



COMPETENCY ASSESSMENT IN NURSING

A summary of literature published since 2000

April 2008

**Prepared on behalf of EdCaN by
Alison Evans Consulting**

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EXECUTIVE SUMMARY

This literature review was commissioned by the National Cancer Nursing Education Project (EdCaN) with the aim of identifying best available evidence related to assessment of competency in nursing practice. Recommendations from this review will assist in informing the development of principles and guidelines to support inclusion of competency assessment within a cancer nursing curriculum in Australia. The review builds on evidence reviews conducted previously.^{6,7}

The review includes 54 articles published between 2000 and 2007. While a range of competence indicators and assessment tools were identified, few of the articles included in the current review described approaches to ensure validity and reliability of competence assessment tools with any degree of rigour, mirroring findings reported elsewhere.² The majority of studies were descriptive in nature, reporting predominantly qualitative findings. Limitations included small sample sizes, single centres or timepoints and voluntary participation. Regardless of these limitations, the studies provide some useful insights into approaches for competence assessment. Recommendations summarised in this report represent the views and experience of the authors of articles included in the review.

The review findings should be considered in the context of ongoing debates about the definition of competence and competency standards. In broad terms, competency standards recommend expected levels of knowledge, attitudes, skills and behaviours. Competencies for professional nursing should reflect the multifaceted nature of nursing practice, the broad range of practice settings and cultural differences within the Australian population.

COMPETENCE AND COMPETENCE ASSESSMENT (18 articles)

A range of indicators and tools have been developed for competence assessment but empirical evidence regarding their effectiveness in measuring competence is lacking. A key challenge identified in all articles reporting on methods for competence assessment was ensuring objectivity.

It is generally accepted that assessment of competence should use more than one indicator. However, there is limited evidence about the most effective or reliable indicators to use. Most of the studies identified report on general issues of competence/competence assessment, portfolios and OSCEs. Evidence in relation to peer assessment, direct observation, self-assessment, continuing education and patient outcomes is more limited. No articles were identified relating to interviews. The majority of articles focused on initial competence with only limited investigation of issues of continuing competence.

It has been suggested by some authors that competence assessment should start with self-reflection, while the use of other indicators should take account of issues of inter-rater reliability and objectivity. Regardless of the indicator used, it is clear from the studies identified that adequate preparation of the individual being assessed, the assessor and mentors is important. Pilot testing of indicators is also important to ensure clarity and avoid ambiguity. A number of the articles included in this review conclude that there is a need for further research in 'real world' settings.

CONTINUING EDUCATION (1 article)

Participation in continuing education has been reported to be the most widely accepted method of measuring clinical competence. One small UK-based study was identified that explored nursing views of continuing professional development. In general, views were positive. However, the study concluded that nurses may need support in self-reflection activities to assist in implementing learning outcomes.

Previous reviews have identified that participation in continuing education does not guarantee competence, with some studies questioning whether continuing education results in improvements in clinical practice.

PORTFOLIOS (14 articles)

Portfolios are a collection of evidence to demonstrate skills, knowledge, attitudes and achievements. They rely on a level of self-regulation, writing and critical reflection skills on the part of the individual being assessed. While studies report the use of portfolios both as a personal development tool and an assessment tool, there is currently insufficient evidence to show whether portfolios can measure competence.

Reported benefits of portfolios include the fact that they encourage self-reflection and allow individuals to take control of and be accountable for their learning. However, reported issues include the amount of time required by both the learner and assessor, confusion about the types of evidence to be included within the portfolio, the fact that portfolios may favour those with better written and reflection skills and concerns about confidentiality.

In general, studies that have examined the acceptability of portfolios among the nursing community have generated positive results. However, questions remain in relation to whether the portfolio should be used as a method of personal development or assessment and, if an assessment is made, what form it should take.

Recommendations from included studies

Groups proposing to use portfolios should decide whether the portfolio will be used primarily as a tool for development or assessment; this decision may be determined by the setting in which the portfolio will be used, e.g. pre-registration vs. post-registration.

Expectations for students, mentors and assessors should be clearly defined and communicated. In preparing students to use a portfolio, it is important to be explicit and specific about evidence requirements and limits and to emphasise the importance of quality rather than quantity. Provision of templates and examples can be helpful and communication between students and assessors/mentors should be encouraged.

If the portfolio is used as an assessment tool, it has been recommended that the evaluation tool should be clear and specific. It has been suggested that a tripartite approach to assessment involving the student, mentor and assessor can be helpful (although this has not been formally tested). However, there is general agreement that assessors should be trained and certified to assure consistency and subjectivity with refresher training held at intervals. Communication between assessors has also been suggested as a means of encouraging inter-rater reliability. A formative rather than summative assessment for reflective components has been recommended, with qualitative approaches to assessment and a summatively assessed clinical skills list.

If the portfolio is used as a development tool (especially for post-registration nurses), it has been suggested that some degree of regulation and monitoring is required to ensure sustained use and provide value.

Authors have suggested that the degree of structure of the portfolio should be appropriate for the academic level and degree of experience at pre- and post-registration levels, with the way outcomes are written and the type of evidence required to demonstrate achievement of the outcome designed to match the stage of the student's academic and professional career. It has been suggested that confidence in the use of portfolios for both students and assessors will only develop with time and experience.

OSCEs (12 articles)

An objective structured clinical examination (OSCE) is a series of stations/exercises through which students rotate individually to demonstrate a range of skills and knowledge. There is currently insufficient evidence to show whether OSCEs can measure competence; however, this review identified two studies that showed an improvement in performance after an OSCE.

Reported benefits of OSCEs include enhancement of skills acquisition through a hands-on approach, the opportunity for students to practise skills in a safe and controlled environment and the opportunity to combine both teaching and assessment. OSCEs have been identified as a satisfactory way of assessing communication, clinical skills, knowledge and intention.

However, OSCEs have been reported as costly to run and can be time-consuming. A number of studies reported the OSCE setting to be stressful or intimidating for participants – although none compared the level of stress to other forms of formal examination. Time constraints at each station can also limit the ability for reflection. Inconsistencies between assessors and actors have been reported as a source of frustration and inconsistency for those being examined.

Recommendations from included studies

Groups considering the use of OSCEs should provide adequate preparation of actors and assessors to ensure consistency in approach and inter-rater reliability, and students should be adequately prepared about what will be involved. This includes advising students if they will be tested in scenarios they are not familiar with. Authors report that the realism of stations can be improved by involving relevant clinical staff, using the same equipment as that used in the clinical setting and ensuring preparation of actors.

It has been suggested that a mixed mode approach to assessment should be used in the OSCE setting (formative and summative) and that feedback should be provided with sufficient time allowed for reflection.

It has also been suggested that bias can be reduced by using laypeople in the role of 'patient' as well as using an independent facilitator.

PEER REVIEW (4 articles)

Peer review has been identified as a valuable mechanism for providing feedback and fostering professional growth. Empirical evidence about the effectiveness of peer review or assessment in assessing competence is limited.

Reported benefits of peer review include confirmation of previously held beliefs in an individual's skills/lack of certain skills, clarification of self-assessment findings, identification of problems, and opportunities for sharing colleagues' experiences as well as performance feedback.

Issues raised in relation to peer review include the need for the reviewer to understand and be familiar with the individual's work and role expectations. Peer review has been reported as a source of anxiety for both parties, with concerns raised around the provision and response to negative comments and the potential for disagreement among peers.

Study authors have suggested that groups considering the use of peer review may wish to combine it with portfolios to encourage self-reflection prior to seeking critical comment.

DIRECT OBSERVATION (2 articles)

Direct observation has been proposed as a useful tool for prior learning assessment. There is currently little evidence to determine the effectiveness of direct observation as a method for assessing competence. Potential issues include the need for assessors to be familiar

with the clinical and practical setting of the assessment and the impact of direct observation on the reliability of results.

SELF-ASSESSMENT (2 articles)

Self-assessment has been reported to be the most common form of competence assessment. Benefits include the cost-effectiveness of this approach, identification of strengths and areas for development with conscious control over practice provided to individuals. Potential issues associated with self-assessment include subjectivity, concerns with recording negative experiences and time constraints.

Self-assessment has been suggested to be a useful starting point for other forms of assessment. However, evidence about the effectiveness of self-assessment in the assessment of competence is limited. It has been suggested that students may require assistance to reflect on practice in a meaningful way.

PATIENT OUTCOMES (1 article)

Patient outcomes and views may be valuable in assessments of competence but approaches to incorporating patient views should take account of patient anxiety about nurses' responses to their assessment.

OTHER INDICATORS

No studies were identified in the current review relating to interviews as indicators of competence.

CONCLUSIONS

While evidence from rigorous studies regarding competence assessment in nursing is still lacking, this review has identified useful examples that may provide guidance to the EdCaN team in developing a competency framework for cancer nurse education. Given the current lack of empirical evidence in this area, there is an opportunity to include some form of evaluation component into the competency framework that may contribute valuable information to this area.

INTRODUCTION

The aim of the National Cancer Nursing Education Project (EdCaN) is to develop a national standard of educational preparation for all nurses who work with people affected by cancer in primary care, generalist and specialist health care settings. EdCaN is developing a national framework for cancer nursing education that will contribute to the development of a nursing workforce capable of meeting the current and future needs of people with cancer. Specifically, the project aims to formulate a nationally recognised cancer nursing curriculum that will be sufficiently flexible to meet local needs whilst addressing issues associated with long-term workforce preparation.

Skills development by the cancer nursing workforce will require development of curriculum documents for all levels as well as resource materials to support the development and assessment of core competencies. Competency standards have been developed in Australia and internationally as a way of standardising the wide variation in scope and levels of practice within the nursing profession. In Australia, competency standards developed by the Australian Nursing Council Inc (ANCI)¹ define the required entry level competence for award of the title of Registered Nurse and Enrolled Nurse. These standards also form the basis for development of curricula and assessment tools and have come to be used by the health care industry as selection criteria for the appointment of nursing positions.²

While entry level standards for nursing competence have been taken up by all States and Territories in Australia, there is less congruence around continuing competencies and competencies for advanced or specialist practice. To date, the most common indicator of continuing competence has been recency of practice.³ The Australian Nursing and Midwifery Council is currently attempting to determine a framework for continuing competence that will provide nurses, midwives and their employers with a means to demonstrate ongoing competence to practice.⁴

The EdCaN project has developed a set of competency standards for specialist cancer nurses. These competencies have been identified through EdCaN scoping activities and are described in the Framework for Cancer Nursing.⁵ The competency standards are intended to provide a framework for curricula to facilitate the development of these capabilities. A set of assessment tools will be developed for evaluating core competencies that could be assessed at a national level.

Despite a large body of literature, there is still considerable debate about the nature of competence and its assessment. The current review of national and international literature aims to provide a summary of current evidence and opinion to guide the development of the EdCaN competency framework. It builds on the knowledge identified in previous reviews, including the 2001 systematic review commissioned by the Queensland Nursing Council (QNC).⁶

OVERVIEW OF THE QNC REVIEW

The specific review questions addressed in part one of the QNC review⁶ were:

- what indicators for competence for practice have been reported in the current literature?
- how effective are these indicators in measuring competence to practice?
- what are the current issues in relation to indicators for competence to practice?

The QNC review unearthed a spectrum of definitions and conceptualisations of competence, highlighting the complex nature of competence and its measurement. Common indicators identified to assess competence included:

- continuing education
- portfolios
- examinations (OSCEs)
- peer review (assessment)
- direct observation
- self-assessment
- interview
- patient outcomes.

No research was found to suggest that any one of the indicators was superior to another, despite their common use. It was noted that reliability and validity were poorly reported in the studies identified.

Part two of the QNC review summarised evidence related to methods of validation of indicators of competence for practice. The specific review questions addressed were:

- what methods of validation of indicators of competence for practice have been reported in the current literature?
- how effective are these methods in validating indicators of competence for practice?
- what are the current issues in relation to methods of validation?

The review reported that validation of competencies continues to be problematic. Several tools were identified that tested and/or demonstrated validity; however, where these had been successful, they were generally complex. Methods of validation that were drawn directly from the relevant area of practice appeared to have a greater probability of achieving reliability and validity than approaches that aimed to establish the validity of methods to measure competence across a profession.

OTHER RELEVANT LITERATURE

The Centre for Innovation in Professional Health Education and Research (CIPHER) at The University of Sydney published an extensive literature review of current work-based assessment methodologies in 2007.⁷ This review examined:

- methods for work-based assessment of health professionals (pre- and post-qualification)
- dimensions of performance being assessed
- instrument quality.

The review identified challenges and recommendations for educators and researchers alike. Work-based assessment methods reviewed included:

- 360⁰ assessment or multi-source feedback
- direct observation of procedural skills
- incognito standardised patients
- mini-Clinical Evaluation Exercise
- patient surveys

- portfolios
- videotaped consultations.

Other assessment methods included in-training assessment, marking or rating scales and checklists, peer assessment and self-assessment.

There were varying levels of supporting evidence for the majority of methods, with a need identified for further research of reliability and validity of methods. Portfolios were identified as a '*useful method of assessing student competence and performance, in triangulation with other methods in high-stakes assessment, and particularly for those skills that are not well assessed by other evaluation methods*'.⁷ Training and support in the effective use of the various assessment methods was reinforced as a requirement to improve reliability and validity.

OBJECTIVES OF THE CURRENT REVIEW

The current literature review was undertaken in an attempt to identify best available evidence related to assessment of competence in nursing practice. Recommendations from this review will assist in informing the development of principles and guidelines to support inclusion of competence assessment within a cancer nursing curriculum.

EdCaN acknowledges the reviews that have been undertaken previously in this area and aims to build on their findings with the current review. It is anticipated that this review of the literature will identify best practice models for development of competence assessment tools and processes. The findings should be considered against ongoing debates about the definition of competence.

METHODS

LITERATURE REVIEW

This review was designed to build on the *Systematic Review of Indicators of Competence for Practice and Protocol for Validation of Indicators of Competence* commissioned by the Queensland Nursing Council from the Joanna Briggs Institute for Evidence Based Nursing and Midwifery (referred to as the QNC review).⁶

The scope of the current review was determined through consultation with members of the EdCaN Steering Committee.

SEARCH STRATEGIES

The following electronic databases were searched using the search terms outlined in Table 1:

- CINAHL with full text
- Education Resources Information Center (ERIC)
- Medline
- Professional Development Collection
- Cochrane
- Joanna Briggs Institute (JBI) systematic reviews.

Table 1. Search terms used in the literature review

Search terms	
Nurs*	Key performance indicators
Competenc*	Indicators of competence
Capability	Nurse sensitive outcomes
Evaluation criteria	Portfolio
Assessment tool*	Peer review
Competency based tool*	Examination
Educational evaluation tools	Direct observation
Professional development	Interview
Assessment of learning	Self assess*
Assessment of skills	Patient outcome*
Evaluation of skills	

The inclusion and exclusion criteria used to limit the searches are outlined in Table 2.

