

Rapid Synthesis

Using Multi-source Feedback and Other
Practice Assessments for Quality
Assurance in Nursing

25 February 2019



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**Rapid Synthesis:
Using Multi-source Feedback and Other Practice Assessments for Quality Assurance in Nursing
60-day response**

25 February 2019

McMaster Health Forum

The McMaster Health Forum's goal is to generate action on the pressing health-system issues of our time, based on the best available research evidence and systematically elicited citizen values and stakeholder insights. We aim to strengthen health systems – locally, nationally, and internationally – and get the right programs, services and drugs to the people who need them.

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Timeline

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. This synthesis was prepared over a 60-business-day timeframe. An overview of what can be provided and what cannot be provided in each of the different timelines is provided on McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response).

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Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the rapid synthesis. The funder played no role in the identification, selection, assessment, synthesis or presentation of the research evidence profiled in the rapid synthesis.

Merit review

The rapid synthesis was reviewed by a small number of policymakers, stakeholders and researchers in order to ensure its scientific rigour and system relevance.

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KEY MESSAGES

Questions

- Is multi-source feedback assessment effective for quality assurance among health professionals, and what are the implementation considerations for its use with a nursing workforce?
- What practice assessment tools are optimal for use in quality-assurance assessments (including ensuring continued competence) with nurses?

Why the issue is important

- The *Regulated Health Professions Act, 1991* requires every regulatory college in Ontario to establish a quality-assurance program to ensure the ongoing quality of each profession's practice.
- To comply with this requirement, colleges have implemented a wide range of assessment tools, but are increasingly searching for approaches to assess practising professionals and to guide their development.
- Multi-source feedback systems (MSF) are an example of such an assessment that aim to look at a professional's practice from a variety of perspectives including those of supervisors, peers, additional staff and patients, as well as a self-assessment component.
- This method of assessment has been widely adopted by physicians in Canada and the College of Nurses of Ontario is now interested in the effectiveness of this assessment method in providing accurate feedback and encouraging improvements in practice, as well as in learning from the experiences of others who have implemented multi-source feedback.

What we found

- We identified three overviews of reviews, 24 systematic reviews, and five primary studies relating to the two questions above and complement the findings from the research evidence with 10 key informant interviews.
- Relatively few findings emerged from the literature that explicitly described the effectiveness of multi-source feedback at improving professionals' clinical practice, however it was found that effectiveness tended to vary based on the competencies being assessed.
- Similarly, few studies were found that examined the use of multi-source feedback among nurses, however findings from its use for physicians indicate it is a valid, reliable and feasible tool to assess clinical practice.
- Both nurses and physicians reported finding multi-source feedback useful to improve clinical practice, however, they reported the following barriers: short time constraints in providing feedback; poor assessor engagement and understanding of the assessment; a lack of formal training on workplace assessments; and difficulty linking feedback to a change in practice.
- Findings from key informant interviews focused primarily on the process of developing the assessment, a description of the process, and facilitators and barriers to the implementation and use of the assessment.
- Most key informants described working with a third-party consultant to develop the assessment, but described having to make decisions about the purpose of the assessment, the scale that should be used for the survey, and the competencies they were interested in assessing.
- With respect to other types of practice assessments, findings from the literature supported the use of audit and feedback, educational meetings and education outreach when mediated by a patient, and select multifaceted interventions in assessing nurses and improving practice.
- Simulations were also found to provide accurate assessments of provider behaviour and time to complete a task, but were not a good proxy for patient outcomes.
- Key informants noted similar barriers and facilitators for multi-source feedback as for other types of practice assessments, describing the fear of assessment and worry about disciplinary proceedings following assessments as being key barriers for implementation among professionals, while clear communication about the purpose and use of the assessment was described as a facilitator.

QUESTIONS

- 1) Is multi-source feedback assessment effective for quality assurance among health professionals, and what are the implementation considerations for its use with a nursing workforce?
- 2) What other practice assessment tools are optimal for use in quality-assurance assessments (including ensuring continued competence) with nurses?

WHY THE ISSUE IS IMPORTANT

Under the *Regulated Health Professions Act, 1991* every regulatory college in Ontario is expected to establish a quality-assurance program to ensure the ongoing quality of each profession's practice.(1) At a minimum these quality-assurance programs must include:

- a continuing education or professional development component designed:
 - to promote continuing competence among members,
 - address changes in practice environments, and
 - incorporate standards of practice, advances in technology, changes made to entry to practice competencies and other relevant issues;
- self, peer and practice assessments; and
- a mechanism for the college to monitor members' participation in, and compliance with, the quality-assurance program.(1)

This quality-improvement plan must include: a continuing education component; self, peer and practice assessments; and a mechanism for the college to monitor members' participation in, and compliance with the quality-assurance program.

To comply with this requirement, regulatory colleges, who are mandated with the task ensuring compliance to the *Regulated Health Professions Act*, have implemented a wide range of assessment tools. However, as concerns over quality of care have broadened from a professional's ability to perform clinical skills into also considering their softer skills (e.g., professionalism, communication and interprofessional relationships), professional regulatory bodies have been faced with the challenge of finding new approaches to assess practising professionals and to guide their development.

One assessment method that has gained increased popularity, particularly among physicians, is the use of multi-source feedback systems (MSF) (or 360-degree evaluations). The goal of this assessment is to look at a professional's practice from a variety of perspectives including those of supervisors, peers, additional staff and patients, as well as a self-assessment component. A questionnaire is designed for raters to evaluate a given individual's competencies across a wide range of observable behaviours, potentially including: written and oral communication skills; team building or team working abilities; interpersonal relationships; problem-solving abilities; and many more. The professional being assessed typically receives aggregated feedback with a mean rating for each area (and in some cases a comparison to other professionals).

Box 1: Background to the rapid synthesis

This rapid synthesis addresses a set of questions submitted to the McMaster Health Forum's Rapid Response program and draws on the findings from research evidence, website (and document) reviews, and key-informant interviews. The rapid synthesis does not contain recommendations, which would have required the authors to make judgments based on their personal values and preferences.

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. An overview of what can be provided and what cannot be provided in each of these timelines is provided on the McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response).

This rapid synthesis was prepared over a 60-business-day timeframe and involved four steps:

- 1) submission of a question from a policymaker or stakeholder (in this case, the College of Nurses of Ontario);
- 2) summarizing what's known based on the available research evidence and key-informant interviews;
- 3) drafting the rapid synthesis in such a way as to present concisely and in accessible language the research evidence; and
- 4) finalizing the rapid synthesis based on the input of merit reviewers.

