 'little effort to chronicle either the genesis or the effectiveness of the movement'.⁷ In its initial stages, the movement was considerably narrower and more behaviourally focused than it is today.

Throughout the 1970s and 1980s, the competency approach was widely adopted by business and industry for workplace recruitment and efficiency.⁶⁶ Among others, researcher D. C. McClelland established the behavioural approach that concentrates on the characteristics of the individual who performs successfully. This approach is exemplified by the researcher R. E. Boyatzis who in 1982 defined a set of 'underlying characteristics that lead to effective performance'.⁶⁷

The United Kingdom Government adopted the competency approach as national training policy by the mid-1980s, in the context of falling industrial competitiveness attributable to an insufficiently trained or skilled workforce. The National Vocational Qualifications framework⁶⁸ was established in the United Kingdom with a narrow functional definition of competence as 'the ability to perform satisfactorily in a range of occupational tasks', in contrast to the parallel development in Europe of more broadly based concepts of competency.⁶⁹ 'Occupational Standards' were developed by functional analysis of work task components,⁷⁰ and the United Kingdom model strongly influenced Australian training policy since 1989.⁶⁹

In Australia, over the past 20 years, the United Kingdom model of skills-based or functional competency has become national government training policy, with all Australian vocational education and training, or VET, now delivered by competency-based training.⁷¹ Concurrently, however, thinking about competence has been broadened to include professional occupations, and approaches that integrate behavioural, functional and cognitive domains.⁷²

Clinical competence is now the professional and organisational context within which most health professional practice is conceptualised.^{10,18,73-76} This move towards measuring trainee and health workforce outcomes, articulated as competencies, signals a major pedagogical shift away from previously more traditional methods of education and workforce management.⁷⁷

Key policy drivers underpinning the widespread uptake of competency-based education within health professional education include unprecedented calls for greater accountability in all aspects of professional functioning;⁷⁸ a need to better structure career and clinical progression;¹⁰ and increasing regulatory, public, organisational and professional requirements to better articulate the combined contributions of the health professional workforce and the unique contributions of each profession.⁶³

Other drivers, including the global trends and changes in health service delivery, and the increasing workforce shortage, underpin a growing recognition of the current inadequacy of many aspects of current workforce structures and health professional education.^{65,78} Calls for better alignment between health and education, consideration of revised scopes of practice, creation of new categories of professions or assistants, improved interprofessional practice and enhanced models of collaborative care all emerge in response to the requirement for a health workforce that can more competently, flexibly and cost effectively meet the increasingly complex needs of health consumers and their families, now and into the future.^{65,78,79}

More recently, a range of health sector reform developments^{80,81} and profession-specific utilisation^{18,82} strengthen the increasing consideration of competency-based career frameworks to further extend directions already achieved via the competency-based training movement.^{8,64,83,84}

Health policy researcher Nick Bosanquet and his colleagues⁸⁵ highlight the current path of health reforms in the United Kingdom as including movement towards a much more 'patient-led integrated system of care', which includes significantly more of the care being provided outside of acute care settings and in which there is a requirement for greater workforce flexibility to move between public, private, non-government organisation and community settings. Increasingly, care in this context will be provided in efficient local primary care organisations, such as envisaged specialist super clinics and Medicare local environments. In this service delivery model, specialist medical staff and other health workers will no longer be employed in one location for all of their contracts, with current conceptions of workplace setting and career likely to undergo significant change.⁸⁶ Further consumer expectations of interprofessional cooperation and collaborative-based care will continue to increase.⁸⁷

8. Collaborative care and interprofessional competence

Partnership-based public policy

Over the past two decades, public policy makers have increasingly introduced models of joint and collaborative working to enhance social and economic outcomes.⁸⁸⁻⁹¹ Growing evidence exists to demonstrate the increasing popularity of such models and the increased emphasis on whole-of-government or joined-up government activity.^{81, 92}

In describing this policy trend, it is evident that this new paradigm underpins both social and economic development activities. A key assumption underpinning the partnership-based policy trend is that inter-organisational collaboration and partnership-based service delivery is a more effective means of yielding improved outcomes; that is, if everyone cooperates, collaborates and works together, improved results will be achieved.