Table 2. Inclusion and exclusion criteria

Criteria	Inclusion criteria	Exclusion criteria
Date of publication	<ul style="list-style-type: none"> Published from 2000 to 2007 	<ul style="list-style-type: none"> Published prior to 2000
Focus of studies	<ul style="list-style-type: none"> Evaluation of a method of assessment of competence for health professional practice Includes health professionals who require tertiary education as part of a requirement for practice, e.g. nursing, medicine, other allied health 	<ul style="list-style-type: none"> Assessment of competence not evaluated through a process of research and/or literature review Method of competence assessment not identified
Types of studies	<ul style="list-style-type: none"> All types of research and evaluation studies Literature reviews 	<ul style="list-style-type: none"> Opinion/discussion-based documents*
Outcome measures	<p><i>Experimental/evaluation studies:</i></p> <ul style="list-style-type: none"> Achievement of overarching competence to practice Achievement of core competency skills Employer satisfaction Employee satisfaction <p><i>Descriptive/observational studies:</i></p> <ul style="list-style-type: none"> Processes employed to establish and maintain competence Employer satisfaction Employee satisfaction 	
Language	<ul style="list-style-type: none"> Studies available in English or non-English studies translated 	<ul style="list-style-type: none"> Non-English text where the translations were not available

*Given the paucity of quality data, discussion articles that included a literature review or summary component have been included.

Appendix II outlines excluded articles and the justification for their exclusion.

CRITICAL APPRAISAL

All studies retrieved in the database search were initially assessed for relevance based on the information provided in the title and abstract. A full report of papers that appeared to meet the inclusion criteria was retrieved. In total, 128 papers were retrieved. These studies were assessed for applicability to the inclusion criteria in order to determine relevance to the review objective by two independent reviewers. In the case of differing opinions about the applicability of articles, the reviewers undertook a more detailed evaluation of the study using the appraisal tool until agreement was reached. Included articles were forwarded to an independent consultant for synthesis and report development.

SEARCH RESULTS

A total of 54 articles met the inclusion criteria for this review (see Appendix I for complete list of included articles). Of these, some were specific to the particular indicators of competence (for example, portfolios), while others addressed a number of different competence indicators.

DATA EXTRACTION AND SYNTHESIS

Data were extracted from included studies using an appraisal tool developed for this review (see Appendix III).

A process of meta-synthesis was undertaken to generate a set of statements that represent aggregation through assembling the findings or conclusions according to their credibility, and categorising these findings/conclusions on the basis of similarity in meaning.

Data generated from observational and descriptive studies were summarised by narrative discussion to identify major themes and recommendations in the literature reflecting current issues related to the assessment of competence.

COMPETENCE AND COMPETENCE ASSESSMENT

Key points

- Competence is a complex concept and debates continue about the most appropriate definition and method of assessment.
- In broad terms, competency standards recommend expected levels of knowledge, attitudes, skills and behaviours.
- Competencies for professional nursing should reflect the multifaceted nature of nursing practice, the broad range of practice settings and cultural differences within the Australian population.
- A key challenge in competence assessment is ensuring objectivity.
- A range of indicators and tools have been developed for competence assessment but empirical evidence regarding their effectiveness in measuring competence is lacking.
- It is generally accepted that assessment of competence should use more than one indicator.
- Assessment of initial competence may require a different approach to assessment of continuing competence.
- Regardless of the tool or indicator, it is essential that there is adequate preparation of the individual being assessed, the assessors and mentors.
- It has been suggested that the first step in competence assessment should be self-reflection.

While the focus of this review was competence assessment, the findings should be considered in context against the ongoing debate about the most appropriate definition of competence. The QNC review⁶ identified a range of definitions of competence, ranging from a person's ability to perform a task to more detailed definitions involving integration of knowledge and skills to deliver care appropriate to the setting and occasion.

The current review identified 18 articles that described competence, competence assessment or competence indicators. Of these:

- 3 were review articles (dates not stated)^{3,8,9}
- 3 were discussion papers providing viewpoints or summaries of the current status of competence and competence assessment in nursing^{2,10,11}
- 12 included some evaluation or research component; of these, 8 articles were qualitative¹²⁻¹⁹ while 5 included a combination of qualitative and quantitative measures; this latter group comprised two main studies reported in several articles²⁰⁻²⁴
- 5 articles related to nursing students,^{12-14,19,20} 9 related to practising nurses^{11,15-18,21-24} and 5 did not specify a particular group.^{2,3,8-10}

In addition to these articles, a number of the other articles identified in this review included a summary of issues related to competence as background information.

THE COMPETENCE DEBATE

As with the QNC review, the current review was not designed to explore the definition of competence. However, the issues surrounding the definition of competence provide useful context for later discussions about competence assessment.

Issues that contribute to the debate about the definition of competence include:

- confusion about the meaning of different terms, including competence, competency and performance^{10,25}
- concerns about standardising nursing practice²
- the distinction between entry level or beginning competence and continuing competence⁶
- how to reflect current and future needs of a profession in relation to changes in technology, professional knowledge and work culture³
- the importance of taking account of 'real-world' settings¹³
- the fact that fitness to practice goes beyond adequacy of knowledge and skills and should reflect the uncertainties and complexities of nursing practice¹²
- the lack of formal validity and reliability testing within institutions.¹⁹

A common theme in debates about definition of competence for professional nursing is the need for flexibility, given the multifaceted nature of nursing practice and the broad range of practice settings. In making sense of this debate, Dolan reminds us that the ultimate aim of producing competent nurses is to ensure a high level of patient care.¹³

CONCEPTUALISING COMPETENCE

The literature describes three main approaches to conceptualising competence:^{8,26}

- **behaviouristic** – a task-based approach that depends on direct observation of performance; this approach has been criticised on the basis that it ignores the role of professional judgement in intelligent performance and does not allow for the development of problem solving or critical thinking
- **generic** – identifies the general attributes that are crucial to effective performance, focusing on transferable attributes such as knowledge and critical thinking; this approach has been criticised on the grounds that there is limited evidence of the transferability of generic skills across different situations
- **holistic** – brings together a range of attributes including knowledge, attitudes, values and skills to meet the needs of a variety of clinical situations; this approach is gaining momentum across nursing practice.

The QNC review summarises these approaches, citing two senses in which competence can be defined:⁶

- competence equating to performance – that is the ability to perform nursing tasks
- a psychological construct – that is the ability to effectively integrate cognitive, affective and psychomotor skills when delivering nursing care.

Pearson adds an extra dimension to these definitions by including 'insight', or an individual's awareness of his or her own expertise and limitations.¹⁷ Pearson makes the link between insight and actual or potential unsafe practice, stating that '*nurses without 'insight' were unable to make adjustments necessary to update their knowledge and skills; participate*

actively in professional development; and accurately determine their own ability in relation to their peers'.¹⁷

A further, topical dimension given Australia's broad demography, is that of cultural competence, defined by Smith and Lichtveld¹¹ as *'the process by which individuals and systems respond respectfully and effectively to people of all cultures, languages, classes, races, ethnic backgrounds, religions and other diversity factors in a manner that recognises, affirms and values the worth of individuals, families and communities, and protects and preserves the dignity of each.'*

COMPETENCE ASSESSMENT

Assessment of competence of practising nurses has been identified as crucially important in maintaining professional standards,²⁵ identifying areas for professional development and educational needs and ensuring that nurse competencies are put to the best possible use in patient care.²³ In view of the holistic definition of competence, there is general agreement that competence assessment in nursing cannot solely be based on demonstration of theoretical content knowledge or technical skills but should also involve some inference about a candidate's attitudes and practice.

The literature identifies a tension between academic award and a professional's competence to practice.¹² This tension is further complicated by the lack of consensus about what should be measured. It has been suggested that this lack of consensus raises the potential for confusion and repetition as nurses attempt to meet the requirements of a number of different systems.²⁷

Issues regarding competence assessment

Issues contributing to the debate about assessment of competence in nursing include:

- whether good performance is an adequate indicator of level of competence^{6,25}
- whether demonstration of a skill or competence in one area is an indication of competence in all situations¹³
- whether all competencies are directly observable²
- how inter-observer reliability can be achieved²
- the lack of empirical evidence to support competence testing in pre- or post-registration nursing⁹
- issues relating to how to distinguish between different levels of practice.¹⁹

A key challenge in any assessment process is ensuring objectivity.¹³ In nursing, a number of assessment strategies are based on direct observations by a mentor, assessor or manager and therefore include some level of subjectivity. This underscores the need for approaches to encourage inter-rater reliability.

Criticisms of competence-based assessment

A common criticism of competence-based assessment is concern about the standardisation of nursing practice. In a review and discussion paper published in 2006, McGrath summarises a range of views cautioning against the use of generic domains of clinical competence that do not take account of the specific context and skills required to practice in a specialist environment.² Other criticisms include the lack of a systematic approach to incorporating specific competencies into curricula, questions about the methodology used to develop competencies,² and concerns that measurement of competence is a form of regulation that may be limiting.³ Flanagan also cautions about the negative impact that failure to achieve competence in post-registration nursing can have both on the student and the assessor as well as on the profession more broadly.¹⁰

COMPETENCY INDICATORS AND ASSESSMENT TOOLS

Existing reviews have identified numerous tools for assessment of competence in nursing.^{6,7,9,26} However, no one comprehensive and effective measure has been established. Indeed, in view of the lack of rigorous evidence, Watson concludes that the literature does not currently support competence-based approaches to nurse training.⁹ Few of the articles identified in the current review described approaches to ensure validity and reliability of competence assessment tools with any degree of rigour, mirroring findings reported elsewhere.²

There is general agreement in the literature that assessment of competence should involve more than one indicator.^{2,3} McGrath identifies that technical skills are easier to measure using standardised tools, whereas non-technical skills require a level of judgement on the part of the assessor, taking into account other factors that may not be considered using the assessment tool.² A number of authors have attempted to address the issue of how to measure non-technical skills. However, Pearson highlights that, as more accommodation is made for independent decision making, the more difficult it is to set specific criteria for measurement of success.³

The QNC review⁶ identified a range of items that may be used as indicators for competence in clinical nursing practice:

- continuing education
- portfolios
- examinations
- peer review (assessment)
- direct observation
- self-assessment
- interview
- patient outcomes.

Each of these items is discussed in more detail later in this review.

While a range of indicators have been proposed, research providing evidence of the reliability and validity of these indicators and the tools used to measure them is limited.

- Reliability measures the extent to which an indicator or instrument measures consistently.⁹
- Validity measures the extent to which an instrument measures the construct of interest.⁹ Validity is underpinned by authenticity – that is, the relevance of the measures. The QNC review⁶ identifies three levels of validity:
 - content validity: relates to the relevance of the information included
 - criterion validity: relates to whether the tool is explicit in terms of procedures correlating with particular behaviours
 - construct validity: relates to whether scores reflect the items being tested.

Where research studies have been conducted they have often only reported preliminary findings from qualitative studies reporting on nursing attitudes or opinions about particular indicators.^{6,13} Where reliability and validity testing has been reported, it typically relates to reliability and content validity. However, many studies simply report on perceptions and acceptability of the tool or process rather than its ability to accurately assess competence or a comparison of different approaches.

The QNC review provided a summary of validity and reliability testing for a range of tools but concluded that the area is poorly researched and requires further examination. Findings from the current review support this conclusion.

The lack of consensus on a definition of competence is clearly a limiting factor in gaining agreement about appropriate indicators. Other challenges relate to the issue of how to measure the non-technical aspects of nursing practice. Some of the areas reported as being more difficult to assess include ethics, advocacy and use of research² as well as caring, interpersonal interactions and decision making.²⁰ Areas related to character or personal attributes have also been flagged as problematic for assessors.²

McGrath highlights that in comparing findings from research studies that have measured competence assessment tools, the tools that often give the most consistent ratings are the simplest to complete, with assessments becoming less reliable as they move closer to the real clinical setting. As a result, standardised tools are often given a high level of credibility.²

In considering the need for further research in this area, it has been suggested that the connection between nurse competence, nursing outcomes and quality of care should be explored, with evaluation studies including peer and manager testing as well as patient perceptions.²³ A further consideration identified by Watson is that, even if agreement is reached about appropriate tools for assessment of competence, the question still remains about the level at which an individual is deemed to be incompetent.⁹ The EdCaN project may provide the opportunity for further evaluation of competence assessment approaches that will add to the body of literature in this area.

Approaches to development of competency indicators

Table 3 provides a brief summary of the methods and results of articles identified in the current review that described the development of competency indicators. Where validity, reliability or other outcomes were assessed, a brief overview of the results is provided.

A common methodological theme across all articles that described the development of competency indicators was broad consultation with the relevant professional group followed by refinement and expert review.^{8,11,12,18}

Pilot and validity testing outcomes

Key findings from each of the identified articles are described in Table 3. A brief summary is provided below, highlighting similarities and common issues identified. Some of these issues are discussed in more detail in later sections about individual indicators.

- **Number of competencies:** some authors described the need to reduce the number of competencies included in their assessment tool as a result of pilot testing.¹²
- **Language of competencies:** clarifying the language used to avoid confusion and ambiguity was a common outcome of pilot testing.¹²⁻¹⁴
- **Time:** the time required to use the tool was flagged as a potential barrier to its implementation by some authors.¹²⁻¹⁵

Lessons learned by competence indicator developers

A number of findings from the studies identified may serve as valuable lessons for groups planning to develop and evaluate competence indicators and assessment tools. Key points are listed below.

- When developing competence indicators, include input from the relevant professional group to ensure the indicators are meaningful and relevant.²²⁻²⁴
- When measuring the effects of competence indicators, consider not only individual staff satisfaction but patient and unit outcomes.²²

- When introducing a competence assessment tool, ensure assessors are adequately prepared and committed to the work required and include approaches to ensure consistency in approach.^{8,12,13}
- In addition to competencies, develop a list of required clinical skills to ensure that students gain relevant experience.¹³
- Include regular audits of the competence assessment process as a way of benchmarking practice and facilitating a cycle of continuous quality improvement.¹⁵
- Time can be a limitation to competence assessment. Increasing contact time between assessors and students,⁸ encouraging students to be more analytical in their written evidence¹³ and ensuring that individual preceptors do not have too many placements¹³ have been identified as ways to address the time issues.
- When assessing competence, it is important to recognise that direct observation can lead to differences in behaviour.²⁴
- Consider listing competencies on an interactive website, allowing self-assessment against the competence levels required to identify areas for development.²¹

INDICATORS FOR CONTINUING COMPETENCE

Much of the published literature identified in the current review relates to beginning competence or competence in trainees. However, it is apparent from the few studies that discuss the issue that approaches for assessing continuing competence may require a different approach to those used for beginning competence.