As mentioned above, this method of assessment has been widely adopted by physicians in Canada, including the Medical Council of Canada, College of Physicians and Surgeons of Alberta, and College of Physicians and Surgeons of Ontario. It is also increasingly being used by other professions including the British Columbia Council of Nursing Professionals and the College of Registered Nurses of Manitoba. The College of Nurses of Ontario is now interested in the effectiveness of this assessment method in providing accurate feedback and encouraging improvements in practice as well as in learning from the experiences of others who have implemented MSF. This rapid synthesis was requested to inform the work of the College of Nurses of Ontario towards implementing a new model of quality assurance for nurses in the province.

WHAT WE FOUND

To address the two questions above, we identified three overviews of reviews, 24 systematic reviews, and five primary studies from our searches that addressed the two questions (see Box 2 for details about our search strategy). Findings from the literature have been summarized in the text and tables below. For each systematic review we have included information on the recency of the literature as well as the methodological quality using the AMSTAR quality appraisal tool (see Box 2 for additional details). We complemented the findings from the research evidence with 10 key informant interviews, including individuals in charge of quality assurance at a range of professional colleges across the country and independent consultants who have worked on the development of multi-source feedback assessments in Canada. These individuals shared their experiences in developing, adapting and implementing multi-source feedback assessments and other quality-assurance assessments. We review key findings from the evidence and key informant interventions in the sections that follow. More details about each systematic review and single study are provided in Appendix 1 and 2, respectively.

Question 1: Is multi-source feedback assessment effective for quality assurance among health professionals, and what are the implementation considerations for its use with a nursing workforce?

We identified six systematic reviews and four primary studies that related to the first question. The six systematic reviews all examined the use of multi-source feedback among physicians, while the four primary studies examined its use for nurses and those training to become nurses. In addition, interviews with 10 key informants complemented

Box 2: Identification, selection and synthesis of research evidence

We identified research evidence (systematic reviews and primary studies) by searching (in December 2018) Health Systems Evidence (www.healthsystemsevidence.org) and PubMed. In Health Systems Evidence we searched for: 1) (MSF OR multi-source feedback OR multisource feedback) and nurs* (limited to overviews of systematic reviews, reviews of effects and reviews addressing other types of questions); 2) practice assessment AND nurs* AND quality (filtered by type of provider (nurses) and limited to overviews of systematic reviews, reviews of effects and reviews addressing other types of questions); and 3) nurs* AND "quality assurance" (filtered by type of provider (nurses) and limited to overviews of systematic reviews, reviews of effects and reviews addressing other types of questions). In PubMed, we searched for: 1) MSF OR multi-source feedback OR multi-source feedback) and nurs*; 2) practice assessment AND nurs* AND quality (limited to systematic reviews). Lastly, we also reviewed search results provided to us by the requestor of the rapid synthesis.

The results from the searches were assessed by one reviewer for inclusion. A document was included if it fit within the scope of the questions posed for the rapid synthesis. Specifically, we included documents that related to multi-source feedback assessments, other quality-assurance practices or mechanisms to improve health professionals' clinical practice.

For each systematic review we included in the synthesis, we documented the focus of the review, key findings, last year the literature was searched (as an indicator of how recently it was conducted), methodological quality using the AMSTAR quality appraisal tool and the proportion of the included studies that were conducted in Canada. AMSTAR ratings provide an assessment of the overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. Additional details on AMSTAR ratings and the score for each included document can be found in the appendices. For primary research (if included), we documented the focus of the study, methods used, a description of the sample, the jurisdiction(s) studied, key features of the intervention, and key findings. We then used this extracted information to develop a synthesis of the key findings from the included reviews and primary studies.

findings from the research evidence on the effectiveness of and implementation considerations for multi-source feedback. These findings have been included in Table 2 and the paragraphs that precede it.

Findings from the literature

Relatively few findings emerged from the literature that explicitly described the effectiveness of multi-source feedback at improving professionals' clinical practice. For nurses, two primary studies reported changes to their skills as a result of feedback, while another reported that the assessment was feasible and had a relatively high voluntary response rate at 60%. Somewhat more evidence was provided in systematic reviews on the use of multi-source feedback assessments for physicians, with three systematic reviews (two recent medium-quality reviews and one older low-quality review) finding it was a valid, reliable and feasible tool to assess clinical practice for physicians, including generalists, specialists and surgeons. However, one systematic review reported finding limited evidence on the effectiveness of multi-source feedback on changes to clinical practice, but noted that the effectiveness may differ based on specialty. Two recent medium-quality reviews and one older low-quality review found that a minimum of six to eight professional assessors (either supervisors, peers or colleagues) as well as 25 patient assessors were sufficient to meet an adequate generalizability coefficient ($E_p^2 \geq 0.70$) for multi-source feedback assessments pertaining to physicians from a range specialties (e.g., family medicine, obstetrics, anesthesiology, pediatrics, internal medicine, surgery, and psychiatry).

The effectiveness of the assessment may vary based on the components included. For example, one recent medium-quality systematic review found that multi-source feedback was most effective for physicians when it:

- involved raters that were knowledgeable and familiar with the physician's practice;
- provided boxes for written feedback; and
- included a reflexive component once feedback was provided.

Another recent medium-quality review identified the following common areas of assessment:

- professionalism;
- clinical competence;
- communication;
- management skills; and
- interpersonal relationships.

Both professions (nurses and physicians) reported finding multi-source feedback useful to improve clinical practice. However, one recent medium-quality review and one primary study reported negative perceptions regarding the short time constraints in providing feedback, poor assessor engagement and understanding of the assessment, a lack of formal training on workplace assessments, and difficulty linking feedback to a change in practice. Additional key findings from the literature we identified are summarized in Table 1 below.