Researchers Jane Nelson and Simon Zadek describe this concept as the ‘alchemical effect’ (p. 15) or the dynamic that arises when ‘participants seek to achieve more than the sum of their individual parts by creating leverage and synergy based on and between key components of the partnership’.⁹³ Simply put, ‘collaboration means that one plus one can equal three’.⁹⁴ The objective of a partnership is to deliver more than the sum of the individual parts.⁹⁵

However, the concept is far from simple, as this is a complex and continually evolving development pathway in public policy evident in a broad range of socioeconomic contexts—the health service context being no exception.⁹⁶⁻⁹⁸

Within the health arena, international public health policy has seen a dramatic shift from isolated models of health care towards ‘new governance’ health care arrangements involving local health systems that are collectively responsible and accountable for the health needs of a community.^{96,99} Although a little slower than the rest of the world, the same movement is occurring across the Australian healthcare system⁹⁷ and will soon be enacted with the full implementation of wide-scale health reforms involving the establishment of Local Hospital Health Networks and Medicare Locals.^{81,92}

The trend towards inter-agency collaboration is no more evident than at the clinical level where the increasing complexity of health care has generated an expectation and a need for interdisciplinary activity and for health professionals to work as a team. While there is growing evidence to suggest that effective interdisciplinary practice improves consumer health outcomes,⁹⁸ there is also a recognition that effective collaborative practice does not ‘just happen’.¹⁰⁰

Within this context, Western health systems worldwide are seeking to define the key criteria and strategies to maximise, promote and support collaborative practice and interprofessional competency.^{101,102} The development of effective collaborative practice necessitates multifaceted strategies that address both the structural (systems, tools) and relational factors (human relationships) at a local level^{100,103}—an increasing expectation of consumers and their families—and which is clearly reflected in current health service policy and practice trends.¹⁰⁴

Effective interprofessional networks offer the potential to identify and resolve systemic barriers to collaboration, such as development of referral protocols to improve bilateral communication between primary and secondary care, and encourage the development of productive working relationships between service providers and health professionals.

Collaborative care

Partnership-based public policy context underpins the concept of collaborative care, models of which are increasingly seen as needed to ensure optimal service delivery in complex health contexts. In short, collaborative care is viewed by many as a necessary evolution¹⁰⁵ in a context where physicians are challenged by the increasingly ‘complex care required for complex patients in a complex time’.¹⁰⁶ Factors contributing to this increasing complexity are noted as ageing population, increasing patient expectations, patients with chronic diseases and co-existing conditions, and health workforce shortages. Against this backdrop, collaborative interface activity is ‘increasingly seen as an essential feature of high-quality, safe mental health services’.¹⁰⁷

The 2008 Canadian National Physician Survey revealed that most doctors interviewed agreed that new primary care models providing collaborative care are ‘better suited for providing the complex care many patients now require’.¹⁰⁶ In reporting how patients benefit from collaboration, descriptors of a patient-centred model supported by a collaborative team of professional, allied health workers, community providers and carers provide a service delivery framework within which patients can enjoy enhanced support and care, as someone is there ready to answer each health need as it arises.¹⁰⁵ In addition to forming networks between a team of health care professionals, the new models increasingly integrate models of family intervention and carer participation alongside the models of integrated specialist and primary care.¹⁰⁸

The concepts of collaborative care, interprofessional teams, horizontal integration and workforce flexibility and cross-sectoral collaboration are fundamental rationales underpinning the move to competency-based frameworks for both education/training and health workforce career development.

There is a large literature regarding both interprofessional education and interprofessional practice.^{83,109} Multiple reports exist about particular interprofessional education programs or courses, as well as evaluations and attempts to quantify the contributions interprofessional education may make to care.^{110,111} Interprofessional education is so widely discussed that a number of papers pose the question of whether its agenda has become too diffuse or ambitious.¹¹²⁻¹¹⁴

At a global level, interprofessional education and interprofessional practice are now seen as being central to health policy, as instanced in recent work by the World Health Organization^{115,116} and the previously cited *Lancet* article reporting on an international consultation designed to explore the role of health professionals in the 21st century.³⁰

The interprofessional education literature often assumes that optimal interprofessional working will be an outcome of changing educational and training philosophies, curricula and pedagogies, but that those outcomes will not necessarily be secured until sufficient time has elapsed for new graduates to progress throughout their careers.¹¹⁰ There is, for instance, an Australian study that discerns different dispositions towards teamwork and interprofessional working from younger visiting medical officers.¹¹⁷ The pressures for the introduction of models of collaborative care are usually viewed as urgent, and therefore attention turns to more immediate levers for cultural change. It is in this context that interprofessional competency frameworks are advocated and developed.¹¹⁸

Such frameworks are in their infancy; however, new models are rapidly emerging. Existing literature reports on developments in Sweden and Norway¹¹⁹ and primarily within countries with politically and culturally comparable health systems. Most activity appears to have taken place in Canada, where expansion of the CanMEDS framework is being applied more broadly to allied health professions^{23,120} and where the development of a National Interprofessional Competency Framework¹²¹ is seen as a major globally recognised development.

Interprofessional education and competency frameworks as a platform to enhance collaborative care

Any new policy and delivery change is much easier to advocate than to practice.¹²² In particular, service coordination, collaboration and partnership pose complex implementation challenges.^{123,124} Embedding interprofessional practice is not easy.¹²⁵ Successful implementation requires thought, planning, leadership and education.^{126,127} Thus, purposefully planned education becomes a key platform to support and enhance learning and change.