The ANCI commissioned a project to identify indicators of continuing competence in nursing using a four-stage process. The first two stages of planning and development of pilot instruments have been reported.¹⁷ Planning involved a combination of open forums in capital cities (n=147), other meetings (n=102), meetings with representatives from colleges and professional bodies, tele- and video-conferencing with rural nurses (n=75), consultations (n=22) and written submissions (n=11). Thematic analysis of responses generated no new ideas but identified the following key themes in relation to continuing competence:

- **the nature of competence** – ‘insight’; confusion about the distinction between core and higher levels of competence
- **measurement of competence** – indicators of continuing competence are not easy to define and go beyond measurement of basic skills; no degree of valid inference about continuing competence is possible using a single indicator
 - recency of practice – infers currency of knowledge and skills but insufficient inference of competence or safety
 - continuing professional development – has the potential to improve reflective skill, knowledge and psychomotor skills and stimulate activity but alone is not a reliable inference of competence
 - participation in research, committees and quality assurance programs – infers currency and involvement in practice and the desire to develop professionally but does not infer competence
 - writing in health journals – may only infer competence in particular areas not broad continuing competence
 - portfolio – time consuming (see later section on portfolios)
- **regulation** – competence measurement is seen by some as a form of regulation that may be limiting

- **responsibility** – questions around whether responsibility for ensuring and demonstrating competence lies with the individual or organisational/professional group
- **consumer involvement.**

Table 3. Overview of studies conducted to develop competency indicators/competence assessment tools

Study	Purpose	Approach to development & testing	Competency domains/levels	Results of validation/testing
Smith and Lichtveld 2007 ¹¹	Development of core competencies for the general cancer workforce	<ul style="list-style-type: none"> • Research – development of core competency definitions through expert panel and feedback from key constituents, including piloting in different settings • Policy – collaboration with key constituents, eg academic institutions, professional societies and healthcare employers to reach the diverse health workforce • Practice – dissemination and implementation of program tools to target professional populations at each level (initial, in-service and continuing education & certification) 	<ul style="list-style-type: none"> • Focus on tier 2 professionals: health care professionals with a generalised knowledge of cancer who are able to initiate the continuum of cancer care from prevention and screening through palliative care to assure the continuum of services to cancer patients and their families • Domains <ul style="list-style-type: none"> ○ Continuum of care ○ Basic cancer science ○ Collaboration and communication <p>NB reference also to cultural competence and evidence-based prevention</p>	Not reported
Gibson and Soanes (2000) ¹²	Development of clinical competencies in paediatric oncology	<ul style="list-style-type: none"> • Consultation with professional group through facilitated meeting to generate ideas that are then discussed and ranked (nominal group technique) • Refinement by nurse academics and development of competency statements and performance criteria • Consultation with prior group participants and senior nurse academics for clarification and rewording • Pilot with 11 nurses on a paediatric oncology course • Evaluation at 3 months and at the end of the course • Implementation with new course participants with ongoing evaluation and consultation 	Not listed	<ul style="list-style-type: none"> • Pilot outcomes: <ul style="list-style-type: none"> ○ Reduction in number of competencies ○ Rewording of some competencies to avoid ambiguity ○ Core and speciality focus identified for all performance criteria ○ Some revisions to competencies to make assessment more realistic • Validity testing (face validity only) <ul style="list-style-type: none"> ○ Pros – identify learning related to theory and practice; make explicit the knowledge skills and attributes required ○ Cons – time consuming and rely on a level of subjectivity; difficult to achieve in a 6-month course

Study	Purpose	Approach to development & testing	Competence domains/levels	Results of validation/testing
Dolan 2003 ¹³	Review of a system to assess student nurse clinical competency	<ul style="list-style-type: none"> Process for development of new system not described Feedback – focus group discussions with students, preceptors and tutors Analysis – content analysis of documentation relating to the revised system and comparison with other institutions 	<ul style="list-style-type: none"> Not listed 	<ul style="list-style-type: none"> Issues identified: <ul style="list-style-type: none"> Too great a focus on written skills Learning overshadowed by the need to get statements for competencies Conflict between competencies and basic clinical skills Variation in interpretation of the competencies Time required to complete the paperwork or undertake the assessment Variations in time dedicated by preceptors and level of input/guidance Inconsistencies in the amount of written evidence required
Hanley and Higgins 2005 ¹⁴	Assessment of a clinical competence assessment tool by intensive care student nurses	<ul style="list-style-type: none"> Development – modelled on existing tools Feedback – focus group discussion (n=6) and interviews (n=5) with students to explore perceptions and experiences of using the tool 	<ul style="list-style-type: none"> Domains <ul style="list-style-type: none"> Professional and ethical practice Interpersonal skills Practical and technical skills Critical thinking and clinical decision making Organisation and management of care Levels of practice: <ul style="list-style-type: none"> Benner's three levels (novice-expert)* 	<ul style="list-style-type: none"> Issues identified: <ul style="list-style-type: none"> Language issues Differences in assessors (inter-rater reliability and subjectivity) Some frustration about levels of competence used – may act to demotivate rather than motivate Use of action plans viewed negatively – seen as punitive Lack of engagement with the portfolio approach – time issues and don't see the purpose

*Benner P. From novice to expert: excellence and power in clinical practice. California: Addison-Westley; 1984.

Study	Purpose	Approach to development & testing	Competence domains/levels	Results of validation/testing
Husband et al 2000 ¹⁵	Development of a competency-based tool to identify development and education needs for staff working in the cancer field	<ul style="list-style-type: none"> • Consultation – planning day involving 60 health professionals • Synthesis – of topics into nine key areas by a working group • Grading – within each competency using 4 levels of skill relating to certificate, diploma, degree and postgraduate study • ‘How’ guide – provides options for education to achieve the competencies • Pilot – across three sites involving 28 managers and 30 members of staff (methodology not provided) 	<ul style="list-style-type: none"> • Domains: <ul style="list-style-type: none"> ○ Understanding cancer ○ Communication ○ Team roles and multidisciplinary practice ○ Complementary therapies ○ Audit for cancer care ○ Research and development in cancer care ○ Bereavement ○ Legal, ethical, cultural and moral issues ○ Health awareness • Levels of practice: <ol style="list-style-type: none"> 1. a staff member working in a general or specialist area, directly or indirectly, with people who may have cancer 2. a trained member of staff or registered practitioner working in a general or specialist area with people who have or may have cancer 3. a registered and/or specialist practitioner working in a designated area specifically for people who have cancer 4. a registered and/or specialist practitioner working at an advanced level specifically for people who have cancer 	<ul style="list-style-type: none"> • Pilot results: <ul style="list-style-type: none"> ○ Authors report pilot as showing tool to be valid and robust at both a micro and macro level ○ Hard copy format proved to be cumbersome – CD-ROM version subsequently developed

Study	Purpose	Approach to development & testing	Competence domains/levels	Results of validation/testing
Kalb et al 2006 ¹⁶	Competence performance appraisal tool for public health nurses	<ul style="list-style-type: none"> • Literature review – review of existing frameworks, documents and job specifications • Synthesis – development of performance elements within eight domains at each level of practice by a review committee • Review – by a committee of nurses at each level • Approval – by departmental leadership group • Pilot – initially by members of the committee and then multi-site 3-month pilot (only initial pilot results reported) 	<ul style="list-style-type: none"> • Domains: <ul style="list-style-type: none"> ○ Assessment ○ Policy development/program planning ○ Evaluation ○ Communication ○ Cultural competency ○ Partnership/collaboration ○ Disease prevention/health promotion ○ Leadership/systems thinking • Levels of practice: <ol style="list-style-type: none"> 1. Registered nurse 2. Public health nurse 3. Nurse practitioner 4. Clinical nurse specialist 5. Nursing supervisor 	<ul style="list-style-type: none"> ○ Supervisors found the tool easy to use ○ Supervisors identified tool provides the opportunity for communication between employee and supervisor ○ Nurses found the tool reflected areas of practice
Meretoja et al 2002, ¹⁸ 2003, ²² 2004a, ²³ 2004b ²⁴	Development and testing of a clinical set of indicators for competent level nursing practice	<ul style="list-style-type: none"> • Consultation – identification of descriptions of competent practice across three levels from 25 expert groups purposively selected from different clinical settings (n=122) • Deductive content analysis – to derive a clinical set of indicators • Evaluation of relevance – using a structured questionnaire by 25 group coordinators and project coordinator • Pilot testing – with 30 medical-surgical nurses and nurse managers • Evaluation – psychometric testing with 498 nurses in different hospital settings and comparison of nursing and nurse manager assessment results 	<ul style="list-style-type: none"> • 73-item instrument in 7 competence categories: <ul style="list-style-type: none"> ○ Helping role ○ Teaching-coaching ○ Diagnostic functions ○ Managing situations ○ Therapeutic interventions ○ Ensuring quality ○ Work role competencies • Visual analogue scale (0–100mm) to assess level of competence 	<ul style="list-style-type: none"> • Evaluation results: <ul style="list-style-type: none"> ○ Most competent in skills/tasks in managing situations, helping role and diagnostic categories ○ Least competent in ensuring quality category ○ Positive association between age, length of practising and level of competency ○ Organisational culture, environment and available resources may affect how nurses define the purpose of nursing and prioritise nursing actions • Validity testing: <ul style="list-style-type: none"> ○ High level of competence across all

				<p>categories with self-assessment</p> <ul style="list-style-type: none"> ○ More frequent use of competency associated with higher level of self-assessment ○ Age and work experience had a positive but not strong association with level of self-assessment ○ Level and frequency of using competencies differed in different work environments ○ Managers assessed overall level of competence and level of competence in five competence domains significantly higher than nurses ○ High degree of agreement between nurses and managers in the frequency of using competencies
Cowan et al 2005, ²⁰ 2006 ²¹	Development of a skills competency matrix for EU nurses with a view to improving mobility of the EU nursing workforce	<ul style="list-style-type: none"> • Literature review – review of documentation on nursing competence • Synthesis – synthesis of competency statements from partner countries and development of draft framework • Development of tool – development of two competence questionnaire tools (for migrant and non-migrant nurses) • Pilot – piloting in partner countries • Translation – into languages of partner countries • Evaluation – comparison of migrant (n=79) and non-migrant (n=588) nurses self-assessments in partner countries 	<ul style="list-style-type: none"> • Assessment • Care delivery • Communication • Health promotion & illness prevention • Personal & professional development • Professional and ethical practice • Research and development • Team working 	<ul style="list-style-type: none"> • Self-assessment of nurse competence varies between country of origin and country of employment for migrant nurses • Variations in self-assessment for nurses in different countries • Tool is able to detect differences in competence

EU: European Union

CONTINUING EDUCATION

Key points

- Participation in continuing education has been reported to be the most widely accepted method of measuring clinical competence.⁶
- Nursing views of continuing education are positive.
- Participation in continuing education does not guarantee competence.
- Some studies question whether continuing education results in improvements in clinical practice.
- Nurses may need support in encouraging self-reflection to assist in implementing learning outcomes.

The QNC report⁶ discussed several articles discussing participation in continuing education as an indicator of competence, including a systematic review and a meta-analysis. The review concluded that the effect of continuing education on clinical competence is uncertain. Pearson states that participation in continuing professional development has the potential to improve reflective skill, knowledge and psychomotor skills and stimulate activity but alone is not a reliable inference of competence.³

The current review found one article relating to participation in continuing professional development.²⁸ This article, a survey of nursing staff working in two NHS trusts and 13 nursing homes in the UK, followed by in-depth interviews with 8 self-selected staff, explored nursing perceptions of continuing professional development rather than correlating education activities with competence. The study identified a largely positive perception of continuing professional development amongst the nurses surveyed. Differences between the public and private sector were identified, with nurses in the private sector more likely to indicate difficulties with accessing professional development.

Other difficulties identified included:

- time constraints, with family life creating a barrier to participation in professional development activities
- difficulties expressed by some nurses with self-reflection – i.e. knowing how to improve practice as a result of professional development activities
- system-based barriers to changing practice.

PORTFOLIOS

Key points

- Portfolios are a collection of evidence to demonstrate skills, knowledge, attitudes and achievements.
- Portfolios may be used as a personal development tool or an assessment tool.
- There is insufficient evidence to show whether portfolios can measure competence.
- Portfolios rely on a level of self-regulation, writing and critical reflection skills.
- Groups proposing to use portfolios as an indicator of competence should consider the need for clarity, defined limits and adequate preparation of individuals and assessors.
- Confidence in the use of portfolios for both students and assessors will only develop with time and experience.

A portfolio has been described as ‘a collection of materials chosen by an individual to provide evidence of skills, knowledge, attitudes and achievements that reflect the current development and activity of that individual’.²⁹ The premise of a portfolio is that it provides the opportunity for individuals to document evidence of learning outcomes and processes, personal and professional development and areas for further development.³⁰

The QNC review⁶ identified a number of articles that discussed the use of portfolios for continuing competence assessment but found no articles describing research on their effectiveness.

The current review identified 14 articles on the topic of portfolios. Of these:

- 5 were literature reviews (ranging in dates from 1989–2001,²⁶ 1995–1999,³¹ 1993–2004³² and not stated^{27,29})
- 2 were descriptive in nature, providing an overview of a process implemented rather than an evaluation of outcomes^{33,34}
- 7 contained an evaluation component,^{25,30,35-39} 3 of these were purely qualitative^{30,35,37} while 4 contained a combination of qualitative and quantitative components;^{25,36,38,39} 2 articles reported on different stages of the same evaluation^{30,37}
- 5 articles related to nursing students,^{25,30,35-37} one related to postgraduate (MSc) students,³⁴ 6 did not specify a particular population,^{26,27,29,31-33} 1 related to practice teachers³⁹ and 1 related to school principals (non-nursing focus).³⁸

The evaluation studies were limited to approaches to determine student, assessor and educator views on the value and utility of portfolios. Approaches included:

- self-administered questionnaires/surveys
- facilitated focus groups
- examination of portfolio content
- observed case studies.

Only one study³⁹ (a survey of 138 practice teachers conducted in the UK) compared the use of portfolios to a standard approach. In this study, 75% of practice teachers reported that the portfolio evidence reflected first-hand experience of the student's practice competence, while 80% reported that the portfolio had encouraged student reflection. A significant difference was seen between the portfolio and non-portfolio groups in relation to the amount of first-

hand experience and written evidence of the student's practice used in the assessment process. The group using the portfolio used less firsthand experience ($p=0.02$) and more written evidence ($p=0.03$) than the non-portfolio group.

The small sample sizes and voluntary nature of participation in each of the evaluations identified limit their generalisability. However, some common themes emerge and authors have provided recommendations that may be useful to others wishing to implement a portfolio approach.