Table 1. Key findings from systematic reviews and primary studies on multi-source feedback

Health professional	Key findings
Nurses	<p><i>Key findings related to effectiveness</i></p> <ul style="list-style-type: none"> • A recently published study of multi-source feedback assessments for nurse practitioners, which employed the CANMeds competencies, found that more than half of those participating made changes to their practice as a result of feedback and reported coaching sessions to be especially valuable for professional development. <ul style="list-style-type: none"> ○ However, nurse practitioners working independently reported challenges engaging a sufficient number of raters.(2) • One recently published study documented the development of a new multi-source feedback tool for nurses which included assessment along the six domains of the United Kingdom Knowledge and Skills Framework, including: communication, personal and people development; health, safety and security; service improvement; quality; and equality and diversity. <ul style="list-style-type: none"> ○ The tool was found to be reasonably feasible with a 60% voluntary response rate, with the main barrier being limited time to fill in the assessment.(3) • One recent primary study evaluating the implementation of a 360-degree evaluation (a type of multi-source feedback) for advanced practice nursing students found that students improved in their therapeutic communication skills. <ul style="list-style-type: none"> ○ Further, the primary study found that the self-reflection gave insight into students’ learning trajectory and allowed for adjustments to the curriculum in areas where students historically underperformed.(4) <p><i>Key findings related to implementation</i></p> <ul style="list-style-type: none"> • One recently published study reported two challenges for implementing multi-source feedback, including difficulty in engaging enough raters and not having enough time to collect and collate the feedback.(5) <p><i>Key findings related to nurses’ perceptions of MSF</i></p> <ul style="list-style-type: none"> • One recent primary study found nurses reported multi-source feedback assessments as being useful to improving performance, perceiving the feedback as being more accurate than when provided by a single source, and found that the self-assessment portion encouraged self-reflection. <ul style="list-style-type: none"> ○ The study also revealed a number of preferences, including that nurses preferred to receive feedback from a self-selected mentor rather than a preceptor, and preferred regular, informal and real-time feedback about their performance in addition to any formal assessments.(5)
Physicians	<p><i>Key findings on effectiveness</i></p> <ul style="list-style-type: none"> • One older medium-quality review found limited evidence that multi-source feedback could improve performance, but found that the effects varied by specialty with family physicians showing greater practice improvements following multi-source feedback compared to surgeons. <ul style="list-style-type: none"> ○ Further, the review found that studies where multi-source feedback also included coaching sessions that helped to interpret feedback, identification of weaknesses and the creation of plans to improve performance, were more effective at improving performance than studies including only the multi-source feedback assessment.(6) • However, a recent medium-quality review found evidence that multi-source feedback assessments were effective in improving trainee performance among general physicians.(7) • Two recent medium-quality reviews found that multi-source feedback is a valid, reliable and feasible method of evaluating physicians’ performance.(8; 9) <ul style="list-style-type: none"> ○ One of the reviews identified that common areas of assessment included professionalism, clinical competence, communication, management skills, and interpersonal relationships, and assessments were completed by a range of stakeholders including other physicians, non-physician co-workers and patients, and by self-assessment. ○ No evidence was included in the reviews about the effects of multi-source feedback on changes to physicians’ practice.(9) • Two recent medium-quality reviews and one older low-quality review found that the threshold for an adequate generalizability coefficient ($E_p^2 \geq 0.70$) was met with the participation of six to eight professional assessors (e.g., supervisors, peers, colleagues) and 25 patient assessors.(9; 10) • Similarly, one older low-quality review found that multi-source feedback is a valid, reliable and feasible method of evaluating surgical residents and surgeons, but cannot be used to assess surgical knowledge and skills.

	<ul style="list-style-type: none"> ○ The review found participation to ensure a generalizable result was as few as 23 patients and eight non-patient raters (other surgeons, non-surgical colleagues, or supervisors).(10) ● One recent medium-quality review found that multi-source feedback assessments are most effective for physicians when they involve raters who are knowledgeable and familiar with the physicians’ practice, provided boxes for written feedback from raters, and included a reflexive component after feedback had been provided. <ul style="list-style-type: none"> ○ Further, the review found that physicians were more likely to initiate behaviour change when similar feedback was provided by different actors (e.g., from peers, from non-physician health professionals, and from patients).(11) <p><i>Key findings on implementation</i></p> <ul style="list-style-type: none"> ● None identified <p><i>Key findings on physicians’ perceptions of multi-source feedback</i></p> <ul style="list-style-type: none"> ● A recent medium-quality review found general physicians reported positive and negative sentiments towards workplace-based multi-source feedback. <ul style="list-style-type: none"> ○ On the positive side, general physicians found multi-source feedback was useful, however, they also reported negative perceptions given time constraints, poor assessor engagement and understanding of the assessment, and a lack of formal training in the education basis of workplace-based assessments.(7)
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Findings from key informants on multi-source feedback

We spoke with 10 key informants including individuals in charge of quality assurance at a range of professional colleges across the country, and independent consultants who have worked on the development of multi-source feedback assessments in Canada. Key informants focused primarily on three areas with respect to multi-source feedback: the process of developing the assessment; a description of the process; and facilitators and barriers to the implementation and use of the assessment.

Most key informants described working with a third-party consultant to develop the assessment. However, they described decisions that had to be made at the outset, such as needing to determine whether the assessment would be used for quality assurance or quality-improvement purposes, as this will in part determine the formulation and the target of the assessment. In particular, this distinction was made between those assessments that were required to meet legislative requirements (e.g., in the case of the *RHPA, 1991*) as opposed to those that were being undertaken independently by colleges as ad hoc quality-improvement efforts. One key informant also described the scale being used as an important consideration in the development of the assessment. In particular, they noted that in their experience, patients tended to provide very positive feedback and that using a five-point likert scale (where neutral was the middle value) lost a significant amount of nuance in the feedback provided. Key informants also described having to determine the competencies that would make up the survey portion of the assessment. Key informants from physician and nursing colleges described using existing competency frameworks (e.g., CanMeds and the entry-to-practice competencies from the Canadian Nurses Association) to inform their decision, but focused on using observable behaviours to which peers, colleagues and patients would be able to report on. Most commonly these competencies included variations of communication, professionalism and coordination with others.

Table 2 below examines the features and processes of existing multi-source feedback assessments, with the most frequently used assessment being the Medical Council of Canada 360 evaluation, which was first developed at the University of Calgary. In addition to the four assessments provided below, the Alberta Dental College and Association developed and implemented a similar tool, but it is voluntary and relies exclusively on feedback from 25 to 30 patients, and provides participating dental practices with a report summarizing the results from their patients, as well as providing a comparison to other dentists.