Interprofessional education is noted as having a range of advantageous outcomes, in that it promotes interprofessional collaboration; involves interactive learning between professional groups; develops knowledge and understanding of other professions; encourages professionals to learn with, from and about one another; improves relationships; increases trust, strengthens referral networks, provides opportunity for consumer and carer engagement; and respects the contributions and integrity of others.^{83,128-130} The delivery of interprofessional education is mooted as being essential to engender the cultural change necessary to fully embed effective models of collaborative care.^{87,131} In short, the path to the successful implementation of collaborative care involves interprofessional education, which is based on the clear articulation of the competencies that are essential to effective team work and the delivery of collaborative care.^{87,132} Increasingly, competencies are structured within interprofessional frameworks.^{83,133,134}

Interprofessional and collaborative competencies

Before embarking on framework development, it is important to clearly identify the nature of interprofessional and collaborative competencies. Without such clarity, an unhelpful blurring of sectors, professional identities and accountabilities can occur.¹³⁵ Simply, it is essential to understand and identify the competency clusters and competencies of interest versus those which are exclusive to a particular sector, profession or group.¹³⁵⁻¹³⁸ Typically, these areas of common interest include competencies such as leadership, conflict resolution, client assessment, team functioning, negotiation and problem solving.¹³⁴

The following commentary highlights examples of how these competencies have been developed within the Canadian health service context.

The British Columbia Competency Framework for Interprofessional Collaboration

Initially, a range of province-based examples were developed within the Canadian context, of which the British Columbia Competency Framework for Interprofessional Collaboration emerges as a well-researched and clearly articulated example.^{134,139}

The framework was developed by University of British Columbia College of Health Disciplines via the Interprofessional Network of British Columbia, which sought out, compared and contrasted 15 existing frameworks. The purpose of the development framework has been to inform curriculum development in the context of both pre-registration education and post-registration continuing professional development. Further, Canadian researcher Victoria Wood and her colleagues¹³³ assert that the development of this framework has been an essential underpinning of the 'road to collaboration', with collaborative practice noted as a prime strategy for both enhanced patient outcomes and also for improved health workforce retention.^{133,140}

Canadian National Interprofessional Competency Framework

The work of the Canadian provinces was further expanded by the development of a national interprofessional competency framework. In 2008 Health Canada provided the Canadian Interprofessional Health Collaborative (CIHC) a funding grant to enable CIHC members to establish a working group, with a mandate to review literature related to competencies and existing province-based frameworks (for example, British Columbia Interprofessional Competency Framework) and to develop a Canada-wide competency framework for interprofessional collaboration.¹⁴¹

The Canadian National Interprofessional Competency Framework¹²¹ includes six competency domains, specifically, interprofessional communication, patient/client/community-centred care, role clarification, team functioning, collaborative leadership, and interprofessional conflict resolution. The model is increasingly used as a guide to similar Australian-based developments.

Further directions in interprofessional practice and collaborative care

The literature pertaining to interprofessional education, interprofessional practice and collaborative care is prolific.^{114,121,142-144} The increasing evidence arising from CIHC literature reviews is best summarised as follows :

Mounting research shows that health care delivered by nurses, physicians, and other health professionals working in teams not only improves quality, but also leads to better patient outcomes, greater patient satisfaction, improved efficiency, and increased job satisfaction on the part of health professionals .⁸⁷

9. Benefits of competency-based approaches

Multiple benefits have been identified that support the development and use of competency frameworks.⁸⁵ These include enhancing alignment between education and the needs of industry, health consumers and communities; facilitating consistent practice standards; providing open and equitable assessment of international practitioners; a transparent mechanism for regulating a profession; a useful tool for guiding curriculum development; providing a public statement of a profession; identifying relationships between professions; assisting processes for recognition of prior learning; increasing accountability; assisting recruitment; facilitating performance review evaluation; improving staff morale; and guiding clinical supervision, mentoring and continuing education.^{27,145,146}

Provision of common platforms for learning, along with clear articulation pathways for those seeking recognition of prior learning, is noted as being of particular benefit in the context of current health workforce developments^{65,147} These factors are viewed as having particular applicability to different groups within the health community,⁴² including:

Health consumers

- improved patient and consumer care through increased flexibility in utilising the health workforce, and clear articulation and maintenance of skills and competencies
- potential for less fragmented care and for more patient-centred practice

Health professionals

- enhanced understanding among students of the contributions and knowledge base of different professions
- clearer career pathways and opportunities for the health workforce
- greater clarity and transparency regarding workforce roles and accountabilities
- simplification of complex employment arrangements and control of burgeoning new worker categories
- opportunities for further understanding and knowledge sharing across different professions and workforce categories

Health employers

- greater horizontal and vertical flexibility in workforce utilisation
- better alignment between education and the health sector
- strong base for maintaining role and remuneration parity between workforce groupings (for frameworks with industrial links)

Health educators

- possibility of more seamless articulation and recognition of prior learning, not just between vocational education and training, or VET, and higher education, but also within higher education and postgraduate training
- opportunity to work in closer partnership with the health sector

Health planners, regulators and registration authorities

- potential for skills migration within the existing workforce, and better preparation in meeting new and emerging demands within the health system.