BENEFITS OF PORTFOLIOS

Perceived benefits of portfolios reported in these studies included:

- facilitate individuals to take control and be accountable for their learning^{25,39}
- allow post-registration nurses to monitor and document their professional work and facilitate learning through reflection on less successful experiences³⁸
- prompt reflection on practice and critical thinking^{25,32,39}
- provide insight into an individual's level of competence and identify areas for further development^{29,38}
- provide an insight into the number of interventions that have been accomplished by an individual³⁶
- demonstrate learning over time and provide the opportunity to document examples of good practice and achievements²⁵
- act as a focus for discussion between students and assessors or mentors.²⁶

While reported broadly, these benefits should be viewed with some degree of caution as rigorous assessments of the impact and effectiveness of portfolios have not been reported. In a study of 174 pre-registration nurses conducted in the UK by McMullen, only 60% of the participants indicated that the portfolio improved their reflective skills with fewer (42%) indicating that the portfolio enhanced their critical thinking skills.²⁵ In a survey of 156 clinical mentors in university settings in the UK,⁴⁰ 54% indicated that portfolios are used regularly, while 33% felt that the portfolio did not provide evidence of rational decision making.

ISSUES WITH PORTFOLIOS

A range of issues and concerns relating to portfolio use have been reported. These may act as barriers to the implementation of a portfolio approach to competence assessment. Some reported issues reflect the individual views of authors while others have been synthesised from feedback supplied through focus groups and questionnaires. Issues include:

- time-consuming nature of portfolio development and assessment for both the student and the assessor^{25,29,33,34,36}
- lack of clarity about expectations and outcomes can lead to confusion for both students and assessors about what to include as evidence^{25,30,32,33,36}
- issues with inter-rater reliability, including a lack of consistency in interpretation of requirements and varying levels of input and guidance^{26,35,37,39}
- issues related to use of the portfolio as an assessment tool rather than a development tool; results from several surveys of students and educators suggest that students may tailor the contents of the portfolio to meet assessor expectations rather than providing a true reflection of experience,^{25,26,29,34,36} in the McMullen study 49% of respondents identified difficulties with being critical and honest in their portfolio²⁵

- portfolio approach may favour individuals with particular learning styles and skill sets, given the requirement for self-regulation, reflective skills and written skills;^{26,37} a related issue is the risk that assessment of portfolios can focus on the quality of the portfolio itself rather than confirmation that clinical competence has been achieved in practice³⁷
- concerns around the confidentiality of information included in the portfolio^{25,26} and about the implications of documenting negative experiences³⁰
- issues relating to the relevance and level of information required in relation to the academic and clinical experience of the target group^{29,37}
- issues relating to validity and reliability.^{32,36,39}

APPROACHES TO PORTFOLIOS

A number of authors have described the minimum content of a portfolio. Joyce suggests the portfolio should have at least three elements:³⁴

- description of a practice experience
- written account of reflection on this experience
- action plans or descriptions of the nursing care response.

A more detailed description of portfolio models is described by Endacott *et al.*³⁰ These models are based on a telephone survey and in-depth case studies of portfolio usage in higher education institutions in the UK:

- **‘shopping trolley’**: a repository of artefacts with little cohesion and little attempt to link the evidence to the learning outcomes or competencies; structure likely to be a large ring binder that holds artefacts in different sections
- **‘toast rack’**: made up of discrete elements (the ‘toast’) that assess different aspects of practice and/or theory, eg skill logs or reflective accounts; structure likely to be in ring binder
- **‘spinal column’**: structure around practice competencies or learning outcomes (the ‘vertebrae’ making up the central column) with evidence slotted in; more sophisticated than the toast rack in that assessors needed to see explicit evidence of learning and competence through the student’s writing
- **‘cake mix’**: evidence of theory and practice integrated into the portfolio with an overarching narrative and a reflective commentary to demonstrate critical and analytical skills; reflectivity, practice and professional development are likely features of this model.

In discussing the use of these different models, Endacott *et al.* state that the ‘spinal column’ and ‘cake mix’ approaches are most likely to achieve the goal of enabling the student to demonstrate their progress and personal development.³⁰ They also emphasise the need to consider requirements for different academic and experience levels, with the ‘cake mix’ approach more appropriate for honours or masters level analysis as it requires more critical analysis and evaluation.

Table 4 provides a suggested list of evidence types that may be included in a portfolio.

USE OF PORTFOLIOS IN POST-REGISTRATION NURSING

Smith and Tillema investigated the long-term influence of portfolio use on professional development. This small study, involving unit leaders and nursing staff in a Dutch hospital, examined indicators for sustained use of a portfolio over a 2–3 year period of use. The study showed that professionals who maintained a portfolio did so for its usefulness in demonstrating professional development. The main reasons given for not maintaining a portfolio included lack of time and the view that the portfolio was of no value if it was not reviewed/assessed and was not helpful in short-term professional development.³⁸

Table 4. Suggested contents for a portfolio³⁹

Evidence	Example
Examples of data collection, eg Caseload/community profile	Records of supervision with supervisor
Notes of meetings attended	Observations and witness statements
Reflective account of a critical practice incident	Analysis of practice using critical incident technique
Review of an individual patient's needs and care	Short written reports relating to practice
Citation of published literature to justify particular aspect of care	Video/audio recordings of practice sessions/events/supervision
Extracts from a reflective diary relating to practice events	Action plans relating to practice experiences enabling attainment of practice outcomes

RECOMMENDATIONS FROM INCLUDED STUDIES

There is currently insufficient evidence about whether portfolios are an effective method of assessing clinical competence in nursing. Little empirical research has been conducted²⁶ and further research is required into the validity and utility of portfolios as a method for competence assessment.^{31,32}

In general, the studies that have examined the acceptability of portfolios have generated positive results. However, questions remain in relation to whether the portfolio should be used as a method of personal development or assessment and, if an assessment is made, what form it should take.³⁸

The following suggestions have been proposed by groups who have made some evaluation of a portfolio approach to competence assessment. The majority of these suggestions are based on studies that have used portfolios in an undergraduate setting.

- Expectations for students, mentors and assessors should be clearly defined and communicated.^{26,30}
- In preparing students to use a portfolio:
 - be explicit and specific about evidence requirements and limits and emphasise the importance of quality rather than quantity^{25,26,30,33}
 - consider using a template²⁶ and provide examples for individuals to review³⁶
 - explain that confidence will increase with use of portfolio³⁷
 - encourage communication between students and assessors/mentors³³

- prompt students to consider: what has been successful/unsuccessful; what has acted as a trigger to re-examine practice; what has prompted re-evaluation of beliefs, values or views³⁴
- include prompts to support self-evaluation in portfolio documentation.^{36,39}
- Decide whether the portfolio will be used primarily as a tool for development or assessment; this decision may be determined by the setting in which the portfolio will be used, e.g. pre-registration vs. post-registration.³⁸
- If the portfolio is used as an assessment tool:
 - the evaluation tool should be clear and specific²⁹
 - a tripartite approach to assessment involving the student, mentor and assessor can be helpful (although this has not been formally tested)³²
 - assessors should be trained and certified to assure consistency and subjectivity with refresher training held at intervals^{26,29,30,35}
 - consider formative rather than summative assessment for reflective components and include qualitative approaches to assessment^{26,35}
 - consider including a summatively assessed clinical skills list²⁵
 - provide opportunities for assessors to network with each other to share experiences and encourage a consistent approach.³³
- If the portfolio is used as a development tool (especially for post-registration nurses):
 - some degree of regulation and monitoring is required to ensure sustained use and provide value.³⁸
- When developing the portfolio:
 - degree of structure should be appropriate for the academic level and degree of experience at pre- and post-registration levels^{30,37}
 - the way in which outcomes are written and the type of evidence required to demonstrate achievement of the outcome should match the stage of the student's academic and professional career³⁷
 - consider the use of generic and specific learning outcomes and ensure relevance for the clinical setting or placement
 - identify how many times a particular piece of evidence can be used.^{30,37}
- Provide an opportunity for joint reflection/celebration on completion of the portfolio.³⁶

It has been suggested that patient feedback and outcomes should be included as part of the portfolio.³⁹ The inclusion of patient feedback should be considered in light of a study on patient views of competence reported later in this report.⁴¹

While guidelines for the development and review of portfolios are helpful, it has been suggested that students and assessors need to experience the process of matching learning outcomes and competencies to clinical experience and writing them in the required format before they can feel confident in using portfolios.³⁷ This may be useful feedback for both students and assessors during the early stages of portfolio use.

OBJECTIVE STRUCTURED CLINICAL EXAMINATIONS (OSCEs)

Key points

- An OSCE is a series of stations/exercises through which students rotate individually to demonstrate a range of skills and knowledge.
- OSCEs provide the opportunity to practise skills in a safe and controlled environment.
- OSCEs provide the opportunity for teaching and assessment.
- There is insufficient evidence to show whether OSCEs can measure competence; however, the review identified two studies that showed an improvement in performance after an OSCE.
- OSCEs are costly and can be time-consuming.
- Adequate preparation of participants, assessors and actors is important.

An objective structured clinical examination (OSCE) is typically a series of stations or exercises through which students rotate individually in order to test a broad spectrum of skills and knowledge.^{42,43} Each station relates to one or more skills area(s) and may be practical or theoretical. Students have to wait for a signal marking the end of the period before moving to the next station.⁴²

The QNC review⁶ identified a number of papers that described examinations using a simulated or laboratory-based approach. However, no articles were identified that reported the effectiveness of examinations as indicators of competency to practice.

The current review identified 12 articles that described the use of OSCEs. Of these:

- 2 were descriptive in nature, providing an overview of a process implemented rather than an evaluation of outcomes^{43,44}
- 10 contained an evaluation component; 3 of these were qualitative^{46,47,49} while 7 contained a combination of qualitative and quantitative components^{42,45,48,50-53}
- 11 articles considered the use of OSCEs in the pre-registration setting.⁴²⁻⁵²

In general, the articles with an evaluation component assessed the views of students and assessors about the OSCE, including the relevance and realism of the stations and perceptions of the benefit of this approach.

Results from these studies suggested that OSCEs were viewed positively by students. In one study of 86 students,⁴² 86% indicated that the OSCE helped improve their confidence, while in another small study of intensive care student nurses, 8 out of 11 participants indicated that the OSCE was a learning experience.⁴⁵ In another study of 16 social work students, the OSCE was viewed most positively by those with minimal practice experience.⁵¹

Another study in which the use of OSCE was piloted as a means of assessing competence for emergency nurse practitioners (n=17) also provided positive responses from the participants. However, the authors concluded that this positive response was likely due to its framing as an educational tool, with a suggestion that the response may not have been so favourable if the OSCE had been used as a formal assessment tool.⁵³

BENEFITS OF OSCES

Perceived benefits of OSCEs identified in the literature include:

- improvements in observation skills (not formally tested)⁴⁶
- provide a safe way for trainees to practise skills without putting patients at risk^{46,50}
- enhance skills acquisition through hands-on approach⁴⁹
- provide opportunities for teaching as well as assessment⁵⁰
- can improve student confidence^{42,50}
- can provide valuable information to faculty about an individual's competency in particular situations⁵²
- identified as a satisfactory way of assessing communication, clinical skills, knowledge and intention.⁵³

ISSUES WITH OSCES

While the overall impression of OSCEs reported in the literature is positive, some issues have been identified. Some of these are general issues common to all settings, while others have reported logistical issues that may be useful lessons for groups to consider when setting up an OSCE for the first time.

General issues include:

- the OSCE setting can be stressful or intimidating for participants^{46,47,49} – although no study has researched the level of stress in comparison to other forms of formal examination
- setting up and running the OSCE can be costly and time-intensive^{42,52,53}
- the time constraints at each station can limit the ability for reflection.⁴⁶

Specific logistical issues identified by some groups that may be helpful when planning an OSCE included:

- lack of realism of equipment and scenarios^{46,49}
- long waiting times because of student numbers and time to set up the stations⁴⁸
- noise distractions from other stations⁴⁸
- unrealistic times allocated to undertake tasks^{47,49}
- lack of awareness of other staff about the OSCE meaning that they could not help students to prepare⁴⁹
- issues related to using students or faculty as 'actors' impacting on the realism and outcomes of simulated exercises.^{47,49}

IMPACT OF OSCES ON KNOWLEDGE

While the majority of studies identified explored the acceptability of OSCEs to participants and assessors, two small studies examined the level of knowledge of participants before and after participating in an OSCE.^{51,53}

In a study of 16 social work students, Baez reported a significant increase in knowledge ($p < 0.002$) after the OSCE.⁵¹ However, the study only tested the participants in the OSCE so there is no way of comparing the impact with another form of assessment on knowledge.

In another study involving 17 emergency nurse practitioners, Mason reported a statistically significant improvement between baseline and follow-up for students who participated in an OSCE at both time points ($p < 0.05$).⁵³ In this study, the improvement was due to the written assessment component of the OSCE. The authors report that the improvement may have been the result of participants being more familiar with the process at the second time point.

A third study assessed the use of simulation training prior to participation in an OSCE on knowledge for a group of 99 student nurses.⁵⁰ Both groups participated in an OSCE at two time points and performance improved at the second OSCE for both groups, in line with the findings from Mason's study. The group that received simulation training between the two examinations demonstrated a significantly greater improvement in performance compared with those who did not undertake the training ($p < 0.001$). Perceptions of stress and confidence were similar for both groups.

RECOMMENDATIONS FROM INCLUDED STUDIES

In general, studies that have examined the acceptability of OSCEs have generated positive results. However, there is insufficient evidence to determine whether OSCEs are a valid and reliable measure of competence and questions remain about the balance between their use as a form of teaching or examination.

The following suggestions are based on recommendations from articles that discussed the use of OSCEs as a form of competence assessment:

- ensure adequate preparation of actors and assessors to ensure consistency in approach and inter-rater reliability^{42,48,49,51}
- provide written information at the outset to help students prepare⁴⁹
- advise students if they will be tested in scenarios they are not familiar with⁴²
- use a mixed mode approach to assessment (formative and summative)^{42,49}
- ensure that feedback is provided and allow time for reflection⁴⁹
- involve relevant clinical staff to improve the realism and relevance of scenarios^{48,50}
- use the same equipment as that used in the clinical setting⁴⁹
- limit the number and length of stations to promote optimal outcomes^{42,51} (optimal length and number not provided in the literature – dependent on setting and skills to be assessed)
- use laypeople in the actor role to avoid bias in student responses⁴⁸
- consider using the OSCE as a learning tool as well as an assessment tool⁵¹
- consider using an independent facilitator to reduce bias.⁴⁷

PEER ASSESSMENTS (REVIEW)

Key points

- Peer review has been identified as a valuable mechanism for providing feedback and fostering professional growth.
- Empirical evidence about the effectiveness of peer review or assessment in assessing competence is limited.

The American Nurses Association (ANA 1988)⁵⁴ defines peer review as ‘...an organised effort whereby practicing professionals review the quality and appropriateness of services ordered or performed by their professional peers’.

The QNC review identified four articles that discussed the use of peer assessment as an indicator of competence. The focus of these articles was monitoring training needs, performance review and assessing competence of practising nurses rather than assessing competence of trainees.