Finally, key informants described barriers and facilitators to both implementing the assessments as well as ongoing barriers and facilitators to its use in practice. Barriers to implementing the assessment included, in some cases, negative reaction by professionals to the notion of being assessed by colleagues and peers, but one key informant noted that clear communication was a facilitator to overcoming this barrier. In particular,

the key informant described the need for communication from the beginning of the process with members of the professional college, emphasizing the importance of communicating the purpose of the assessment and ensuring professionals know it is not being used as part of a disciplinary procedure. Another key informant described the cost of the assessment as being a consideration for implementation and for determining the number of professionals who would be assessed each year. Barriers to its use in practice include:

- the assessment not being feasible for all individuals working in a given profession (e.g., those who do not regularly interact with patients, those whose patients are unable to submit feedback; and those working in isolated practice);
- sufficient time for peers and colleagues to fill out their feedback surveys;
- difficulty finding enough peers, colleagues and patients able to thoughtfully provide feedback on an individual's practice; and
- confusion about the process for the assessment by those being assessed.

To overcome some of these barriers, key informants again noted the importance of clear communication with professionals. In addition, one key informant described being overwhelmed with questions in the final week before assessments were due to be submitted and, as a result, the college dedicated one staff member to answering questions during the 30-day period in which the assessment was running. In addition, they changed their approach to regularly reach out to professionals participating in the assessment process rather than waiting for them to contact the college. This proactive approach helped to mitigate last-minute questions and provided the college with insights into where there were challenges with the process. Another key informant thought that allowing professionals to choose their own participants was a key facilitator. While this approach has been criticized for biasing the assessments, it reduced some of the professional concerns about whether they felt their peers and colleagues were well suited to provide feedback. Finally, three key informants described the importance of debriefing about the report, including discussing the professional's strengths and weaknesses.

Table 2. Examples of multi-source feedback assessments in use in Canada

Professional college	For whom	Reviewers	Content	Process
BC College of Nursing Professionals	Random assignment of nurses following their practice renewal registration	10 colleagues that are familiar enough with the individual's practice to comment on observable behaviours as well as a self-assessment	<ul style="list-style-type: none"> • Self-reflection: 21 clinical and 19 non-clinical (focused on responsibility and accountability, professionalism, communication and collaboration) questions with open-text boxes for reflection after each question • Colleague review: 20 clinical and 18 non-clinical (focused on responsibility and accountability, professionalism, communication and collaboration) questions with open text boxes to comment on the behaviour 	<ul style="list-style-type: none"> • Once finished their registration renewal individuals are randomly chosen for multi-source feedback • Professional picks 10 colleagues who are given a 30-day period to submit an online assessment of clinical and non-clinical skills • Professional is provided with a confidential report that shows their own self-assessment and colleagues' feedback • Once read, they can begin creating an Action Plan and work with a nurse advisor to identify opportunities for improvement • One year later, the professional reviews their Action Plan and reflects on their progress – they are exempt from the MSF for another five years
College of Registered Nurses of Manitoba	Random assignment of 2% of nurses following their practice renewal (moving to a risk-based selection model)	6-10 colleagues and 8-18 clients (for clinical RNs and RN(NP)s only)	<ul style="list-style-type: none"> • Self-assessment: 31 (for clinical RNs and NPs) or 30 (for non-clinical) statements with ratings from 1 (below expectations) to 9 (above expectations) • Colleague review: respond to 32 statements with ratings from 1 (below expectations) to 9 (above expectations) • Client review: respond to 30 statements with ratings from 1 (below expectations) to 9 (above expectations) 	<ul style="list-style-type: none"> • Individual is selected for MSF following their practice renewal • Provided with a notification letter, colleague tracking sheet and public awareness pamphlets • Once the minimum requirements for each MSF are met the results are aggregated and presented by providing a score based on the responses submitted, an average score of all the nurses participating in multi-source feedback, and the difference between their score and the average • The results are then used by the individual to inform their self-development plan and by the college to review results against their norms and thresholds • If the nurse falls below the threshold (established by a standardized score and percentile rank) they will be referred to a competency-based interview to assess knowledge, skills and judgment

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<p>Colleges of Registered Nurses of Nova Scotia</p>	<p>Random selection of 20% of nurse practitioners (with participation required only once every five years)</p>	<p>10 nurse practitioners and physician colleagues and 10 other members of the health team or health providers</p>	<ul style="list-style-type: none"> • A survey of approximately 20 questions sent to participants and the individual (for self-assessment) on management of health (including assessment and diagnosis, therapeutics, consultation and referral), communication, and professional accountability and leadership • Surveys mix the type of questions asked, including multiple choice, likert scales, and open text questions 	<ul style="list-style-type: none"> • Individual is selected for MSF and is responsible for identifying 20 reviewers • Reviewers are each asked to submit answers to the surveys and individuals are asked to complete a self-assessment • Findings are aggregated and an individual report is generated based on feedback and presented to the nurse • Some individuals may be selected for a secondary review which consists of a site visit with a practice reviewer (who has a similar background to the nurse being evaluated) as well as an interview, formal chart-audit, chart-simulated recall interview and on-site practice assessment
<p>Medical Council of Canada*</p>	<p>Used by a range of colleges of physicians for practice assessment following application for licence renewal</p>	<p>8-12 physician colleagues, 8-12 non-physician co-workers, and 25-35 patients</p>	<ul style="list-style-type: none"> • Four assessments (self-assessment, patients, non-physician co-workers, and physician colleagues) 30 items based on the CanMEDS roles of collaborator, communicator and professional • Each item is accompanied by a five-point assessment scale (strongly disagree to strongly agree with a neutral point, as well as an unable to assess option) and free-text comments to provide additional details 	<ul style="list-style-type: none"> • Once selected, physicians are responsible for recruiting their own reviewers • Once the data is received by the college it will be aggregated so the physician receives reports for patients, non-physician co-workers and physician colleagues separately along with self-assessment • Physicians receive a report that provides graphical data for the three roles and items delineating how well the physician did, frequencies and average weighting for each of the items, self-assessment comparator graphs, and free-text comments • Physicians are then asked to meet with a facilitator/coach to have a feedback conversation about their MSF report and develop an action plan for the following six to 12 months

*Adaptations of the MCC 360 model are being used by College of Physicians and Surgeons of Alberta, British Columbia, Manitoba and Nova Scotia, as well as the Council of Academic Hospitals of Ontario and the Royal College of Physicians and Surgeons of Canada, all of whose MSF practices are conducted by Pivotal Research Inc.

Question 2: What other practice assessment tools are optimal for use in quality-assurance assessments (including ensuring continued competence) with nurses?