10. Utilisation of competency-based frameworks in the health sector

Competency-based education and training frameworks

Over the past 20 years, there has been a significant and steady increase in the movement of various health professions to define standards of practice in the form of competencies.⁶³ In recent years, multi-dimensional frameworks have been adopted by a variety of professions as a means to define scope of practice and regulate career entry, set accreditation and quality practice standards, support multidisciplinary and interprofessional engagement, and create greater alignment between occupational requirements and higher education outcomes.⁶³

Nurses were the initial group to commence wide-scale definition of competency expectations,¹⁴⁸ with most professions now actively engaged with this approach.^{10,78,149} The literature search associated with this paper was unable to locate any health profession in the Australian context that does not use various forms of competency expectations to define practice and registration requirements.

Competency frameworks are widely used in the health sector,^{136,150} with most health professions now fully embedding competence as a 'central constellation of principles and values that inform the profession'.^{56,84,146} Recently, there has been much debate over the potential utility of competency frameworks as part of a broader health reform agenda, and particularly in response to health workforce shortages in the sub-field of health workforce innovation¹⁵¹, with support for their introduction being underlined in several prominent reports.^{81,92} In particular, given that much of this support is predicated on the utility of frameworks for the better coordination, planning and delivery of patient-centred and collaborative care, interprofessional frameworks are key to this agenda.¹⁵² They represent a potential model for sectoral or other frameworks (for instance, those encompassing an organisation) that seek to act as a lever for change across the workforce, rather than simply supporting practice in particular roles, professions or areas of practice.

The envisaged use of sector competency frameworks and large-scale interprofessional frameworks represents a significant leap from the use of competency frameworks in health in Australia, to date. Replicating international trends, nursing was first to adopt competency standards,¹⁵³ followed by many allied health professions.¹³⁶ Concerns about defining and delineating scope of practice, and attaining greater legitimacy, were significant drivers,⁶⁵ as have been shifts in the legal architecture of registration and the introduction and growth of nursing and allied health education in the tertiary sector.²² From the early 2000s, many medical specialist colleges adopted competency frameworks for postgraduate education, usually based on the CanMEDS model, and a lively debate continues on the scope and utility of competencies within medical education.^{18,146}

At the same time, regulation and concerns about patient safety and quality care have driven the development of competency frameworks specific to particular procedures or tasks, and some employers and jurisdictions have adopted workforce-wide frameworks (sometimes described as 'capability frameworks') or frameworks that apply to particular professions, workforce categories or groups of professions (for example, allied health). The impetus for these developments is often partly organisational (reflecting industrial and cost drivers) and partly designed to attain the optimal skill mix within particular contexts of care.¹⁵⁴

It is not surprising then that issues surrounding workforce shortages, surplus and distribution⁸¹ are significant drivers underpinning the increased use of competency-based education and training frameworks in the Australian context.

In recent times, the uptake and dissemination of such frameworks has been exponential, with a major problem now being faced on the large number of frameworks that are continuing to be produced. Many professions are now facing information overload, with a growing belief

that 'there are just too many framework documents being produced'.¹⁰ Further, the variance in framework and taxonomy design, levels, complexity and detail is a major inhibitor to workforce flexibility and/or to the ready implementation of desired models of recognition of prior learning, assessment of international health professionals, and workable articulation agreements between educational and health sector providers.

Competency-based career frameworks

The notion of competency-based career frameworks and their use within the health sector are much less researched and understood. Search of the literature highlights a paucity of utilisation and information in this field. There are, however, a number of examples within the Australian contexts. Some of the literature sourced to inform this paper was located in unpublished papers and project reports from key contacts within the Australian public and private health system. Subsequently, examples of competency-based career frameworks were identified in South Australia for the allied health and nursing occupations (through enterprise bargaining) and at the Sydney Adventist Hospital, although these are not yet available in published format. International developments, such as the *Let's Get Real* framework produced by the New Zealand mental health organisation Te Pou, were also identified.^{155,156} Sourcing of unpublished literature, along with discussion with leaders in the sector, suggests that the aforementioned examples are by no means a definitive list and that considerable activity is currently underway but as yet their experience is unpublished or uncirculated—due, in part, to the commitment of organisations to first consult with professional groupings and industrial representatives throughout the development process and before the release of information on their framework. Career frameworks have been promoted on a range of premises,^{42,85} including their capacity to:

- provide a framework for a clearer pathway towards a 'patient-led integrated system of care'⁸⁵ with features allowing staff to move easily between acute, primary care, private and non-government organisation sectors
- provide opportunity for career progression in directions that may not have been previously possible through more traditional routes
- aid increased workforce flexibility by providing a map to identify areas of transferability to other job roles
- enhance patient care through improved workforce capability and alignment
- improve staff retention through extension of current roles, emergence of new roles and transferability of competences
- identify staff development needs, and to subsequently plan and provide appropriate training that will develop the required skills and competences
- as a tool, to initiate curriculum change and achieve better alignment between the health and education sectors

Competency-based career frameworks are not yet prevalent within the Australian healthcare system; however, exploration of this topic is clearly on the innovation and reform agenda of HWA, with the commissioning of this paper designed to raise awareness and commence discussion around the utility of these approaches within the Australian context.