The current review identified four articles that described the use of peer review. Of these:

- 1 was a literature review (dates not provided)⁵⁵
- 1 was descriptive in nature, providing an overview of a process implemented rather than an evaluation of outcomes⁵⁶
- 2 contained an evaluation component; both included qualitative and quantitative components^{40,57}
- 1 article considered the use of peer assessment in the pre-registration setting,⁴⁰ while the remainder related to the post-registration setting.⁵⁵⁻⁵⁷

The rationale for peer assessment/review is that it provides a mutually supportive approach for ensuring accountability⁵⁶ and fostering professional growth.⁵⁵ It has also been proposed as an important component of clinical supervision, review of articles for publication in clinical journals, and benchmarking of clinical practice.⁵⁶ Briggs also states that peer review is often regarded as a mechanism for demonstrating professionalism and promoting professional development.⁵⁵

While the majority of articles identified in this review related to assessment of competence by assessors or mentors of junior staff, one article described the use of a tool by staff reviewing a Chief Nursing Executive.⁵⁷ While the tool itself was specific to the needs of the particular hospital, testing demonstrated good test-retest reliability and internal consistency.

There is some debate in the articles identified about whether peer review should be undertaken by an individual with the same level of experience as the individual being reviewed or whether there is any benefit to including reviews from individuals of different levels. Briggs states that reviewers should have ‘clinical competence similar to that of the nurse seeking peer review’.⁵⁵ Gopee defines a peer as:⁵⁶

- a colleague of equal status in the same ward
- a colleague of equal status from another ward in the same specialty/department
- someone of higher status in the same ward or another ward in the same specialty
- someone of equal or higher status from another hospital.

BENEFITS OF PEER REVIEW

The majority of information regarding benefits and issues related to peer review is based on a discussion paper by Gopee rather than the results of individual evaluative projects or a systematic review of the evidence.⁵⁶ Proposed benefits of peer review include:

- confirmation of previously held beliefs in an individual's skills/lack of certain skills
- provides clarity to self-assessment findings
- provides a medium for sharing colleagues' experiences
- helps to identify problems
- provides an opportunity for feedback on performance.

ISSUES WITH PEER REVIEW

Issues associated with peer review identified by Gopee⁵⁶ include:

- assessment may at least partially be dependent on the reviewer's expertise and familiarity with the individual's work and role expectations
- can be a source of anxiety for both parties
- issues around negative comments – some individuals find it difficult to respond to criticism
- risk of feedback being overcritical or judgemental
- can cause disagreement among peers
- depends on availability of peers or of opportunities for peer assessment.

RECOMMENDATIONS FROM INCLUDED STUDIES

The small number of articles relating to peer review provide only limited recommendations about its use in assessing competence. Guidelines for good practice in peer review have been identified and are reported in detail elsewhere.⁵⁶

- Use peer review in combination with portfolios to encourage self-reflection prior to seeking critical comment.^{55,56}
- Define terms and scoring criteria and provide training for reviewers.⁵⁵
- Reviewers should be familiar with the individual's role expectations and relevant standards.⁵⁵

DIRECT OBSERVATION

Key points

- Direct observation has been proposed as a useful tool for prior learning assessment.
- There is little evidence to determine the effectiveness of direct observation as a method for assessing competence.
- Potential issues include the need for assessors to be familiar with the clinical and practical setting of the assessment and the impact of direct observation on the reliability of results.

The QNC review⁶ defines direct observation as an approach to the '*observation of nursing activities in the clinical setting instead of a contrived examination format*'. Based on four articles, it identified direct assessment as a useful tool for prior learning assessment and concluded that direct observation could be performed by a neutral party but that it requires a checklist or scale to ensure consistency.

The current study identified two articles discussing direct observation.^{20,58} One study related to the pre-registration setting,⁵⁸ while the other related to post-registration.²⁰

A survey of 150 clinical mentors in university settings in the UK identified that, while 80% felt that consistent supervision was given in a supportive environment, 30% felt that areas of practice that require evaluation are not identified on a regular basis. The survey identified the importance of nurses involved in direct observation having a good understanding of the role and expectations of the individual being assessed as well as an understanding of the range of learning opportunities available outside the limitations of the assessment.⁵⁸

Issues highlighted for consideration in relation to direct observation included:⁵⁸

- the need for accuracy and consistency of assessment
- awareness of the range of variables that can influence practice in the clinical setting
- the role of personal characteristics.

While reporting on a broader study to identify a skills competency matrix for European Union nurses, Cowan et al. identified a number of factors that may bias assessment observation:²⁰

- process of socialisation
- familiarity
- the assessor favouring or disfavouring the person being assessed
- nervousness of the person being assessed
- resource deficiencies with which an external assessor is unfamiliar
- workplace assessors who are not sufficiently involved in practice to know what constitutes acceptable competence
- educators who are not sufficiently involved in practice to know what constitutes acceptable competence
- successful performance on one day is no guarantee of it on another.

Other authors have also identified that the process of observation can influence the reliability of assessments.²²

SELF-ASSESSMENT

Key points

- Self-assessment has been reported as the most common form of competence assessment.
- Self-assessment may be a useful starting point for other forms of assessment.
- Evidence about the effectiveness of self-assessment in the assessment of competence is limited.
- Students may require assistance to reflect on practice in a meaningful way.

Self-assessment or reflection is recommended by registration boards in Australia as a tool for reviewing feedback from patients and confirming competence to practice.⁵⁹

There is an acknowledged paucity of studies evaluating reflection as a method of assessing competence. The QNC review⁶ identified four articles but identified self-assessment as the most common form of competence assessment performed and the most favoured approach reported during nursing surveys.

The current review identified two articles relating to self-assessment.^{59,60} Both were small qualitative studies of student nurses that explored perceptions of the value of self-assessment and issues associated with this approach. One related to the pre-registration setting,⁶⁰ and one to the post-registration setting.⁵⁹

A review of diary entries by a small group of 8 students demonstrated the evolving nature of self-assessment,⁶⁰ with diary entries starting as records of fact but becoming more reflective with time. Identified issues related to time constraints and issues with recording negative or difficult experiences, with concerns by some relating to the legal implications of documenting negative experiences. These findings reflect those identified in studies related to portfolio use earlier in this report.

This small study identified the importance of feedback as a component of self-assessment, with some nurses requiring assistance to reflect in a meaningful way, and input from mentors identified as an important factor in helping to address identified gaps.⁶⁰

A second, small study examined the importance of mentor feedback in self-assessment for practising nurses.⁵⁹ This Australian study involving 26 nursing clinicians identified that nurses regularly engage in a process of self-monitoring regardless of whether this is a formalised process. Responses given in a focus group setting suggested that feedback was an important component of self-reflection, both in reinforcing and affirming competence as well as a way of alleviating doubts or concerns. This study concluded that situations should be sought to encourage self-reflection, given that opportunities are becoming more limited with staggered shifts and taped handovers.

BENEFITS OF SELF-ASSESSMENT

Reported benefits of self-reflection in these studies and other reviews include:

- cost-effectiveness
- assists nurses to maintain and improve their practice by identifying strengths and areas that may need to be further developed²³
- gives individuals conscious control over practice.²¹

ISSUES WITH SELF-ASSESSMENT

Potential issues associated with self-reflection reported in these studies and other reviews include:

- subjectivity²³
- concerns with recording negative experiences⁵⁹
- time constraints.⁵⁹

INTERVIEW

The QNC review⁶ identified two articles relating to the use of interview for competence assessment. It concluded that interviews are viewed as a direct assessment of skill and knowledge requiring pre-set standards of measurement.

No articles were identified in the current review in relation to interview.

PATIENT OUTCOMES

Key points

- Patient outcomes and views may be valuable in assessments of competence but approaches to incorporating patient views should take account of patient anxiety about nurses' responses to their assessment.

The QNC review⁶ identified two articles that suggested the importance of patient outcome data in determining the competence of a practitioner. The review identified that, while patient outcomes may be the best method of assessing competence, measurement may be confounded by a range of issues that are not related to competence.

The current review identified one article on this topic,⁴¹ which explored patient views about nurse competence through a semi-structured interview. This study, involving 27 interviews with patients aged 20–78 years, identified some issues related to using patient views as a measure of nurse competence.

Of particular note was the assumption by patients of technical competence of nurses and the high level of trust placed in their care. Patient comments highlighted the value placed on the caring aspects of the role, with patients finding it difficult to separate the experience of being nursed from judging patient care.

RECOMMENDATIONS FROM THE INCLUDED STUDY

Calman concludes that approaches to patient involvement should situate patients' views in context and take note of their understanding of nurses' competence, particularly their anxiety about nurses' responses to their assessment.⁴¹

CONCLUSIONS

The findings of this review mirror those of previous reviews of the literature about assessment of competence in nursing. While a range of competence indicators and assessment tools were identified, few of the articles included described approaches to ensure validity and reliability of competence assessment tools with any degree of rigour, mirroring findings reported elsewhere.² The majority of studies were descriptive in nature, reporting predominantly qualitative findings. Limitations included small sample sizes, single centres or timepoints and voluntary participation.

While evidence from rigorous studies regarding competence assessment in nursing is still lacking, this review has identified useful examples that may provide guidance to the EdCaN team in developing a competency framework for cancer nurse education. Given the current lack of empirical evidence in this area, there is an opportunity to include some form of evaluation component into the competency framework that may contribute valuable information to this area.

The review findings should be considered in the context of ongoing debates about the definition of competence and competency standards. In broad terms, competency standards recommend expected levels of knowledge, attitudes, skills and behaviours. Competencies for professional nursing should reflect the multifaceted nature of nursing practice, the broad range of practice settings and cultural differences within the Australian population.

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APPENDIX I: SUMMARY OF INCLUDED ARTICLES

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
McGrath 2006 ²	Discussion paper	Nursing	Competence assessment	Number of reliable tools available that enable assessment of nursing students in the psychomotor domain Assessment in other domains less precise	Competency standards need to remain the foundation for assessment in nursing Preceptors need a more in-depth appreciation of the purpose and process of operationalising the conceptual framework
Pearson et al 2002 ³	Review	Nursing	Continuing competence assessment	Extensive evidence about methods and systems for assessing initial competence to practice in nursing Little evidence above anecdote and local evaluation to support one method over another No other professions have had success Lack of consistency in approach to assessing competence across States and Territories	Call for a national research program to assess current professional competency standards and regulation in nursing practice and draw on key professionals in the field to examine development of clearer competency standards Researchers and nursing authorities should examine potential to utilise systems in other professions Work towards development of common legislative conditions relating to recency of practice and alternative methods of competency assessment and regulation across all States and Territories
Hanley and Higgins 2005 ⁸	Review (date range not specified)	Nursing	Competence assessment	Multiple interpretations of competence have led to emergence of different competence-based systems Limited number of empirical studies Common theme in developing competencies is consultation with the relevant professional group	Need for continuous evaluation of new competence assessment tools

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
Watson et al 2002 ⁹	Review (1980-2000)	Nursing	Competence assessment	<p>Majority of articles concerned with assessment of competence</p> <p>Small number of articles identify tensions between competence assessment and education</p> <p>No identifiable method to study competence in nursing in most articles</p> <p>Few articles have sufficient rigour to inform the debate</p> <p>Confusion between definitions of competence</p> <p>Much of literature that refers to methods for competence assessment refer to lack of reliability and validity</p> <p>Conflict between competency-based and education-based approaches</p>	Literature published between 1980 and 2000 does not support the use of competency-based approaches to nurse training
Flanagan et al 2000 ¹⁰	Descriptive article	Nursing	Competence assessment	Describes an approach to work-based learning and competence assessment	Nurse education needs to work towards work-based approaches to education and training which form a basis for equal partnerships between service providers and higher education
Smith and Lichtveld 2007 ¹¹	Descriptive article	Cancer care workforce	Competence indicators	Lists cancer care competency definitions and describes an implementation strategy used in the USA	

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
Gibson and Soanes 2000 ¹²	Nominal group technique Qualitative data	Paediatric oncology staff (n=12) and paediatric oncology nursing students (n=7)	Competence assessment Feedback via nominal group technique to gather data about detailed practice to inform the development of a competency model	Competencies seen as time consuming and difficult to achieve in a 6-month course Seen as identifying learning related to theory and practice Face validity of the tool developed viewed as good enough to continue No information about other measures of validity or reliability	Recommended changes to the model developed: <ul style="list-style-type: none"> • reduce number of competency statements • clarify wording of competencies • train assessors to avoid subjectivity • develop core and specialty focus for all performance criteria
Dolan 2003 ¹³	Descriptive research Qualitative and quantitative data	Student nurses, tutors and clinical preceptors Total n not reported n=8 for content analysis	Competence assessment Focus groups and content analysis of evidence provided by students to support assessment of competency	Inconsistencies identified in interpretation of competency statements between and within groups of students, preceptors and tutors Lack of time to assess or achieve competency Inconsistencies between tutors in level of information required to support competencies Mixed support, input and access to preceptors	Recommended changes to the model developed: <ul style="list-style-type: none"> • develop a list of basic clinical skills to ensure students gain experience • reduce number of competency statements • prepare students, preceptors and tutors in advance about requirements and process • standardise requirements for evidence • encourage students to be more analytical
Hanley and Higgins 2005 ¹⁴	Descriptive research Qualitative data	Intensive care student nurses (n=11)	Competence assessment Semi-structured interviews and focus group about a competence assessment tool	Issues related to language of the tool – lack of understanding and lack of focus on context of intensive care nursing Differences in approaches by assessors Issues with levels of competence used – seen as de-motivating for some students Action plans seen as punitive Minimal use of portfolios – time constraints and students didn't see the value	Recommended changes to the model developed: <ul style="list-style-type: none"> • review language of the tool • provide education for assessors • improve contact time between student and assessors prior to completing the assessment • establish ways to improve inter-rater reliability e.g. assessor networks • review ways to incorporate the portfolio

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
Husband et al 2000 ¹⁵	Pilot study Qualitative data	Cancer workforce managers (n=28) and staff (n=30)	Competence assessment Pilot testing of a competency assessment tool	Pilot demonstrates tool as valid and robust (Note: measures and results not reported in article)	Recommended changes to the model developed: <ul style="list-style-type: none"> change from paper-based to CD-ROM based tool to improve useability
Kalb et al 2006 ¹⁶	Pilot study Qualitative data	Public health nursing (n=50)	Competence assessment Pilot testing of a competence assessment tool and informal feedback	Tool has strong support from supervisors Nurses believe tool effectively describes/evaluates their practice	Further pilot testing of the tool being undertaken
Pearson et al 2002 ¹⁷	Descriptive research Qualitative data	Nursing (all levels) (n=357)	Indicators of continuing competence National meetings, focus groups, interviews and written submissions to identify views of appropriate indicators of continuing competence	Broad themes on nature of competence – but no new ideas: <ul style="list-style-type: none"> insight measurement of competence boundaries and definition of incompetence levels of competence influence of other professions impact of regulation responsibility – individual vs. organisation consumer rights and expectations 	Difficult to develop a tool to be applied across specialties, especially if it is to measure more than basic competence Tool should be simple to administer, allow monitoring of standards of competence and provide options/pathways for those not meeting competence requirements