We identified seven categories of practice assessment tools from three overviews of systematic reviews, 18 reviews and two primary studies (one found in the primary study search for multi-source feedback assessments and another included upon request) that related to the second question:

- audit and feedback;
- competency assessments;
- educational meetings and outreach;
- external review;
- learning portfolios;
- observation;
- simulations; and
- multifaceted interventions.

We provide detailed findings about each of these tools in Table 3 with a high-level overview of key findings from the literature and insights from key informants provided below.

Generally, findings from the literature supported the use of audit and feedback, educational meetings, education outreach when mediated by a patient, direct observation, and select multifaceted interventions (including audit and feedback) in assessing nurses and improving practice. Simulations were also found to provide accurate assessments of provider behaviour and time to complete a task, but were not a good proxy for patient outcomes. Simulations were most effective when feedback was provided immediately after the simulations, in a comfortable environment and based on clear learning outcomes and an assessment framework.

While five reviews described a wide range of competency assessments, only one review examining the Nurse Competency Scale included information about the psychometric properties, consistency, or validity. However, another review examining nursing students found that these assessments were most effective when they involved a preceptor that is familiar with the student, feedback was provided within the assessment, and structured assessment tools were used throughout the assessment.

Though not mentioned in the literature included in the table below, the development of best practice guidelines and their dissemination through the best spotlight organization program run by the RNAO has been a critical support for nurses in the province to assess their existing practices, adopt new approaches, and have been integrated into continuous quality-improvement initiatives.

Finally, while not directly related to specific mechanisms, one recent low-quality review found significant variation in the ways in which nurses were being assessed and sought to identify the components that should be consistently included as part of assessments. The review temporally segmented these components into three sections:

- components performed before the final assessment - have a meeting with the assessors to orient nurses to the assessment and evaluation criteria and explain the environment in which the assessment will take place;
- components that make up the final assessment - have a proper assessment situation, ensure relevant criteria for assessment; and assign an accurate final grade; and
- components performed after the final assessment – present relevant documentation, provide accurate and actionable feedback, organize extra time for those who failed, and ensure support from mentors is available.

Table 3. Key findings from systematic reviews and primary studies on other tools for practice assessment

Type of tool	Key findings
Audit and feedback	<ul style="list-style-type: none"> • Two recent overviews, one older medium-quality and one older high-quality review found that audit and feedback improved the use of guidelines in general practice, increased behaviour change among health professionals, and improved clinical outcomes with healthcare teams, including nurse practitioners. <ul style="list-style-type: none"> ○ One review included in the overview reported that obtaining feedback from patients in the process was effective at improving practice.(12-14) • One older overview, one older medium-quality and one older high-quality review found that feedback on clinical performance was most effective when provided by a credible source, at high frequency, and in both written and verbal forms.(15; 16) <ul style="list-style-type: none"> ○ The older high-quality review further found that audit and feedback significantly improved health professionals’ practice compared to no intervention.(16) • One recent low-quality review found that effective feedback requires tapping into intrinsic motivation to improve, a close relationship between the health professional and the individual providing feedback, and collaboration in creating a common aim and an individually tailored plan for improvement (17)
Competency assessments	<ul style="list-style-type: none"> • One recent medium-quality review found that the Nurse Competence Scale was the most widely used instrument to assess nurses’ skills throughout their careers. <ul style="list-style-type: none"> ○ The review found strong psychometric properties of the assessment, including high internal consistency, content validity and structural validity. ○ The review also found a correlation between length of experience and competencies, as well as between perceptions of practice environment and competencies.(18) • One recent low-quality review identified a wide array of quantitative instruments for undertaking competency assessments, however no psychometric properties were reported and as a result the quality of the instruments could not be assessed or compared.(19) • One older low-quality review found that both the Six Dimensions Scale of Nurse Performance and Nurse Competency Scale have been frequently used for assessing nursing competencies in newly qualified nurses, and had high psychometric properties. <ul style="list-style-type: none"> ○ The same review also reported that Objective Structured Examinations were frequently used, but studies assessing this evaluation method had small samples and rarely reported on psychometric properties.(20) • One recent medium-quality review found that competency assessments were most effective when they involved a preceptor who is familiar with the student, feedback was provided within the assessment, and structured assessment tools were used throughout the assessment. <ul style="list-style-type: none"> ○ Twelve studies included in the review identified a range of tools currently in use for competency assessments, but did not include information about their validity, reliability or effectiveness.(21) • Similarly, one older medium-quality review identified a range of tools for competency assessments among nurses in the community, but did not report psychometric properties or measures of reliability or validity. <ul style="list-style-type: none"> ○ However, the review did find that the tool currently in place in Canada to assess competencies among community nurses received high reliability, validity and acceptability measures. ○ The tool included the following five dimensions: health promotion; building individual and community capacity; building relationships; facilitating access and equity; and demonstrating professional responsibility and accountability.(22)
Educational meetings and outreach	<ul style="list-style-type: none"> • One recent low-quality review examined educational interventions that involved nurses, such as in brainstorming ways to improve practice, information sessions with nursing teams, and bi-weekly reflection meetings to improve clinical practice. <ul style="list-style-type: none"> ○ However, the review did not include evidence on the effectiveness of these interventions on nurses’ clinical practice.(23)