In addition to providing benefits for health consumers and health professionals, the United Kingdom Skills for Health website¹⁵⁷ highlights ways in which a competency-based career framework can be used by health service managers, such as:

- conducting service reviews
- during workforce planning and development
- redesigning or defining roles
- during appraisal, self-appraisal and personal development planning
- conducting reviews of skill mix
- developing and delivering training programs or qualifications.

Other emerging frameworks

A range of as yet unpublished work is currently underway within various Australian-based public and private sector health provider contexts. Given the nature of this development work, it is expected that increasing publications will emerge over the next two to three years. Some of the developments sourced during the researching of this article have similarities to competency-based education and training and/or competency-based career frameworks, but are significantly different to these types of framework. One such example is the Hunter New England (HNE) Health Workforce Capability Framework. The framework is a results- and values-driven framework applicable to all staff of the HNE Area Health Service. The framework describes the capabilities (defined as skills, knowledge and abilities) required of all health service staff to ensure a workforce that will deliver high-quality services to the community. This framework establishes a platform to implement capabilities across a range of human resource practices, including learning and development, managing for performance, recruitment, workforce planning, and career development.⁵⁵

The framework comprises three broad streams (organisational stream, direction, and capacity to deliver), which together are defined by 15 capabilities applicable to various groups within HNE Health. The organisational culture stream defines capabilities that are common to all jobs in the public sector, which in this context implies all HNE Area Health Service staff. The direction stream applies to organisational managers, and the capacity-to-deliver stream describes capabilities applicable to particular jobs within HNE Health. The framework is an adaptation of the NSW Public Sector Capability Framework, a New South Wales Government document released in 2008 while the HNE Health Workforce Capability Framework was being developed. In addition to the Public Sector Capability Framework contents, the HNE framework also contains a maturity model to ensure the continued strategic integration of the framework for building sustainable workforce capability.

We therefore suggest that such developments will increase in Australia as the current health reform agenda gains momentum.

11. Considerations of a whole-of-workforce framework for the Australian health workforce

Similar to the establishment of the Australian Health Practitioner Regulation Agency, HWA is of significant strategic and operational importance within the current context of Australian health reform. In its first year of operation, HWA commenced discussion and exploration of the notion of the development of competency-based education and training frameworks and competency-based career frameworks for the Australian health workforce. The ongoing discussions and consultations are intended to explore a whole-of-workforce approach to the development of these envisaged frameworks—a possible global first.

Problem identification and development of a value proposition is an essential precursor to the progression of work activity in this area. In short, is there a problem to be resolved? The answer is a clear 'yes', given that this paper has highlighted significant ambiguities, lack of alignment, workforce inflexibilities and more. Current problems within the Australian context include the following factors.

- Everyone is developing frameworks with little, if any, alignment and with increasing disparity.
- Frequently, frameworks are not aligned with the recently revised Australian Qualifications Framework. This exacerbates problems related to:
 - » variable standards and levels of competency within health qualifications and professions
 - » difficulties in transition between the vocational education and training (VET) and higher education sectors
 - » difficulties in recognition of prior learning for health workers wishing to build on their careers, change careers or migrate to Australia
 - » increasing professional demarcation and protection of professionally siloed roles
 - » difficulties for health employers wishing to increase workforce flexibility.

These problems are common across Western countries and are increasingly being tackled by the development of cross-professional, interprofessional and cross-sectoral competency frameworks. Examples include the CanMEDS framework and the Tuning Educational Structures in Europe project.^{21,76}

Understanding and defining the scope and breadth of the Australian health workforce is also an essential precursor to whole-of-workforce considerations. Little, if any, literature exists to comprehensively describe the entire workforce; however, references to demographic health data by government and health professional organisations, non-government entities such as Carers Australia, and the work of researchers exploring health workforce issues^{54,65,147,158} lead to the conclusion that whole-of-workforce considerations should include the following groupings:

- specialist workforce, for example, medical specialists, dental specialists (orthodontists)
- regulated health workforce, for example, allied health professionals, nurses, registered medical officers
- unregulated health workforce, for example, social workers, paramedics, Indigenous health workers
- emergent health workforce, for example, physician assistants, nurse practitioners

- support workforce, for example, nursing, allied health assistants
- voluntary unpaid and carer workforce.