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
Meretoja et al 2004 ¹⁸	Descriptive research Qualitative and quantitative data	Registered nurses (n=593)	Competence (self-assessment) 73-item questionnaire	Nurses reported overall level of competence as good Most competent in domains of managing situations, diagnostic functions and helping role (VAS means 68–69) and least competent in ensuring quality (VAS mean 56) Operating room nurses reported lower levels of competence and lower frequency of using competencies in several categories Positive correlations between age and length of work experience and level of competence	Important to identify context variables when determining competency assessment measures Competence assessment should be continuous and a tool to recognise and reward nurses
Calman et al 2002 ¹⁹	Cohort Qualitative data (questionnaire, interview and review of program documentation)	Nursing and midwifery students (n=72) and Program Directors (n=13)	Competence assessment (general) Appraisal of approaches to practice assessment	Four key findings related to: competence assessment methods, preparation of practice assessors, consequences of failure to meet expected level of outcome and students' views	Assessors should be better prepared Consider a national competence assessment tool Levels of academic award should reflect the clinical competence of students Portfolios are best to contribute towards academic rather than clinical competence assessment
Cowan et al 2005 ²⁰	Same as reference 21				
Cowan et al 2007 ²¹	Descriptive research Qualitative and quantitative data	General nurses: migrant (n=79) and non-migrant (n=588)	Competence assessment Survey of migrant and non-migrant nurse self-assessment of competence	Migrant nurses assessment of competence varies between country of origin and country of migration Differences noted between EU countries Competence matrix is useful at micro and macro level to provide valuable information to nurses, nursing associations, educators, employers and agencies	Further development needed in relation to psychometric testing

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
Meretoja and Leino-Kilpi 2003 ²²	Comparative research Qualitative and quantitative data	Nurses (n=81) and managers (n=81)	Competence assessment Comparison of self-assessment and manager-assessment	Overall level of competence rated as good by both nurses and managers Overall, managers rated nurse competence higher (70.8 ± 19.3 vs. 63.9 ± 13.7) (p<0.05) High degree of similarity between frequency of use of competencies Work experience correlated positively with nurse self-assessments of competence Higher use of a competence correlated with self-assessed and manager-assessed level of competence	Manager expectations and communication with nurses are important for effective performance
Meretoja et al 2004 ²³	Descriptive research Qualitative data	Nurses (range of levels) (n=498)	Competence assessment Psychometric testing of questionnaire	High level of self-assessed competence Higher frequency of use correlated with higher level of competence Age and length of work experience had a positive but not strong correlation with level of competence Good internal consistency	Results show good evidence of reliability and consistency Further concept analysis of nurse competence and nurse performance should be continued Nurse, manager and patient perceptions should be included in evaluation studies Need for more research to explore connection between nurse competence, nursing outcomes and quality of care
Meretoja et al 2002 ²⁴	Descriptive research Qualitative data	Nurses (range of levels) (n=122)	Competency assessment Semi-structured and structured questionnaires	23 generic indicators of practice identified	Need for content expertise when designing strategies for assessing and rewarding competence

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
Hughes 2005 ²⁸	Descriptive research (sequential triangulation) Qualitative and quantitative data	Nurses – survey (n=84); interview (n=8)	Continuing professional development	Public sector – CPD viewed as a method of career progression Private sector – difficulties with accessing CPD Nurses view CPD as beneficial for themselves and those around them CPD needs to be relevant to practice and requires a level of self-reflection Time constraints and family life can be a barrier to CPD Lack of institutional/management support can be a barrier to change	Leadership courses should be made available for all nurses to support and encourage change Nurses undertaking CPD should include opportunities for self-reflection
McMullan 2006 ²⁵	Descriptive research Qualitative and quantitative data	Pre-registration diploma of nursing students (n=174)	Portfolios Postal survey about views on portfolios	Views on portfolios: <ul style="list-style-type: none"> • help them take responsibility for their professional development – 75% • enhance reflective skills – 60% • help them become aware of their strengths and weaknesses – 50% • help develop critical thinking – 42% • improve self-esteem – 31% • time consuming – 73% • difficult to be critical and honest – 49% • liked as an assessment tool – 24% • liked as a developmental learning tool – 31% • clear on what evidence to include – 33% 	Essential that students receive clear guidelines on purpose, structure and content of portfolios Students require ongoing support and guidance Mentors also need support Mode of assessment should be clear to students and mentors and relevant to practice and not too numerous Portfolio should include a summative assessed clinical skills list Formative report at end and in middle of placements Limit number of progress reports Use peer assessment for reflective writing to encourage honesty

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
				<p>Negative correlation between perceived reflective writing skills and anxiety in preparing portfolio</p> <p>Positive correlation between perceived reflective writing skills and whether they liked the portfolio</p> <p>Few students felt that assessment increased the value of the portfolio as a learning tool</p> <p>More support correlated with positive views of the portfolio</p> <p>Higher support correlated with higher levels of perceived portfolio effectiveness</p> <p>Third year students were significantly less positive about use of portfolios</p> <p>Issues included size, language, relevance and need to get them 'signed off'</p>	
McMullan et al 2003 ²⁶	Review (1989–2001)	Nursing	Portfolios	<p>Little empirical research about portfolios</p> <p>Published studies report mixed responses about inter-rater reliability</p>	<p>Students need clear guidance on use of portfolios</p> <p>Useful to have a portfolio template</p> <p>Need for assessor preparation</p> <p>Regular feedback required to keep students on track</p> <p>Requirements must be transparent</p> <p>If assessment is quantitative, validity and reliability should be addressed</p> <p>If assessment is qualitative, other criteria may be important</p>

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
Storey and Haigh 2002 ²⁷	Review/discussion article	Nursing	Portfolios	Examines the role of portfolios as a method of assessing competence to practice	Quality assurance framework required to reinforce the rigour of portfolio-based assessment and to strengthen the link between underlying theory and practice Need for a real world research study to test the applications of this process
Byrne et al 2007 ²⁸	Review (date range not defined)	Nursing	Portfolios Compares portfolios with continuing education as a method for continuing competence assessment	Portfolio can show (in education terms): <ul style="list-style-type: none"> • learning progress over time • student's current best work • comparison of best and past work • development of self-assessment skills • development of reflective learning • individual's level and pace of work • clear evidence of learning to parents and others and the amount of teacher-student collaboration involved Portfolios give a clearer picture of individual's achievement's strengths and weaknesses and professional goals and objectives than continuing education People differ in writing skills – quality of portfolios may vary with more positive views linked to writing skills Risk that some individuals will write what they think assessors want to read Can be time consuming Self-reflection skills vary – some	Need clear and specific evaluation tools to give evaluators appropriate guidelines to make effective and reliable judgements Suggest repeated portfolio assessment by paired observers to increase reliability Variety of assessment methods needed and portfolios have the potential to integrate these To ensure validity need: <ul style="list-style-type: none"> • clear, measurable standards and criteria to meet the program's purpose – developed and communicated to the individual • evaluators need to be educated and tested (certified) in the use of the evaluation tool • evaluators need to be re-educated at consistent intervals

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
				people too hard on themselves and others focus too much on their strengths Issues of confidentiality/privacy	
Endacott et al 2004 ²⁹	Descriptive research Qualitative data	Higher education institutions	Portfolios	<p>Four approaches to structure and use of portfolios:</p> <ul style="list-style-type: none"> • 'shopping trolley' • 'toast rack' • 'spinal column' • 'cake mix' <p>Approach varies according to stage of development and is an evolving process</p> <p>Factors influencing use of portfolios include language of assessment, degree of guidance and expectations of clinical and academic staff</p> <p>Agreement by academics that portfolios facilitate application of theory into practice, enable students to develop skills for reflective practice and provide evidence of competence</p> <p>Important that portfolio reflects real world practice</p>	<p>In using portfolios consider:</p> <ul style="list-style-type: none"> • degree of guidance about nature of evidence expected – essential and supplementary • use of same evidence for a number of outcomes • have a prescribed limit to portfolio size • emphasise the importance of quality rather than quantity • more emphasis on student input rather than just assessor commentary • focus on outcomes rather than process – need to choose an assessment framework that will measure actual skill attainment • consider type and requirements of portfolio based on level of learning • portfolio structure should enable a balance between providing sufficient evidence to enable triangulation and a judgement about the student's competence while not creating an overwhelming and unrealistic workload • degree of structure should be appropriate for the academic level and degree of experience at pre- and post-registration levels • needs to be adequate preparation of students, staff and assessors • needs to have an element of synthesis and reflection • needs considerable investment from all parties

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Gannon et al 2001 ³⁰	Review (1995–1999)	Nursing	Portfolios	<p>Despite widespread use there is considerable confusion about the term portfolio</p> <p>Issues of concern for nurses include confidentiality</p> <p>Issues of concern for educators include credibility, reliability and validity</p>	Needs to be further research into use and utility of portfolios
McCready 2007 ³¹	Review (1993–2004)	Nursing	Portfolios	<p>Value of tripartite assessment (academic supervisor, practice mentor and student)</p> <p>Importance of self-directed learning and reflection in bridging the theory-practice gap</p> <p>Importance of holistic assessment using a wide range of evidence</p> <p>Importance of clear guidelines for portfolio construction – both for students and assessors</p> <p>Issues around reliability and validity of portfolio assessment</p> <p>Importance of qualitative assessment of a process that is fundamentally holistic</p> <p>Major challenge is objective measurement</p> <p>Numerous tools available – but a comprehensive and effective measure has not been established</p>	<p>Time to embrace portfolio as a means of assessment</p> <p>Future research should focus on qualitative methodologies</p>

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Emden et al 2003/4 ³²	Descriptive article	Nursing and midwifery	Portfolios Description of process followed and lessons learned	Undergraduate – mixed responses from students and lecturers Postgraduate – frustration due to ambiguity of competency standards; students required guidance about amount and types of evidence to collect; distance education/ international students required more guidance; time consuming process; benefits seen at the end in final presentation Health service: challenge to define the purpose of the portfolio (self development vs. proof of competence)	Link portfolio building process to competency standards Collect evidence relating to each domain area and as many competency elements as possible Distinguish between direct and indirect evidence Recognise time required – consider public and private portfolios Communication important
Joyce 2005 ³³	Descriptive article	Postgraduate nursing (MSc)	Portfolios	Description of framework used – no pilot results reported	
Webb et al 2003 ³⁴	Descriptive research Qualitative data	Nursing (students/teachers/ assessors)	Portfolios Examination of case studies through focus groups, focused interviews and observations in higher education institutions and clinical areas and document analysis	Tripartite meeting seen as crucial (student, teacher, assessor) Relationship between student and practice assessor seen as fundamental – over a period of months Grading criteria difficult due to vagueness in the literature Double marking, moderating between markers and external examining ensures rigour Not possible to apply concepts of validity and reliability without close specifications of detailed and objective criteria for grading evidence Grades developed to date are too vague to eliminate subjectivity	Portfolios contain qualitative evidence and should be judged qualitatively Elements of a decision trail that could be used to evaluate the rigour of portfolio assessment include: <ul style="list-style-type: none">• explicit marking/grading criteria• evidence from a variety of sources including assessor observations from multiple or extended placements, skills checklists and students' reflective accounts• internal quality assurance processes including double marking and moderation• external quality assurance processes including external examiner reports and national quality audit schemes

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Schaeffer et al 2005? ³⁵	Descriptive research Qualitative and quantitative data	Baccalaureate nursing students (n=88) and faculty members (n=7)	Portfolios Survey, focus group and analysis of portfolio content	Most students agreed that portfolio helped explain the role of the public health nurse and facilitated use of public health nursing ideas and language Disagreed that portfolio facilitated learning of new skills Helped recognition of the number of public health nursing interventions accomplished Difficulties with reflections – students felt they had to make up reflections based on what the instructor wanted to hear Themes – confusion, devaluation, critical thinking, time consuming Recognition that portfolio promotes critical thinking Issues with preceptors lacking an understanding of competencies Differences between RN and BSN student opinions	Changes made in response to study findings: <ul style="list-style-type: none"> refinement in structure of portfolio provide student and assessor orientation include a page on each competency in the course manual to encourage notes and stimulate reflective thinking introduce portfolio after first week of the semester provide examples available for students to look at increase the percentage of the total grade assigned to the portfolio to emphasise its importance hold a celebration on completion to share learning with peers
Scholes et al 2004 ³⁶	Descriptive research Qualitative data	Nursing students (n=154) and teachers (n=84)	Portfolios Survey, case studies and observation	Key problem – prepare wide range of assessors/mentors for effective portfolio use Confidence from assessors only came from working in practice Mixed views about inter-rater reliability – some assessors want to know they're doing it the same way, others want to be independent Method for presenting learning outcomes/competencies influenced the process fundamentally – if too abstract, competencies had to be deconstructed; if too specific, clinical practice had to be	Way in which outcomes are written and type of evidence required should match stage of student's academic/professional career Starting with critical reflection for less experienced students may lead to confusion Further research needed to see whether there is a delay in professional performance as students learn the language of the portfolio and how to make it work – can take primacy over clinical learning Further research needed to see whether the style and elements in the portfolio should match type of practice Although guidance is helpful, students and

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				deconstructed; if didn't relate to a particular practice situation, practice had to be reconstructed	assessors need to experience the process of matching learning outcomes/competences to clinical experience and writing them in the required format before they can feel confident in the use of portfolios Types of evidence should realistically match the student's academic progression
Smith and Tillema 2001 ³⁷	Descriptive research Qualitative and quantitative data	School principals (n=74)	Portfolios Semi-structured questionnaire followed by an interview	Routes to sustained use of portfolios: <ul style="list-style-type: none"> • voluntary – self-assessment – more professional development • mandatory – self-review – less professional development Voluntary less likely to be done Gives insights into one's level of competence – provides clarity as to individual needs and aspirations for personal development	For portfolios to be useful in supportive development, renewal and changes in performance, clear goals need to be set and there needs to be openness to scrutiny through dialogue and communication. In order for portfolios to be successful in monitoring progress, there needs to be regular maintenance and repeated administration of the instrument Responsibility is mainly in the hands of the collector but to be authentic it relies on input from appraisers and evaluators. Relies on self regulation and a group that is prone to learning
Spence and El-Ansari 2004 ³⁸	Action research model Qualitative and quantitative data	Specialist community nursing practitioner practice teachers (PTs)	Portfolios Questionnaires following introduction of portfolio approach to practice assessment; comparison with traditional approach	Pilot group: Almost all commented on positive nature of portfolio experience Portfolio should be percentage marked – 40% Portfolio offers students optimum level of guidance to demonstrate attainment of learning outcomes – 70% Portfolio guidance represents degree level practice – about 50% Portfolio encourages students to take an optimum level of control in personal learning – 85% Portfolio prompts reflection on	Benner scale viewed positively but limitations acknowledged. Call for a reduction in number of learning outcomes Include numerous prompts in portfolio documentation to support self-evaluation and widen range of acceptable evidence Provide guidance on learning outcome attainment informed by PTs and lecturing staff Increase practice:theory split Consider ways to encourage inter-rater reliability Oversight of project by lecturing and PT staff Include patient and carer feedback