	<ul style="list-style-type: none"> • One older high-quality review found single-component education interventions such as guidebooks and self-study packages improved nurses' use of evidence in their clinical practice.(24) • While one recent high-quality review found positive trends from the use of educational meetings, alone or in combination with other interventions such as reminders or audit and feedback, to support improvements in health professionals' clinical practice and in patient outcomes, the review's findings were non-significant. <ul style="list-style-type: none"> ○ The review did find that the most effective educational interventions were those that mixed interactive and didactic learning.(25) • One recent overview examining characteristics of successful behaviour change found that education materials, educational meetings, and educational outreach were all effective in increasing behaviour change and improving clinical practice. <ul style="list-style-type: none"> ○ The overview further found that patient-mediating educational interventions were effective in promoting behaviour change.(17) •
External review	<ul style="list-style-type: none"> • Mixed findings were found in an older high-quality review that included two studies, where one study found that they improved compliance to accreditation standards among health professionals but had no impact on hospital quality indicators, while the other found no significant effect on hospital-acquired infections.(26)
Learning portfolio	<ul style="list-style-type: none"> • One recent primary study found that despite having buy-in from professionals and demonstrating high content and face validity, the use of learning portfolios as a reliable indicator of competency is not consistently evident.(27)
Observation	<ul style="list-style-type: none"> • One recent primary study found that while direct observation has been widely implemented as a method for evaluating clinical competence, it is resource intensive and often subjective as raters were found to be inconsistent in their assessment, particularly for higher order competencies.(28) • One recent primary study found that there is a growing amount of literature to support the use of direct observation (in both standardized and naturalistic settings) in providing assurance for the maintenance of competencies. <ul style="list-style-type: none"> ○ In particular, the study identified that a strong emphasis on training of reviewers and inspectors, standardization of expectations, and the use of assessment forms and rubrics adds to the reliability and validity of the assessment.(27)
Simulations	<ul style="list-style-type: none"> • One recent high-quality review found that simulation assessments were good surrogates for provider behaviours, moderate surrogates for time behaviours, but relatively weak for predicting patient outcomes, however the review did not include an evaluation of the effectiveness of simulations on changing clinical practice. <ul style="list-style-type: none"> ○ The review found the three most commonly used simulation instruments were: objective structured assessment of technical skills; fundamentals of laparoscopic surgery instrument; and the goal-oriented assessment of life skills.(29) • One older low-quality review found that debriefing after a simulation was most effective when done immediately following the simulation. <ul style="list-style-type: none"> ○ The review also found that debriefing was most effective when conducted in a comfortable environment and based on clear learning outcomes and a structured framework.(30)
Multifaceted interventions	<ul style="list-style-type: none"> • Two recent overviews of systematic reviews found that multifaceted interventions that included audit and feedback and reminders, among other interventions, improved clinical practice.(12; 13) • One recent medium-quality systematic review found multifaceted interventions were effective when a change agent was brought in to support clinical practice changes. <ul style="list-style-type: none"> ○ The review did not assess the effectiveness of individual components.(31) • One older medium-quality review found that educational programs that included audit and feedback had similar results to audit and feedback alone, including improvements in both practice behaviour and clinical outcomes.(14) • One older overview and one older high-quality review found no significant difference between the effects of multifaceted interventions and single component interventions on changing health professionals' clinical practice.(16; 32)

	<ul style="list-style-type: none"> • One primary study of continuous quality improvement initiatives found that taking a shared governance perspective that includes knowledge based decisions, open communication and explicit value with point-of-care staff supported the development of 120 quality improvement and patient safety initiatives, and ultimately the spread and scale up of 14 of these initiatives from a single Ontario hospital.(33)
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Findings from key informants on practice assessments

In addition to discussions on multi-source feedback, key informants spoke about either alternative assessments that were in place in lieu of multi-source feedback or follow-up assessments should the professional not meet the established thresholds (in one example it was those in the 10th percentile). Other assessments identified as having been used include a competence assessment, competence interview and observation. One example of the competence assessment is the continuing competence program that has been implemented for the College and Association of Registered Nurses of Alberta. This program includes three parts:

- 1) complete a self-reflection on five practice standard indicators (i.e., responsibility and accountability; knowledge-based practice; ethical practice; service to the public; and self-regulation) and develop learning objectives which require:
 - registered nurses to develop one learning objective based on one of these five practice standards, and
 - nurse practitioners to develop two practice standards or choose a goal related to the entry-level competencies for nurse practitioners in Canada;
- 2) create a plan to advance the objective(s) that identifies relevant learning activities, then at any point during the practice year, registered nurses and nurse practitioners must report on their planned learning activities and evaluate the effect the activities had on their practice; and
- 3) collect feedback about their practice based on their learning objectives from any of:
 - manager or supervisor;
 - registered nurse colleague;
 - nurse practitioner colleague;
 - another health professional;
 - a non-health colleague; or
 - from a client/client's family.

A similar process has been instituted in Saskatchewan.

Competency interviews consisted of a supervisor or trained assessor asking scenario-related questions to assess how a professional would act in a given situation. These also included a selection of case reviews where the assessors would review a random selection of the professional's interactions to determine where improvements in practice could be made. The final practice assessment described was direct observation of health professionals which included both observing them in practice and in their interactions with patients, as well as taking into consideration the environment in which they work, given it may have implications on their practice.

Similar barriers and facilitators were described for these additional practice assessments, with key informants noting there tended to be a degree of fear related to quality-assurance assessments among professionals. Key informants again described the need to continuously communicate with the professionals and to provide re-assurance that it was not a disciplinary activity. However, they also noted the importance of choosing suitable reviewers who closely matched the health professional's practice to mitigate criticisms that the assessment did not consider the specifics of the professional's practice. Key informants also described how having legislation that requires quality-assurance mechanisms from professional colleges helped in the implementation of any practice assessments and supported the evolution or change in existing practices.

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APPENDICES

The following tables provide detailed information about the systematic reviews and primary studies identified in the rapid synthesis. The ensuing information was extracted from the following sources:

- systematic reviews - the focus of the review, key findings, last year the literature was searched, and the proportion of studies conducted in Canada; and
- primary studies (in this case, economic evaluations and costing studies) - the focus of the study, methods used, study sample, jurisdiction studied, key features of the intervention and the study findings (based on the outcomes reported in the study).

For the appendix table providing details about the systematic reviews, the fourth column presents a rating of the overall quality of each review. The quality of each review has been assessed using AMSTAR (A MeaSurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered “high scores.” A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8).

Appendix 1: Summary of findings from systematic reviews about multi-source feedback for quality assurance