The emergent workforce category includes new health worker groups identifiable within the literature and which do not fit easily within the more traditionally understood workforce categories listed above—for example, newly graduating physician assistant workers whose lack of national formal recognition within the health workforce marks their employable contributions as currently unclear.^{159,160}

Two distinct roles categories can be identified within the emergent health workforce, specifically, delegated health worker roles (for example, physician assistant and anaesthetic assistant roles) and autonomous health worker roles (for example, nurse practitioner roles), whose scope is not yet fully defined within either specialist metropolitan or specialist rural and remote settings).^{161,162}

No clear model is yet apparent regarding the emergence of these roles or the workforce modelling underpinning start-up of corresponding courses within educational institutions. It is clear that further work is needed to enhance a whole-of-workforce understanding.

Such work should be underpinned by a clear value proposition, which highlights the benefits of a whole-of-workforce approach. Provision of common platforms for learning, along with clear articulation pathways for those seeking recognition of prior learning, is of particular benefit in supporting health workforce developments.^{65,147} Common frameworks inclusive of these features are clearly of value to most groups within the health community,⁴² including the following perceived benefits:

Health consumers

- improved patient and consumer care through increased flexibility in utilising the health workforce, and clear articulation and maintenance of skills and competencies
- potential for less fragmented care and for more patient-centred practice
- greater focus on integrated collaborative practice and patient-centred care
- greater openness and transparency regarding the roles and responsibilities of those providing the care

Health professionals

- enhanced understanding among students of the contributions and knowledge base of different professions
- clearer career pathways and opportunities for the health workforce
- greater clarity and transparency regarding workforce roles and accountabilities
- simplification of complex employment arrangements and control of burgeoning new worker categories
- opportunities to further understanding and knowledge sharing across different professions and workforce categories
- enhanced overall career flexibility, clearer processes for recognition of prior learning, maintenance of practice, maintenance of registration and articulated learning pathways

Health employers

- greater flexibility in workforce utilisation
- better alignment between education and the health sector
- strong base for maintaining role and remuneration parity between workforce groupings (for frameworks with links to industrial workforce agreements)
- greater confidence regarding the certainty and comparability of standards

Health educators

- possibility of more seamless articulation and recognition of prior learning, not only between VET and higher education but also within higher education and postgraduate training
- opportunity to work in closer partnership with the health sector and graduate health professionals who are better prepared for the workforce
- clearer definition of health workforce roles and accountabilities, against which curriculum development can be undertaken

Health planners, regulators and registration authorities

- clearer definition of health workforce roles and accountabilities, against which health service planning can be undertaken
- greater flexibility in health workforce utilisation and deployment
- potential for increased skills migration within the existing workforce, and better preparation in meeting new and emerging demands on, and health service re-design requirements in, the health system.

12. Counterviews and barriers to the use of competency-based approaches in health

The introduction of competency-based frameworks for professional education and training has not been without controversy, particularly over issues to do with time and clinical reasoning and competence¹⁸ and the perception that only technical skills can be competency-based, and many of the reservations expressed revolve around their use or potential use in the workplace and in health system management and policy.

Despite their increasing utilisation, various critiques have argued that those frameworks being assessed, 'deserve more than the counting and measuring of only those of their abilities which can be narrowly defined into units and elements of competence in order to be demonstrated, measured and objectively assessed'.¹⁶³

Assertions of this nature are based on the view that competency-based education is 'narrow', 'simplistic' and 'reductionist' and that significant aspects of learning, such as clinical judgment, clinical reasoning, empathy and interpersonal functioning, are not easily measured.¹⁶³⁻¹⁶⁶ Further, medical practitioners may prefer traditional types of learning and more passive methods of teaching and assessment, particularly regarding mandated continuing education.¹⁶⁷

Critiques of competency-based education and training frequently propose greater diversity and a more balanced blending of a variety of teaching and learning models while also calling for ongoing innovation in the manner in which health professionals are taught and assessed.^{83,84,165,168-172}

Literature in this field usually advocates moving beyond the concept of a competency-based model only or seeks to expand the definition and scope of behaviourally defined, profession-specific competencies. Examples of such work include concepts of meta-competencies, interprofessional competence, competency-based supervision practice, professional practice discourse, and symbiosis—a recently proposed model for medical education whereby the focus is on the mutual benefit obtained by both educator and trainee in the educational processes, rather than perception of acquisition and demonstration of competence only.^{83,84,170-172}

In a bid to mitigate the notion of competency approaches as reductionist, some responses have sought universal coverage but, as illustrated below, are likely to prove unwieldy in practice.

According to American researchers Ronald Epstein and Edward Hundert, competence is the 'habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served' (p. 226) and depends on 'habits of mind, including attentiveness, critical curiosity, self-awareness, and presence' (p. 227).¹⁷ Competence therefore refers to the professional's overall suitability for the profession, reflecting his or her knowledge, skills, and attitudes and their integration; that is, competence is developmental, incremental and context dependent.