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				<p>practice – 80%</p> <p>Portfolio reflects first-hand experience of student's practice competency – 75%</p> <p>Pilot and non-pilot</p> <p>Pilot PTs used less first-hand experience and more portfolio evidence ($p < 0.05$)</p> <p>Range of learning outcomes cited as being challenging to students</p> <p>Benner scale reported as supporting student's interest and skills development in self-evaluation</p> <p>Anxieties in reliability of portfolios – reflect subjectivity of approach</p> <p>Portfolio approach reported as more time efficient for some – but not necessarily more rigorous</p> <p>Doubts about inter PT rating reliability</p>	
Alinier 2003 ⁴¹	<p>Descriptive research</p> <p>Qualitative and quantitative data</p>	Undergraduate nurses (n=86) and lecturers (n=39)	<p>OSCE</p> <p>Questionnaires to identify views on OSCE</p>	<p>Mixed mode approach appreciated (formative and summative – e.g. run as a summative session but incorporated a feedback session)</p> <p>Students think OSCE is beneficial when used in a formative way</p> <p>Repeating the OSCE allows time for reflection</p> <p>86% of students said the OSCE helped improve their confidence</p> <p>82% of lecturers think students should get more practical skills training</p> <p>Students think OSCEs should be incorporated into nursing curriculum</p>	<p>Students should be prepared in advance, especially if stations will look at critical thinking skills – i.e. scenarios student is not familiar with</p> <p>Students should be encouraged to reflect on performance and be given the opportunity to repeat the OSCE</p> <p>Stations should be focused so tasks can be completed within the time frame</p> <p>Running cost is outweighed by the benefits</p>

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
				3–4 times per year Lecturers find sessions informative OSCE is a tool for teaching as well as assessment	
Major 2005 ⁴²	Descriptive article	Adult, child and mental health students	OSCE	Description of an approach to OSCE at one university	
Khattab and Rawlings 2001 ⁴³	Descriptive article	Nursing students	OSCE Description of OSCE process to assess physical examination skills	OSCE model provides formative and summative assessment options Closely linked with a teaching and learning strategy focused on sequential acquisition of cognitive and psychomotor skills OSCE was evaluated positively by teachers and participants	Need for further research about reliability and validity Consider approaches to providing immediate feedback to students without interrupting 'flow' Cost issues under consideration
McGaughey 2004 ⁴⁴	Descriptive research Quantitative and qualitative data	Intensive care and high dependency student nurses (Diploma level) (n=11) and managers (n=6)	OSCE	Students most stressed before the OSCE 8/11 felt it was a learning experience 8/11 agreed with testing using OSCE and practice Managers agreed with using OSCE and practice	Educational institutions need to be able to stipulate a minimum entrance criteria, undertake a selection process and provide supernumerary status in order to deliver a course to a homogeneous group of students
Chabeli 2001 ⁴⁵	Descriptive research Qualitative data	Nurse educators (n=20)	OSCE Focus group interviews	Five themes: administration; evaluators; learners; procedures/ instrument; and evaluation	OSCE encourages team spirit and can improve observation skills Results are subjective and inconsistent; more research needed Nurse educators need appropriate expertise OSCE should provide learners with sufficient time for reflection Less threatening to students and don't put real patients at risk Not realistic or holistic, especially for certain procedures, which can cause confusion

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
Franklin 2005 ⁴⁶	Ethnographic research Qualitative data	Nurse prescribing students (n=10)	OSCE Focus group interviews	Three themes: OSCE differs from practice; OSCEs and extended nurse prescribing; OSCEs as process Students found OSCE to be anxiety provoking Lack of realism and artificial environment flagged as issues Time restraints limited natural reflection time Fear of failure and intimidation caused by unfamiliar scenarios Faith in examiner as fair and able to judge a safe performance regardless of participant nerves Disparity because of prior OSCE experience for some students	Students should be better prepared for what OSCE will involve – consider use of video examples
Huang et al 2007 ⁴⁷	Descriptive research Qualitative and quantitative data	Medical students (n=187)	OSCE Post-examination questionnaire	>80% satisfied with all aspects apart from the environment (interference of sounds from other stations was distracting) Students appreciated opportunity to practice and receive faculty feedback Simulated patients viewed role as a useful experience	Suggestions for improvement based on outcomes: <ul style="list-style-type: none"> • decrease group size to allow time for students to practice • provide more information about the OSCE in advance – e.g. online information or video • use laypeople as simulated patients not residents to avoid bias and students are less likely to use medical jargon
Rennie and Main 2006 ⁴⁸	Descriptive research Qualitative data	Student midwives (n=9)	OSCE Focus group to determine views on OSCE	Practicalities Made them learn more in depth – practising skills made them easier to remember High levels of anxiety Some issues with organisation – e.g. long waiting times Unrealistic time allowance for one station	Provide written information to students at the beginning Use a formative approach with constructive feedback Introduce OSCEs at an early stage Ensure realism of stations and allow adequate time Limit waiting time between stations Involve relevant clinical staff to ensure realism

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				<p>Some issues with realism</p> <p>Preparation</p> <p>Perceived as stressful</p> <p>Didn't feel prepared enough</p> <p>Other clinical staff didn't know what OSCE involved so couldn't help students prepare</p> <p>Inconsistencies dependent on placements about level of preparation required</p> <p>Impact of assessors, volunteers and simulation</p> <p>Students felt presence affected performance</p> <p>Volunteers need to respond consistently</p> <p>Realism of equipment</p> <p>Feedback could be improved</p>	<p>and relevance</p> <p>Use same equipment as that used in the clinical setting</p> <p>Demonstrate to student what examiner might be looking for</p>
Alinier et al 2006 ⁴⁹	Experimental design Quantitative and qualitative data	Undergraduate nursing students (n=99)	Simulation training Pre- and post-test using OSCE for control and experimental group (6 month interval)	<p>Both groups improved performance</p> <p>Group that received simulation training had a significantly better improvement in performance ($p < 0.001$)</p> <p>Similar perceptions of stress and confidence between the two groups</p>	<p>Intermediate fidelity simulation is a useful training technique that allows students to practice in a safe and controlled environment</p> <p>Valuable to equip students with a minimum of technical and non-technical skills before they use them in practice settings</p> <p>Students should play the major role and be in control during scenarios to allow them to learn from mistakes and act on their own judgement</p> <p>Feedback is highly important</p>

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Baez 2005 ⁵⁰	Cohort Qualitative and quantitative data	Social work students (n=16)	OSCE Pre- and post-OSCE assessment on substance abuse	Significant increase in knowledge (p<0.002) after the OSCE Students liked the interdisciplinary faculty approach Those with minimal practice experience found the session most useful General objection by students to using the OSCE as a formal examination – take more from it as a practice tool	Prepare faculty and actors Increase station length and require students to practice fewer competencies per station Recruit and educate faculty early and use faculty with relevant skills and experience
Whittaker-Ebbert and Connors 2004 ⁵¹	Descriptive research Quantitative and qualitative data	Family nurse practitioner and adult/geriatric practitioner students (Masters level)	Standardised patient experiences/OSCE Student questionnaire about usefulness of simulated patient encounter as well as open responses about value	Students agreed/strongly agreed that experiences were realistic, feedback was helpful and challenge was appropriate Comments related to 'real world' setting and way of integrating theory and knowledge Encounters were costly to set up and run	Provide vital information to faculty about clinical competency while maximising opportunities for students to demonstrate synthesis of knowledge in real life situations While costly, benefits outweigh the costs
Mason et al 2005 ⁵²	Prospective pilot study Quantitative and qualitative data	Emergency nurse practitioners (n=17)	OSCE Knowledge tested using an OSCE before and after an educational intervention	Statistically significant improvement in knowledge from baseline at follow up – p<0.05 – due to written assessment scores Inter-rater scores showed an acceptable level of agreement Improvement may have been because participants were more used to the process Overwhelming positive feedback from emergency nurse practitioners Communication, clinical skills, knowledge and intention satisfactorily assessed	Positive response to the assessment process was due to its framing as an educational tool; may become problematic if used as an assessment tool; need to consider approaches to managing underperformance Need further work to evaluate the use of the OSCE approach in assessing competence and identifying educational needs Suggest use OSCE in conjunction with a portfolio approach

Author and date	Study type	Study population	Indicator/intervention	Outcomes	Other comments/recommendations
				Time consuming to develop and run	
Jinks 2002 ³⁹	Descriptive research Quantitative and qualitative data	Nursing educational assessors (n=156)	Peer review Survey of educational assessors to determine current assessment proficiency and future education/training needs	Survey outcomes: <ul style="list-style-type: none"> • Students have regular assessment – 92% • Portfolios used regularly – 54% • Areas of practice that require evaluation not identified on a regular basis – 30% • Consistent supervision given in a supportive environment – 80% • Environment supports evidence-based practice – 93% • Portfolio does not provide evidence of rational decision making – 33% • Sufficient time devoted to facilitate learning for specialist practitioners – 40% • Good understanding of the nature of assessment and knowledge of student programs – 87% • Contribute to course development – 38% 	Identified need for comprehensive orientation program at the outset – length and detail should depend on length of clinical placement Need to agree local standards on timing and nature of initial assessment Assessment of student's potential for development should be a core part of the assessment process Areas of practice that require evaluation should be a core part of the assessment process and should be identified in the context of the multi-professional team Steps need to be taken to ensure that learning outcomes are based on individual needs as well as university documentation
Briggs and Heath 2005 ⁵⁴	Review	Advanced practice nurses (APNs)	Peer review	OSCE involves objective and subjective assessment Method for evaluating quality of care given by an individual, but should not be the only form of performance evaluation Chart audits most frequently encountered as the method for conducting advanced nursing practice peer review – perceived to be objective but problems around	Multiple aspects to performance evaluation; peer review is one component Peer review is an important component of portfolios Multifaceted purposes but ultimate aim is delivery of optimal care APNs should first look inwards and then request critical feedback Important for APNs to define what peer review means to them

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				scoring Direct observation critically important but dependent on familiarity of observer with role expectations	
Gopee 2001 ⁵⁵	Descriptive article	Nursing	Peer review	Scarcity of empirical evidence on effectiveness of peer review Article provides guidelines for peer assessment or review	Peer review should be an inherent component of clinical governance and professional self-regulation Should be introduced initially as a voluntary activity
Farrell et al 2002 ⁵⁶	Pilot study to develop performance competence assessment tool Cohort Quantitative & qualitative data	Nursing (n=147) Average experience 20 years (range 2–20 years) Range of positions	Peer review Development of pilot instrument to be used to assess performance competence of a Chief Nurse Executive (CNE)	Good reliability and validity of tool Two factors/domains identified: the CNE as visionary; accountability though CNE/follower partnership	Data collection instruments for assessment of CNE performance need to reflect system complexities e.g. multiple campuses, off-site nursing Identified challenge of building and maintaining trust as the mediating factor in communications
Brown 2000 ⁵⁷	Descriptive research Qualitative data	Mental health nursing students (n=150)	Peer /mentor review Assessment of comments made in written assessments by mentors	Four themes: focus on learning; being themselves; working as a team player; interpersonal effectiveness	Mentors take student learning seriously – comments are not constrained by pre-determined learning outcomes Learning outcomes are not the only learning opportunities that students will be learning from or exposed to Question remains about whether personal characteristics should be assessed and how More dialogue required between lecturers and mentors
Fereday and Muir-Cochrane 2006 ⁵⁸	Descriptive research Qualitative data	Nursing clinicians (n=26)	Self-assessment Structured open-ended questions in a focus group setting	Performance feedback is needed for positive reinforcement and affirmation Performance feedback that is lacking or delayed leads the receiver to assume competence Nursing clinicians perceived the	Need to stimulate self-awareness by providing opportunities for feedback and professional reflection at work (currently being lost due to taped handovers and staggered shift times)

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				<p>formal performance review system as an imposition ('going through the motions'); perception that undertaking a process to ensure competency was irrelevant when they believed themselves to be competent</p> <p>The need for feedback is greater if a person's ability is doubted, e.g. in unfamiliar situations; feedback sought to alleviate doubt or allay concerns</p> <p>Listening to the experiences of others triggers a process of self-reflection</p> <p>Nurses constantly engaged in a process of self-monitoring</p>	
Smith and Jack 2005 ⁵⁹	<p>Descriptive research</p> <p>Qualitative data</p>	Community health care nursing students (n=8) and mentors (n=12)	<p>Reflective practice</p> <p>Focus group and informal canvassing of mentors plus a student discussion board</p>	<p>Diary entries started as descriptive but became more reflective with time</p> <p>Time constraints seen as a barrier</p> <p>Difficulty in recording negative experiences</p> <p>Legal implications of documenting reflective thoughts</p> <p>Role of mentor seen as catalytic or cathartic</p> <p>Mentors believed discussion of issues helped them understand student's thought processes and progress</p> <p>No real consensus on whether reflection is meaningful in exploring clinical practice or whether it's a suitable assessment tool.</p>	<p>Reflection can be a useful tool for exploration of nursing practice</p> <p>Should be used to examine both positive and negative experiences</p> <p>Should not be viewed as a theoretical exercise but a means to reduce the theory practice gap</p> <p>Nurses may require assistance to reflect in a meaningful way</p>

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Calman 2006 ⁴⁰	Grounded theory research Qualitative data	Patients (n=27)	Patient views of competence In-depth interviews	Patient views: <ul style="list-style-type: none"> • competence is about technical skill • distinction between technical ability and caring • technical competence is fundamental and taken for granted (trust) • exclusivity of professional judgement ("who are we to judge...") • individual relationships with nurses are important factors in the way nursing care is judged • patients forgive poor care – nursing viewed as a stressful job rather than lack of competence • patients use trust as a way of managing uncertainty • most patients cautious about how they might contribute to competence assessment • maintaining the relationship seen as more important than complaining • experience of being nursed cannot be separated from judging patient care 	Approaches to patient involvement should situate patients' views in context and take note of their understanding of nurses' competence, particularly their anxiety about nurses' responses to their assessment

