

## An Overview of Assessment

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## An Overview of Assessment

The following information serves as an introduction to a suite of resources designed to assist the assessment of the attributes and capabilities that comprise specialist cancer nursing practice as outlined in *A National Professional Development Framework for Cancer Nursing*<sup>1</sup> ('EdCaN framework'). Included is an overview of the following theoretical concepts:

- Definitions of assessment as they apply to learning contexts and professional competence.
- Methods of assessment
- Issues in assessing performance
- Reliability and validity in assessment
- Judgements in assessment
- Norm and criterion referenced assessments
- Assessment scoring and reporting approaches
- Contemporary trends in learning and assessment.

## Definitions of assessment

Assessment is a broad term that includes all of the various methods used to determine the extent of an individual's achievement. In teaching and learning contexts, assessment refers to the methods used to determine achievement of learning outcomes.<sup>2</sup> Similarly in professional contexts, assessment is concerned with the achievement of professional standards or competence.

Assessment also provides a number of secondary benefits including:

- **Grading:** assessment may be used to translate achievement into a point on an arbitrary scale and to measure the students' preparedness for professional accreditation<sup>3</sup>
- **Motivation:** assessment may focus learning by creating an end point that carries with it the rewards of completion or grades
- **Part of the learning process:** assessment activities can guide individuals to learn and relearn subject matter<sup>4</sup>
- **Feedback:** assessment provides opportunities for individuals to monitor quality of performance and identify areas for improvement.<sup>4</sup>

For nursing, assessment of competence is crucially important to maintaining professional standards and identifying areas for professional development and educational need.<sup>5</sup> Additionally assessment of competence can promote a safe, ethical and effective workforce, portable recognition of expertise across industry and greater consumer confidence in the practice of professionals while fostering the professional growth of individuals.<sup>6, 7</sup>

## A definition of competence

The Australian Nursing and Midwifery Council<sup>8</sup>, define competence as *"the combination of skills, knowledge, attitudes, values and abilities that underpin effective and/or superior performance in a profession/occupational area and context of practice"*. Within this holistic view of competence, clinical tasks are understood as skill elements within a more complex unit of competence. Broadly, competence encompasses the nurse's ability to assess, plan, implement, evaluate and communicate care.<sup>9</sup>

## Methods of assessment

There are many choices when developing assessment activities. The choice of method should be determined by the purpose of the assessment and should be designed to reveal underpinning attributes of achievement, these may include cognitive, psychomotor and affective skills.<sup>4</sup> Refer to the table below for examples of common assessment methods used to reveal various attributes:

Cognitive skills	Psychomotor skills	Affective skills
<ul style="list-style-type: none"> <li>• exams</li> <li>• essays</li> <li>• reports</li> </ul>	<ul style="list-style-type: none"> <li>• direct observation</li> <li>• submission of a product demonstrating practical skills</li> </ul>	<ul style="list-style-type: none"> <li>• direct observation</li> <li>• journal entries</li> </ul>

Professional performance encompasses values, attitudes, reasoning and judgment, in addition to the more readily observable and measurable dimensions of cognitive and psychomotor skills. **No single assessment method alone can therefore evaluate professional achievement. It is usually necessary to use a set of assessments, each targeting different aspects of performance.**<sup>4,9</sup>

Similarly, competence assessment in nursing cannot solely be based on either demonstration of theoretical content knowledge or technical skills but should also involve some inference about a candidate's attitudes and practice. Therefore it is generally accepted that assessment of competence should involve more than one performance based assessment method. The common methods of performance based assessment include:

- continuing education
- portfolios
- objective structured clinical examinations (OSCEs)
- peer review (assessment)
- direct observation
- self-assessment
- interview, and
- measurement of patient outcomes.

However, empirical evidence regarding the effectiveness of these various methods, and their validity and reliability in measuring competence is lacking.<sup>5</sup> There is no consensus within the literature as to the best method of assessment for each type of competency or context. There is however, some agreement on the following points concerning competency assessment:

- The priorities for assessing competence should take into consideration those units of competency that:
- are common and important across the context of practice
- are observable and measurable
- demonstrate variability of performance levels
- reflect stakeholder views, and
- have high impact.<sup>10</sup>

Competency assessment, while needing to reflect the specific clinical, cultural and social context of an individual's health needs, must also reflect established standards of care in meeting those needs and be responsive to changes in practice. Competency assessment processes should be consistent with standards defined by regulatory and professional bodies, best available evidence, and Australian Government health priorities. Competence methods should be valid, reliable and feasible.<sup>11, 12</sup>

## Issues in assessing performance

### Reliability and validity in assessment

Validity and reliability of assessment methods are considered the two most important characteristics of a well-designed assessment procedure. Validity refers to the degree to which a method assesses what it claims or intends to assess. The different types of validity include:

Validity	Definition
content	the assessment method matches the content of the work
criterion	relates to whether the assessment method is explicit in terms of procedures correlating with particular behaviours
construct	relates to whether scores reflect the items being tested. <sup>5, 13</sup>

Performance based assessments are typically viewed as providing more valid data than traditional examinations because they focus more directly on the tasks or skills of practice.<sup>2</sup>

Reliability refers to the extent to which an assessment method or instrument measures consistently the performance of the student. Assessments are usually expected to produce comparable outcomes, with consistent standards over time and between different learners and examiners. However, the following factors impede both the validity and reliability of assessment practices in workplace settings:

- inconsistent nature of people
- reliance on assessors to make judgements without bias
- changing contexts/conditions
- evidence of achievement arising spontaneously or incidentally.<sup>2, 13</sup>

Explicit performance criteria enhance both the validity and reliability of the assessment process. Clear, usable assessment criteria contribute to the openness and accountability of the whole process. The context, tasks and behaviours desired are specified so that assessment can be repeated and used for different individuals. Explicit criteria also counter criticisms of subjectivity.<sup>13</sup>

### Judgements in assessment

The decision to deem an individual 'competent' is based on inferences an assessor has drawn from a series of observed tasks.<sup>7</sup> *"Inferences refer to the conclusions drawn on the synthesis and interpretation of evidence and subsequently, require judgement on the basis of the evidence gathered and prior beliefs or expectations"*.<sup>14</sup> As it is not feasible to observe an individual's performance in all contexts, assessors use inferences to generalize and extrapolate future performance from the evidence collected within limited contextual opportunities. As such, there may be some degree of uncertainty around the resultant judgement.<sup>7</sup>

Whilst preset criteria may be defined within assessment tools to assist with the formulation of judgement, there is no guarantee that the criteria will be interpreted by different assessors in the same way.<sup>11, 15</sup>

An assessor's judgment can be influenced by a number of extraneous factors including the candidates:

- vocational achievements
- employment history
- expectations
- level of motivation and
- attitude.

Other factors affecting judgement include:

- existing relationships with candidates
- choice of method used to measure competence
- perceived importance of the form of evidence collected and
- experience of the assessor.<sup>11, 16</sup>

Those involved in the assessment of competency must have adequate training in the field of competency assessment and methods to ensure valid and reliable competency assessment processes.

## Norm and criterion referenced assessments

A frame of reference is required to interpret assessment evidence.<sup>17</sup> There are two distinct approaches to interpreting assessment information. Norm referenced assessment compares the student to the expected performance against that of peers within a cohort with similar training and experience.<sup>17,18</sup> Criterion referenced assessment focuses on the candidate's performance of the task against an set of criteria related to the knowledge, skills, or attributes that the candidate is developing.<sup>11, 14, 18</sup>

The following table provides a summary of the key features of criterion and norm referenced assessment approaches:<sup>2, 13</sup>

Criterion-referenced assessments	Norm-referenced assessment
<ul style="list-style-type: none"> <li>• specify criteria or standards (eg. essential elements of a task),</li> <li>• judgements about performance can be made against set, pre-specified criteria and standards,</li> <li>• focus is on mastery with the achievement of a criterion representing a minimum, optimum or essential standard,</li> <li>• recorded via rating scale or set of scoring rubrics, and</li> <li>• examples include clinical skill competency tools.</li> </ul>	<ul style="list-style-type: none"> <li>• do not utilise criteria,</li> <li>• assessment is competitive,</li> <li>• involves making judgements about an individual's achievement by ranking and comparing their performance with others on the same assessment, and</li> <li>• examples include examinations.</li> </ul>

## Assessment scoring and reporting approaches

There are two broad approaches to recording performance based assessment – analytic and holistic.<sup>19</sup>

Holistic scoring and recording reflects an overall impression of performance and results in a single score or grade. Holistic scoring tools can be developed and applied more rapidly.<sup>20,21</sup> An example of holistic scoring includes a scale such as:

- Excellent
- Good
- Fair
- Unsatisfactory.

By contrast, analytical scoring and reporting methods view performance as being made up of many components and provide separate scores for each component and more detailed information that may be useful when providing feedback. The analytical approach minimises bias, allowing for all activities or answers to be remembered and documented as they occurred.<sup>19,20,21,22</sup> Analytical scoring tools are more onerous to develop and apply as they comprise:

- criteria that identify the elements of a task or standards of performance
- a set of rubrics, consisting of descriptions or indicators of performance for each criteria that distinguish between levels of performance.