Others have more succinctly portrayed the increasingly accepted view that competency models despite their complexity are not necessarily narrow or reductionist, asserting that 'competency is clearly more than the mere attainment of skills as it also involves other qualities such as attitudes, motives, personal insightfulness, interpretive ability, receptivity, maturity and self-assessment' (p. 218). Axley 2001

Meanwhile, others have identified alternative ways to frame the debate by endorsing both a competency-based approach (recognised as an essential underpinning to professional accountability) plus a range of other mechanisms for the teaching and assessment of more complex forms of 'tacit knowledge', such as advanced clinical judgement and

reasoning.^{18,76,82,173–175} A common aim is to extend the behaviourist focus of competencies and complement the acquisition of professional knowledge through additional and/or alternative teaching and learning models.

Examination of published and unpublished material indicates that many of the apparent concerns expressed on the validity and value of competency-based frameworks can be reconciled. Much of the concern expressed revolves around the view (mistaken, in principle) that competencies necessarily have to be narrowly task focused and highly specified. This is a real risk in practice. Further, some frameworks have too many levels, and encompass far too detailed and specific sets of competencies under a proliferation of domains. This could lead to a situation where the part drives out the whole and exacerbates the significant demands on clinical educators and workplace assessors at the cost of patient care, thus nullifying the aim of well-aligned frameworks.

Because good tools can be used badly, this does not mean that they are bad tools and should be avoided. Professions have already widely adopted competency-based education and training frameworks, and if used well, the worries about a lack of time to develop higher-order clinical skills and tacit knowledge are avoidable.^{18,176} Further, newly developed practice models and increased interprofessional collaborations can be formed on the basis of varying models of applied competency-based education and training initiatives and interventions.^{87,176,177} Further, competency models can be used as an effective tool to transparently and accountably reassure consumers of the quality of care.¹⁹

13. Resource and implementation considerations

The development and implementation of competency-based education and training frameworks and competency-based career frameworks include significant resourcing demands. The cost of competency maintenance and development is high. Sufficient resources in time and cost must be devoted to consultation, development and revision to ensure their currency.

Because of potential industrial alignments, competency-based career frameworks are more complex tools than competency-based education and training frameworks. Considering the consultation and development requirements, the design and implementation of a career framework would take several years, at best.

Competency standards are generally developed through a process of evaluating international competency standards where available, as well as reviewing relevant literature, then utilising specialist reference groups or committees consisting of experts in the field and other relevant stakeholders. Reference groups consult widely with members of the profession, employers and educators to develop draft competency standards. To validate the scope and level of draft standards, a process of field testing within a profession is usually undertaken.²⁷ This process is defined by Anne Marrelli and colleagues as comprising the following seven steps—defining objectives, obtaining support of a sponsor, developing and implementing a communication and education plan, planning the methodology, identifying competencies and creating the model, applying the competency model, and evaluating and updating the competency model.¹⁷⁸

The processes used to develop frameworks have been documented in several cases, for example, development of the United Kingdom-wide Public Health Skills and Career Framework was led by the Department of Health in England. Competencies were agreed upon using a bottom-up approach, through a series of multi-agency, multi-professional, nation-wide workshops with public health practitioners and specialists engaged in the work at national and local levels.⁴² Similarly, the CanMEDS Physician Competency Framework, which is used by the Royal College of Physicians and Surgeons of Canada, was developed through an extensive consultation process with Royal College fellows, family physicians, educators and expert volunteers. Its development involved a substantial literature review, stakeholder surveys, consultation, consensus building, debate and educational design over a period of more than 10 years.¹⁴⁰ It has since been adopted by other Canadian interprofessional bodies after review of relevant competencies for each profession, and subsequent matching to the core competency framework.²³ Similarly, United Kingdom researchers C. L. Walsh and colleagues¹⁷⁹ describe development of an interprofessional learning framework for use by students of health and social care professions, formulated based on benchmark statements relating to undergraduate programs for medicine, dentistry, nursing, midwifery and social work.

More specifically, development of an advanced practice competency framework for pharmacists was detailed by N. Meadows and colleagues.¹⁸⁰ The process involved a literature review of relevant policy, professional body strategy and research documents, which were used by a panel of pharmacists to establish the basic structure of a competency framework; this comprised competency clusters, individual competencies for each cluster, and a progression scale. To establish content validity, the framework was reviewed by three consensus development panels of pharmacists who made recommendations for the revised framework. The final stage of development involved mapping the framework against the current level of practice of leading practitioners, to provide expert validation. A similar process was used in the development of a competency framework for diabetes nursing in the United Kingdom.¹⁸¹ In the Australian setting, a process similar to that described by Meadows et al. above was used to develop competencies

for musculoskeletal education.^{182,183} A second Australian report described the initial competency development process in the setting of community rehabilitation, a procedure that involved four stages of competency, namely, identification, definition, validation and endorsement.¹¹⁸