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Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
Examining multi-source feedback instruments used to assess physician practice (9)	<p>The review identified 43 studies which looked at multiple multi-source feedback instruments, including the Physician Assessment Review process and the Sheffield Peer Review Assessment Tool.</p> <p>Overall, the review found that multi-source feedback is a valid, reliable and feasible method of evaluating physician performance. The review identified several common characteristics of the identified tools. The tools generally focused on professionalism, clinical competence, communication, manager, and interpersonal relationships. Almost all of the instruments had some component completed by other physicians or medical colleagues. About three-quarters had a component completed by non-physician co-workers. Half of the tools required self-assessments and/or patient feedback. Some tools were specific to certain specialties, while others were used across different specialties.</p> <p>The review found that multi-source feedback is feasible from a self-assessment, medical colleague, co-worker and patient perspective. However, it should be noted that the review only considered feasibility in the context of response rates, and not cost or administrative concerns.</p> <p>The review also concluded that most tools required a minimum of eight medical colleagues, eight co-workers and 25 patients to rate the physician in order to achieve adequate reliability and generalizability coefficients.</p> <p>The review could not identify one best multi-source feedback tool, as this relies heavily upon the context. In particular, there is significant variation in construct validity between specialties. It also should be noted that the study did not look into whether multi-source feedback produced changes in physician practice.</p>	2013	5/10 (AMSTAR rating from McMaster Health Forum)	13/43
Examining the use of multi-source feedback for assessing surgical practice (10)	<p>The review identified eight studies which examined several different tools, including the Physician Assessment Review process and the Sheffield Peer Review Assessment Tool.</p> <p>The review found that multi-source feedback is a reliable, feasible and valid method of evaluating surgical residents and surgeons in independent practice. The review found evidence of content, criterion-related and construct validity. Multi-source feedback is also feasible in terms of response rates, as it only requires a brief time to complete.</p> <p>Raters can include physician and non-physician co-workers, supervisors and patients. Tools can also have a self-reflective component. As few as 23 patient and eight non-patient raters can achieve an acceptable Ep2 generalizability coefficient of ≥ 0.70.</p> <p>Multi-source feedback could be used to assess non-technical competencies, including communication skills, interpersonal skills, collegiality and medical expertise. However, multi-source feedback is not appropriate for assessing surgical knowledge and skills (for which other tools are available.)</p> <p>The review had several limitations, namely that it only identified a small number of studies, and only searched for papers written in English.</p>	2012	2/9 (AMSTAR rating from McMaster Health Forum)	2/8
Examining whether workplace-based assessment affects the	The review found limited evidence that multi-source feedback could improve performance. Of the 16 studies identified, 15 were descriptive or observational studies. Only one was a randomized-controlled trial.	2010	6/10 (AMSTAR rating)	6/16

Using Multi-source Feedback and Other Practice Assessments for Quality Assurance in Nursing

<p>performance of physicians (6)</p>	<p>Some studies found that multi-source feedback led to small performance improvements. Other studies found that the effect varied by specialty. Family doctors were more prepared to initiate changes, while junior doctors and surgeons generally did not show willingness to change following feedback.</p> <p>The randomized-controlled trial found that feedback could lead to improvements. However, the intervention for this study included a coaching session that helped participants identify their weaknesses. The authors were unable to determine whether improvements came from the coaching session, or the multi-source feedback, or whether the coaching session facilitates the effectiveness of multi-source feedback.</p> <p>Ultimately, while multi-source feedback may improve performance, this is highly affected by context, the individual, and the presence or absence of facilitation.</p>		<p>from McMaster Health Forum)</p>	
<p>Evaluating the effectiveness of external inspection of compliance with standards in improving healthcare organization and healthcare professionals' behaviour (26)</p>	<p>External review systems can be used in healthcare settings as a way to increase the compliance to system standards. External review systems have the potential to improve healthcare organization, behaviour and patient outcomes.</p> <p>This review included two studies aimed at assessing the effectiveness of external review systems on healthcare professionals' compliance to established standards of care to promote healthcare organization change and improve healthcare professional behaviour.</p> <p>One study aimed to use an external review system to improve the compliance to accreditation standards. In doing so, the goal was to improve healthcare professionals' performance, as measured by hospital quality indicators. The results showed a significant improvement in compliance to the accreditation standards. However, among the hospital quality indicators, the results were found to be non-significant.</p> <p>The other study aimed to implement an external review system to improve the compliance to an internal program for hospital staff to reduce hospital-acquired infections. The results of this program demonstrated a non-significant negative trend towards decreasing hospital-acquired infections.</p> <p>There are too few studies included in this review to draw conclusions about the effectiveness of external review of compliance with standards in improving healthcare organization behaviour, healthcare professional behaviour or patient outcomes. This review highlights the need to conduct more research on the effectiveness of the use of external review systems to improve healthcare organization, healthcare professionals' behaviour and patient outcomes.</p>	<p>2011</p>	<p>9/9 (AMSTAR rating from McMaster Health Forum)</p>	<p>0/2</p>
<p>Describing behaviour-change interventions and policies influencing healthcare professionals working at primary healthcare centres (12)</p>	<p>Primary healthcare teams that include physicians, physician assistants, nurses and pharmacists, among other professionals, may become the new standard of care for primary healthcare delivery. However, in order to ensure efficient and high-quality care is delivered, interventions that support behaviour change are required.</p> <p>This overview of reviews included 138 reviews that sought to synthesize behaviour-change interventions and policies influencing behaviour-change interventions, and policies influencing healthcare professionals working at primary healthcare centres.</p> <p>Twenty-eight reviews assessed educational interventions, including continuing medical education, and were found to be effective in improving both professional development and patient outcomes. Within these reviews, six reviews reported that audit and feedback improved the implementation of guidelines into general practice. One review reported that obtaining feedback from patients was effective at improving healthcare professionals' practice.</p>	<p>2015</p>	<p>No rating tool available for this type of document</p>	<p>3/138</p>

McMaster Health Forum

	<p>Forty-one reviews focussed on multifaceted interventions aimed to improve primary healthcare providers' practice. Multifaceted interventions that included audit and feedback, reminders, advance practice nursing care, quality improvement initiatives, and collaborative care were found to improve primary healthcare professionals' practice.</p> <p>The findings from this overview of systematic reviews revealed that continuous education programs and multifaceted programs consisting of audit and feedback, among several other interventions, are beneficial in improving primary healthcare professionals' practice. However, it is important to note that high heterogeneity existed within the interventions, study population and outcomes, thus limiting the generalizability of the obtained outcomes.</p>			
<p>Examining the role of implementation strategies led by external change agents to promote improvement in healthcare organizations (31)</p>	<p>External change agents have the potential to play a significant role in healthcare organizational change efforts.</p> <p>This review of 21 studies sought to examine the role that external change agents have played within the context of multifaceted interventions designed to promote organizational change in primary-care settings.</p> <p>All of the included studies focused on multifaceted interventions aimed to improve change in healthcare practices. Sixteen studies included academic detailing, delivered by either physicians, nurses, pharmacists or pharmacologists, in their interventions. Thirteen studies included audit and feedback as part of their intervention. Eleven studies integrated a type of practice facilitation or coaching into their intervention. Five studies reported using a form of information technology in their intervention.</p> <p>There was no uniform measure used to report a measure of effect size in this study. Consequently, the effectiveness was not determined by individual intervention components, but instead effectiveness was assessed based on the results of the individual studies. Thirteen studies showed positive results when utilizing a multifaceted intervention, and 11 studies that integrated a type of practice facilitation into their multifaceted intervention demonstrated significant positive effects.</p> <p>The findings of this review suggest that a multifaceted intervention capitalizing on practice facilitation was likely to promote successful healthcare organizational change. The findings of this review should be assessed with caution as the reporting strategies of this review prohibit the ability to assess the individual intervention components, and subsequently, the results are generalized to multifaceted interventions as a whole.</p>	2016	7/10 (AMSTAR rating from McMaster Health Forum)	1/21
<p>Assessing the effectiveness of educational meetings in improving healthcare professional practice (25)</p>	<p>Educational meetings are widely used for continuing medical education and have been shown to improve healthcare professional practice.</p> <p>This review contained 44 studies which aimed to examine whether educational meetings, alone or in combination with other interventions, are effective in improving professional practice.</p> <p>Analysis of the 44 included studies demonstrated that interventions that contained educational meetings alone or in combination with other interventions, such as reminders and audit and feedback, trended towards an increased improvement in both healthcare professional practice and patient outcomes. However, the findings were not significant.</p> <p>Furthermore, within the included studies, the delivery type of the educational interventions was analyzed. It was determined that interactive education was more effective than didactic education, and interventions that mixed interactive and didactic education were superior to all forms of education.</p> <p>A limitation to this study is the high amount of bias and heterogeneity that existed within the included studies.</p> <p>The use of educational meetings, alone or in combination with other interventions, resulted in insignificant improvements in healthcare professional practice and patient outcomes.</p>	2016	8/11 (AMSTAR rating from McMaster Health Forum)	2/44