### Example of criteria and rubrics:

Criteria	Rubrics/Indicators	Comments
Flushes the device between drugs and after administration	<ul style="list-style-type: none"> <li>• Does not flush device</li> <li>• Follows protocol/ orders safely</li> <li>• Ensures compatibility and appraises suitability of treatment order with respect to patient's condition</li> </ul>	

- the rubrics may then be mapped to an overall rating scale.<sup>19,20,21,22</sup>

### Example of scale:

Performance Level	Interpretation	Range
Established competence as specialist cancer nurse	Complies with legislation relevant to cancer care. Practices in a way that acknowledges the impact of cancer on the culture, dignity, values, beliefs of people affected by cancer. Explains and justifies practice in accordance with hospital policy. Evaluates & appraises treatment orders. Is cognizant of patient's specific condition and needs. Performs comprehensive and ongoing assessments. Is able to manage changing scenarios. Documents and reports across the patient care continuum. Is cognizant of organisation-wide/ global cancer control issues. Confident and independent in procedures. Efficient and dexterous technique demonstrated.	22 – 33
Beginning competence as specialist cancer nurse	Identifies and follows standard policy requirements with some specificity to chemotherapeutic agent or patient. Identifies and resolves unsafe situations. Nursing considerations limited to specific context but lack organisational/ global perspectives. Requires occasional prompts to carry out routine processes and practice. Evolving technique demonstrated.	10 – 21
NOT YET COMPETENT	Knowledge of hospital policy and rationales for practice limited to recall. Limited focus on task, patient or context. Requires continuous directions or prompts to carry out routine procedures. Accuracy and technique not dependable.	0 – 9

To be considered valid and reliable, analytic scoring tools should undergo testing. Content validity can be established by expert panels. Panellists possessing expertise in academic or clinical education, outcome assessment, evaluation and psychometric testing or measurement, can be asked to comment on the feasibility, clarity of the tools and relevance or number of performance criteria.<sup>23, 24, 25, 26</sup>

Additional strategies for validity testing include placing tools on professional websites or posting tools to volunteer mailing lists for review.<sup>27</sup> Video clips depicting skill performance of set criteria at varying levels of practice can be viewed by experienced raters to determine the reliability and validity of the assessment tool.<sup>23, 27, 28, 29</sup> Tools can even be compared to multiple choice exams, years of experience and or qualifications.<sup>27, 30</sup>

## Contemporary trends in learning and assessment

An important theoretical concept impacting on assessment practices in past 25 years is the concept of 'approach to learning'. This concept refers to the way in which learners go about their learning.<sup>31</sup> In general, learners can be said to adopt either a surface or deep approach to learning.<sup>31, 32</sup>

A surface approach to learning generally focuses on the demands of the assessment tasks, completing only the necessary elements with emphasis placed on memorising information. There is little emphasis on connections between what is already known, the learning experience and the real world. By contrast, a deep approach to learning is concerned with producing evidence, understanding the learning experience, and relating theoretical ideas to everyday reality. The approach to learning is dependent on numerous factors including the assessment method.<sup>33</sup>

Traditional forms of assessment such as examinations may not promote a deep approach to learning but may be useful in ensuring that factual knowledge underpinning more complex decisions is understood by the student. Problem Based Learning (PBL) and Portfolios, along with other performance based assessment approaches are gaining favour, as they are said to encourage deep learning.<sup>34</sup> Deeper learning is also thought to be more likely to be achieved through experiential learning, as learning is often most effective when based on experience.<sup>35</sup> Where experiential learning cannot be supported, case studies have been considered as substitute for real life experience.

In addition, consistent with a greater emphasis on student centred approaches to learning, greater attention is now given to ensuring transparency, authenticity and flexibility in assessment practices. Students wish to know how their grades are determined and expect useful feedback. Studies suggest that students value assessment tasks that they believe mirror the skills needed in the workplace, and that they want to negotiate the nature, weighting and timing of assessment tasks.<sup>36</sup> Performance based assessment methods generally espouse to these attributes.

## EdCaN assessment resources

The theoretical concepts discussed have influenced the design and choice of learning and assessment resources. Importantly, trends towards experiential and deep learning have been embraced by the EdCaN project. Learning activities used throughout the case-based learning resources are integrated and emphasise developing higher order critical thinking skills and well rounded professional performance. Refer to the Professional Development Portfolio user guide and templates for an example of a learning tool designed to capture deep learning and evidence of professional performance.

Professional development portfolio for:

- enrolled nurses
- registered nurses
- specialist cancer nurses
- nurse practitioners

The National Professional Development Framework for Cancer Nursing<sup>1</sup> defines the core domains of practice, associated competency standards expected of nurses at various levels of practice and thus provides a structure for the development of competency assessment tools (CATs).

Competency assessment tools for:

- antineoplastic agent administration
- care of febrile neutropenia
- therapeutic communication
- management of central venous access devices (CVAD's)

EdCaN have developed a series of 'Fact Sheets' that explore the reliability and validity issues of a variety of assessment methods. The fact sheets are intended to guide educator's in the use of these assessment methods as they apply the EdCaN learning resources.

Assessment fact sheets for:

- written examinations
- constructed response assessments (essays)
- portfolios
- performance assessment using competency assessment tools.

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