Concern has been expressed about the degree to which the use of competency frameworks for assessment within clinical placements and workplace evaluation may detract from limited human resources that might more appropriately be devoted to patient care.¹⁸⁴ To avoid this and other pitfalls, resourcing and implementation activities must include the following items:

- extensive consultation before beginning—this is essential to ensure common understanding, and gain buy-in to allay fears that could halt a project and disable continued development
- recognition of and provision for all costs—costs must include provision for consultation, development, implementation including the training of supervisors and students, along with the resources required for maintenance, regular review and updates, with maintenance of currency a significant resource consideration
- avoidance of complexity—if a framework is too complex, it is highly expensive to develop, implement, maintain and assess. Further, it becomes a ‘good tool used badly’, in that it requires so much workplace assessment time that it detracts from time available for patient care
- need for improved alignment—embarking on a literature review pertaining to competency-based education and training frameworks places the researcher face-to-face with the dilemma of how to best locate, map and analyse what is an increasingly moving feast. Every professional body makes use of competency-based frameworks to regulate some or all aspects of the profession’s activity. These frameworks are then often duplicated in non-matching forms across jurisdictions, sectors and employer bodies. Alignment is currently the exception rather than the norm—a factor that inhibits workforce flexibility, ease of articulation pathways and more.

14. Conclusions

There is increasing Australian-based acceptance, and rapidly expanding international activity, highlighting the utility of competency-based frameworks. Competency models and frameworks have been adopted by all Australian health professions as core constructs defining scopes of practice and registration requirements.¹⁸⁵ Unarguably, it seems that the competency movement is here to stay. Further, professional groupings are increasingly asserting that achievement and maintenance of competence are essential to the delivery of quality patient care.^{19,30,31,175}

Despite the history of controversy, increased consensus and enhanced alignment can be achieved, if too narrow an approach is avoided. Professional groupings within the health workforce have a long history of learning and working in silos. The literature cited signals that competency frameworks can yield substantial benefits in increasing collaborative activity and enhanced workforce flexibility among different professional traditions. Further, better alignment between education provision and health service needs can be achieved. The utilisation of competency-based frameworks provides opportunity for members across the entire health workforce to work in closer partnership with each other and with health educators, health employers and regulatory authorities, in a move towards new and improved models of patient-centred collaborative care.

Key issues going forward include:

- the need for commonly agreed definitions and shared language to better inform cross-professional discussion and enhance future health workforce development and innovation
- cessation of the rampant multiplication of non-aligned models and frameworks, which severely limits the capacity for shared learning platforms and ready articulation of health work qualifications and experience
- greater alignment of frameworks and taxonomies between health professions to better enable recognition of prior learning
- clear alignment between the 10 levels of the recently revised Australian Qualifications Framework and any envisaged whole-of-workforce competency framework or taxonomy to ensure maximum provision for shared learning pathways, recognition of prior learning and articulation agreements
- increased alignment between the vocational education and training, or VET, and higher education sectors
- increased inter-sectoral alignment, so that any envisaged whole of health workforce developments maximise potential for shared learning pathways, recognition of prior learning and articulation agreements
- ongoing innovation in curricula and education models across the health sector to complement and contract competency-based developments
- significantly increased emphasis on interprofessional education at both an undergraduate level and across the health workforce to enhance workforce flexibility and to further develop and embed effective models of collaborative-based health service delivery and collaborative care.

15. Moving Forward

HWA's recently approved work plan includes competency-based initiatives.¹⁸⁶ It may be quite challenging, however, to envisage how these concepts could be progressed to implementable reality. Competency-based initiatives must not increase existing confusion or unnecessarily ignite resistive reaction from professional groups or educational sectors that may either misunderstand or misconstrue the envisaged intent.

Opportunity exists for HWA to progress competency-based initiatives, including the concept of a whole-of-workforce competency framework, in a pragmatic and constructive manner. In the first instance, this could be progressed via activities such as a clear communication and consultation exercise to enhance increased understanding of, along with the rationale for and benefits of, utilising competency-based models that include the development of a whole-of-workforce competency framework.

To advance this work option, the way forward could include:

- publication of recently commissioned reports on the HWA website to commence discussion across the sector
- publication of a comprehensive literature review on the HWA website to engender discussion, better inform the sector and increase understanding of key issues associated with competency-based education and training developments and competency-based career frameworks
- production and dissemination of information bites pertaining to key terms and concepts on which there is current debate, ambiguity and variance in understanding, for example, on competence, competency, taxonomy, framework, horizontal integration, competency-based education and training framework, and competency-based career framework
- commencement of consultation with the sector by the development of a detailed discussion paper that adopts a workforce approach and outlines opportunities, options, benefits and implementation requirements associated with a whole-of-workforce approach to competency-based education and training and competency-based workforce utilisation and career progression.

This discussion paper, and other associated works, provides an opportunity for HWA to advance this particular work stream for the benefit of Australia's health care system in the medium to long term.

16. References

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