APPENDIX II: EXCLUDED ARTICLES

Reference	Rationale
Call for equality with medics on leave for CPD. Nursing Standard 2005; 19(34): 11	News article
National CPD standards needed to protect nurse prescribers. Nursing Standard 2007; 21(39): 7.	News article
Ania González N, Martínez Mingo A et al. Assessment of practice competence and scientific knowledge of ICU nurses in the tracheal suctioning [Spanish]. Enfermeria Intensiva 2004; 15(3): 101-111.	English language version unavailable
Arcand L, Neumann J. Nursing competency assessment across the continuum of care. Journal of Continuing Education in Nursing 2005; 36(6): 247-254.	Opinion / discussion based document
Arblaster G, Streather C et al. A training programme for healthcare support workers. Nursing Standard 2004; 18(43): 33-37.	Describes method of education and development not competence assessment
Bell, S. Professional nurse's portfolio. Nursing Administration Quarterly 2001; 25(2): 69-73.	Opinion / discussion based document
Bennett, C, Burton H et al. Competences, education and support for new roles in cancer genetics services: outcomes from the cancer genetics pilot projects. Familial Cancer 2007;6(2):171-180.	Opinion / discussion based document
Bentson J, Latayan M et al. A nursing partnership: the forces of magnetism guiding evidence-based practice in the Republic of Armenia. Journal of Continuing Education in Nursing 2005; 36(4): 175-179.	Opinion / discussion based document
Bradley E, Campbell P et al. Nurse prescribers: who are they and how do they perceive their role? Journal of Advanced Nursing 2005; 51(5): 439-448.	Descriptive article Not relevant to review
Campbell B, Mackay G. Continuing competence: an Ontario nursing regulatory program that supports nurses and employers. Nursing Administration Quarterly 2001; 25(2): 22-30.	Opinion / discussion based document
Campbell, S. Continuing professional development: what do we need? Nursing Management - UK 2004; 10(10): 27-31.	Opinion / discussion based document
Carlson-Sabelli L, Delaney KR. Evaluating clinical competence of distant nurse practitioner students. Studies In Health Technology And Informatics 2006; 122: 1006.	Opinion / discussion based document
Chippendale M, Gardner H. A model for implementing the "Scope of Professional Practice". Journal of Child Health Care 2001; 5(3):105-110.	Opinion / discussion based document
Chung U, Kao C et al. The development of a competency-based clinical performance examination model in maternity nursing for BSN graduates [Chinese]. Journal of Nursing Research (China) 2001; 9(3): 213-222.	English language version unavailable

Clinton M, Murrells T et al. Assessing competency in nursing: a comparison of nurses prepared through degree and diploma programmes. <i>Journal of Clinical Nursing</i> 2005; 14(1): 82-94.	Comparison of two courses using a competency assessment tool – tool not yet critiqued
Cook S, Kase SR et al. Portfolio Evaluation for Professional Competence: Credentialing in Genetics for Nurses. <i>Journal of Professional Nursing</i> 2003; 19(2): 85.	Opinion / discussion based document
Cooper B, Rixon A. Integrating post-qualification study into the workplace: the candidates' experience. <i>Social Work Education</i> 2001; 20(6): 701-716.	Opinion / discussion based document
Davies N, Gould D. Updating cardiopulmonary resuscitation skills: a study to examine the efficacy of self-instruction on nurses' competence. <i>Journal of Clinical Nursing</i> 2000; 9(3): 400-410.	Describes method of education not competence assessment
Duffin C. Staff over 50 less likely to be given training or flexible hours. <i>Nursing Standard</i> 2006; 21(3): 7.	News article
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Eduardo K, Americo C et al. Women's preparation for the Papanicolaou's exam in the perspective of the quality [Portuguese]. <i>Acta Paulista de Enfermagem</i> 2007; 20(1): 44-48.	English language version unavailable
Feeg V, Bashatah A et al. Development and testing of a CD-ROM based tutorial for nursing students: getting ready for HIPAA. <i>Journal of Nursing Education</i> 2005; 44(8): 381-386.	Description of education method not competence assessment
Fisher M, Marshall A et al. Competency standards for critical care nurses: do they measure up? <i>Australian Journal of Advanced Nursing</i> 2005; 22(4): 32-39.	Focus on models of competency not assessment
Foss G, Janken J. Using professional specialty competencies to guide course development. <i>Journal of Nursing Education</i> 2004; 43(8): 368-375.	Opinion / discussion based document
Giger J, Davidhizar R et al. American Academy of Nursing Expert Panel report: developing cultural competence to eliminate health disparities in ethnic minorities and other vulnerable populations. <i>Journal of Transcultural Nursing</i> 2007; 18(2): 95-102.	Does not include competence assessment
Hager P, B.A.R.C.f.V.E.a T. Technology Univ – Sydney. International Mutual Recognition: Progress and Prospects. Working Paper, 2001.	Working paper only Not relevant to review
Harris K. Critical care competency program development and implementation. <i>Acute Care Perspectives</i> 2006; 15(2): 10-14.	Opinion / discussion based document
Heikkilä, A, Ahola N et al. Nurses' competence level in medical, operative and psychiatric specialized health care [Finnish]. <i>Hoitotiede</i> 2007; 19(1): 3-12.	English language version unavailable
Herringer JM. Once isn't enough when measuring staff competence. <i>Nursing Management</i> 2002; 33(2): 22.	Opinion / discussion based document

Hobden A. Continuing professional development for nurse prescribers. <i>Nurse Prescribing</i> 2007; 5(4):153-155.	Opinion / discussion based document
Hodges B. Writing for publication: a personal view. <i>Paediatric Nursing</i> 2007; 19(2): 35-36.	Does not include discussion of competence assessment
Johnson S. Development of educator competencies and the professional review process. <i>Journal for Nurses in Staff Development</i> 2002; 18(2): 92-102.	Describes competencies for educators not nursing practice
Jones K, Brown W et al. Action learning to provide continuing professional development. <i>NursePrescribing</i> 2005; 3(4): 156-158.	Does not include discussion of competence assessment
Kaiser K L, Barr KL et al. Setting a new course for advanced practice community/public health nursing. <i>Journal Of Professional Nursing: Official Journal Of The American Association Of Colleges Of Nursing</i> 2003; 19(4): 189-196.	Does not include discussion of competence assessment
Kane T. Cross-boundary rotational working for neonatal nurses. <i>Paediatric Nursing</i> 2007;19(4): 36-38.	Does not include discussion of competence assessment
Karłowicz K. The value of student portfolios to evaluate undergraduate nursing programs. <i>Nurse Educator</i> 2000; 25(2):82-87.	Opinion / discussion based document
Kendrick T, Greenwood M et al. Credentialling Australian critical care nurses: a pilot study. <i>Australian Critical Care</i> 2000; 13(3): 113-116.	Describes a process for credentialling
Khomeiran R, Yekta Z et al. Professional competence: factors described by nurses as influencing their development. <i>International Nursing Review</i> 2006; 53(1): 66-72.	Describes development of not assessment of competence
Klein C. Educational innovation. Linking competency-based assessment to successful clinical practice. <i>Journal of Nursing Education</i> 2006; 45(9): 379-383.	Opinion / discussion based document
Lauritsalo P, Mäkelä N et al. Peer review as a method of developing competency in nursing: description and experiences of an education experiment [Finnish]. <i>Sairaanhoitaja</i> 2002; 75(12): 18-20.	English language version unavailable
Lee P. Using the 'getting it right' tool for children and young people. <i>Nursing Times</i> 2006; 102(21): 21-22.	Opinion / discussion based document
Levett-Jones T. Facilitating reflective practice and self-assessment of competence through the use of narratives. <i>Nurse Education in Practice</i> 2007; 7(2): 112-119.	Opinion / discussion based document
Malone B. Research positively embraces questions and challenges. <i>Nurse Researcher</i> 2005; 12(4): 82-84.	Opinion / discussion based document
McCormack B, Slater P. An evaluation of the role of the clinical education facilitator. <i>Journal of Clinical Nursing</i> 2006; 15(2): 135-144.	Not relevant Does not include discussion of competence assessment
McDonough R. Accrediting work based learning in primary care for an academic qualification. <i>Work Based Learning in Primary Care</i> 2004; 2(3): 214-219.	Does not include discussion of competence assessment
McLean C, Monger E et al. Assessment of practice using the National Health Service Knowledge and Skills Framework. <i>Nursing in Critical Care</i> 2005; 10(3):136-142.	Opinion / discussion based document

Meister L, Heath J et al. Professional nursing portfolios: a global perspective. MEDSURG Nursing 2002; 11(4): 177-182.	Opinion / discussion based document
Miller PJ. Enhancing effectiveness in assessing forensic nursing staff competency. Journal Of Forensic Nursing 2007; 3(2): 72.	Opinion / discussion based document
Moore A. Freedom pass. Nursing Standard 2006; 21(11): 20-23.	Does not include discussion of competence assessment
Narayanasamy A, Narayanasamy M. Advancing staff development and progression in nursing. British Journal Of Nursing (Mark Allen Publishing) 2007; 16(7): 384-388.	Does not include discussion of competence assessment
Nelson S, Purkis M. Mandatory reflection: the Canadian reconstitution of the competent nurse. Nursing Inquiry 2004; 11(4): 247-257.	Opinion / discussion based document
Oermann M. Developing a professional portfolio in nursing. Orthopaedic Nursing 2002; 21(2): 73-78.	Does not include a critique of the tool
O'Neale M, Kurtz S. Certification: perspectives on competency assurance. Seminars in Perioperative Nursing 2001; 10(2): 88-92.	Opinion / discussion based document
Pasquina P, Kelly S, et al. Assessing clinical competence in physical medicine & rehabilitation residency programs." American Journal of Physical Medicine & Rehabilitation 2003; 82(6): 473-478.	Non-nursing focus
Rodgers K, Manifold C. 360-degree feedback: possibilities for assessment of the ACGME core competencies for emergency medicine residents... presented at the Council of Emergency Medicine Residency Directors (CORD) Consensus Conference on the ACGME Core Competencies: "Getting Ahead of the Curve," March 2002, Washington, DC." Academic Emergency Medicine 2002; 9(11): 1300-1304.	Opinion / discussion based document
Rong JR, Chung UL. [The challenge facing nursing education: to develop clinical performance examination strategies in nursing practice]. Hu Li Za Zhi The Journal Of Nursing 2006; 53(1): 17-21.	Opinion / discussion based document
Schulz M. The European Healthcare Training and Accreditation Network (EHTAN) project [German]. PR-Internet fur die Pflege 2006;8(5): 292-297.	English language version unavailable
Sharma VK, Coppola AG Jr et al. A survey of credentialing practices of gastrointestinal endoscopy centers in the United States. Journal Of Clinical Gastroenterology 2005; 39(6): 501-507.	Non-nursing focus
Strasser S, London L et al. Developing a competence framework and evaluation tool for primary care nursing in South Africa. Education for Health: Change in Learning & Practice 2005; 18(2): 133-144.	Does not include discussion of competence assessment
Tennant S, Field R. Continuing professional development: does it make a difference? Nursing in Critical Care 2004; 9(4): 167-172.	Discusses goal attainment not competence
Tolson D, McAloon M et al. Progressing evidence-based practice: an effective nursing model? Journal of Advanced Nursing 2005; 50(2): 124-133.	No indicators of competence assessed

Tomlinson D. Paediatric oncology nurse education: the development of a national framework. <i>Journal of Clinical Nursing</i> 2004; 13(5): 646-654.	No indicators of competence assessed
Towner E. Assessment of geriatric knowledge: an online tool for appraising entering APN students. <i>Journal of Professional Nursing</i> 2006; 22(2): 112-115	Describes self-assessment test but does not evaluate method
Tzeng H. Nurses' self-assessment of their nursing competencies, job demands and job performance in the Taiwan hospital system. <i>International Journal of Nursing Studies</i> 2004; 41(5): 487-496.	Self assessment relates to satisfaction with competencies not assessment of nurse competency
Waddell D. Measurement issues in promoting continued competence." <i>Journal of Continuing Education in Nursing</i> 2001; 32(3):102-106.	Opinion / discussion based document
Walters J, Adams J. A child health nursing objective structured clinical examination (OSCE). <i>Nurse Education in Practice</i> 2002; 2(4): 224-229.	Opinion / discussion based document
Watson R, Andrews J et al. Older community nurses: perspectives and prospects. <i>British Journal of Community Nursing</i> 2004; 9(7): 274.	Does not include discussion of competence assessment
Way R. Assessing clinical competence. <i>Emergency Nurse</i> 2002; 9(9): 30-34.	Opinion / discussion based document
Whelan L. Competency assessment of nursing staff." <i>Orthopaedic Nursing</i> 2006; 25(3):198-204.	Opinion / discussion based document
Wilcox A. Continuing professional development. How to succeed as a lifelong learner. <i>Primary Health Care</i> 2005; 15(10): 43-50.	Does not include discussion of competence assessment
Wilson M, Shepherd I et al. Assessment of a low-fidelity human patient simulator for the acquisition of nursing skills. <i>Nurse Education Today</i> 2005; 25(1): 56-67.	Describes an educational approach not competence assessment
Winters J, Hauck B et al. Educational innovations. Use of videotaping to assess competencies and course outcomes. <i>Journal of Nursing Education</i> 2003; 42(10): 472-476.	Opinion / discussion based document
Yoo IY, Yoo MS et al. Self-Evaluated Competencies of School Nurses in Korea. <i>Journal of School Health</i> 2004; 74(4): 144-146.	Does not include discussion of competence assessment
Yorks L, Sharoff L. An extended epistemology for fostering transformative learning in holistic nursing education and practice. <i>Holistic Nursing Practice</i> 2001; 16(1): 21-29.	Not relevant

APPENDIX III ASSESSMENT TOOL

Appraisal Tool

Title	
Author	
Year	
Type	Journal Article <input type="checkbox"/> Conference Paper <input type="checkbox"/> Report <input type="checkbox"/> Other:
Type and no. of participants	Cancer Nurses <input type="checkbox"/> General Nurses <input type="checkbox"/> Other Specialist Nurse <input type="checkbox"/> Other: <input type="checkbox"/> No.:
Population	Tertiary Undergrad <input type="checkbox"/> Postgrad <input type="checkbox"/> Clinical performance assessment <input type="checkbox"/> Continuing development <input type="checkbox"/> Other <input type="checkbox"/>
Indicator of Competency addressed (JBI 2007)	Portfolios <input type="checkbox"/> Continuing Education <input type="checkbox"/> Examinations <input type="checkbox"/> Peer review (assessment) <input type="checkbox"/> Direct Observation <input type="checkbox"/> Self-assessment <input type="checkbox"/> Interviews <input type="checkbox"/> Patient outcomes <input type="checkbox"/>
Other processes measured	Maintenance of competency <input type="checkbox"/> Practice experience <input type="checkbox"/> Others :
Outcome Measures used	Patient outcomes <input type="checkbox"/> Student/Employee satisfaction <input type="checkbox"/> <input type="checkbox"/> Employer satisfaction <input type="checkbox"/> Cost <input type="checkbox"/>
Methodology	
Design	Experimental <input type="checkbox"/> Quasi experimental <input type="checkbox"/> Cohort study <input type="checkbox"/> <input type="checkbox"/> Theoretical / Review <input type="checkbox"/>
Protocol / Intervention Or Processes employed to assess competence	

Experimental Assessment Tools / Scales / Questionnaires	
Outcomes	
Conclusions / Results	
Study recommendations	
Study quality	
Bias [systematic error] Selection, measurement, attrition or lost to follow-up, lack of blinding	
Internal Validity – adequate adjustment for confounders	
External Validity – generalisability, applicability	
Strengths and limitations of paper	
General comments	