Using Multi-source Feedback and Other Practice Assessments for Quality Assurance in Nursing

<p>Assessing the relationship between the effectiveness of quality-improvement strategies and contextual factors (15)</p>	<p>There is significant research that demonstrates the effectiveness of strategies aimed to improve quality and enhance patient safety, however the contextual factors that impact the implementation are not well understood.</p> <p>This overview of reviews included 56 studies that implemented various quality-improvement initiatives to improve healthcare delivery.</p> <p>Thirty-eight studies described the effect of organization on the implementation of quality improvement initiatives. It was found that feedback on clinical performance was more effective when it was provided by an authoritative, credible source. Moreover, it was found that performing audit and feedback at higher frequencies increased behaviour change within healthcare professionals.</p> <p>Fifteen studies described the effect of quality-improvement support and information technology systems. It was found that information technology systems were able to facilitate improved data collection and were effective at providing accreditation and continued education in rural healthcare services.</p> <p>Three studies demonstrated that involving a multidisciplinary team that includes nurses, physicians and pharmacists in the development and implementation of quality-improvement strategies increased the effectiveness of the intervention.</p> <p>A major limitation to this study is the lack of consensus on how to assess contextual factors. Thus, it was unclear how the contextual factors were assessed in the original studies included within the systematic reviews, potentially introducing bias into this overview. Moreover, the included studies were heterogenous and the effects could not be pooled to obtain an overall summary estimate.</p> <p>The findings of the overview of reviews suggest how contextual factors affect the implementation of quality-improvement strategies. The findings also highlight the need to develop a consensus on how to assess contextual factors to improve their implementation in interventions to promote quality improvement.</p>	<p>2012</p>	<p>No rating tool available for this type of document</p>	<p>12/56</p>
<p>Evaluating the effectiveness of audit and feedback to develop a strategy for implementation for acute-care nurse practitioners (14)</p>	<p>Audit of compliance to guidelines and feedback of results to clinicians has been shown to lead to improvements in practice behaviour and clinical outcomes.</p> <p>Nine studies described the effect of audit and feedback as a strategy to improve the quality of healthcare practices. The results of these studies provided evidence to support audit and feedback as being an effective strategy to improve practice behaviour and clinical outcomes within healthcare teams that include nurse practitioners.</p> <p>One study assessed the effectiveness of audit and feedback versus the effectiveness of an opinion leader. Involving an opinion leader was found to be more effective in changing behaviour and improving practice when compared to audit and feedback.</p> <p>Five studies examined the effect of multifaceted interventions that combined educational programs with audit and feedback. Similar positive results were obtained with the multifaceted interventions compared to interventions involving audit and feedback alone, and improvements were seen within both practice behaviour and clinical outcomes.</p> <p>The current review provided evidence that the use of audit and feedback in various forms has contributed to improvements in practice behaviour and clinical outcomes in healthcare teams. Future research should explore the effectiveness of audit and feedback alone and in combination with other intervention strategies to elucidate the most effective method for implementing this quality-improvement strategy within the nursing workforce.</p>	<p>2005</p>	<p>4/9 (AMSTAR rating from McMaster Health Forum)</p>	<p>1/16</p>

McMaster Health Forum

<p>Assessing quantitative instruments for evaluating nursing-care quality(19)</p>	<p>The evaluation of nursing-care quality is critical to improve healthcare practices. Despite this, the instruments used to evaluate nursing-care quality have not been well evaluated or documented.</p> <p>The results of this review revealed that there were many instruments used to measure nursing-care quality. These instruments have been categorized in three different perspectives as nurse perspectives, patient perspectives and nurse-patient perspectives.</p> <p>The instruments for measuring nurses' perspectives included the 'Patient Safety Problem' instrument that measured nurse-reported adverse events. The instruments for assessing nursing-care quality from the Head Nurse perspectives included the 'Unmet nursing care needs' instrument, the 'Nurses Perception Quality of Nursing' instrument, the 'International Hospital Outcome Study' instrument, the 'Patient Perception of Quality Scale-Acute Care Version' instrument, and the 'Patient Perception of Hospital Experience with Nursing' instrument</p> <p>The instruments for measuring patient's perspectives included the 'Good Nursing Care Scale', the 'Patient Satisfaction with Nursing Care Quality Questionnaire' instrument, the 'Surgical Patient Outcomes' instrument and the 'Nursing Care Quality Questionnaire' instrument.</p> <p>The instruments for measuring nurse and patient perspectives included the 'Good Nursing Care' instrument, the 'Patient-Perceived Quality of Nursing Care' instrument, the 'Good Perioperative Nursing Care Scale' instrument, the 'Nurses' Assessment of Quality Scale Acute Care Version' instrument, the 'Perception of Quality Nursing Care Scale' instrument and the 'Karen-patient and Karen-Personnel Scale' instrument.</p> <p>The main limitation of this review is that many of the included studies did not provide the psychometric properties of their instruments. Therefore, the quality of the instruments could not be determined.</p> <p>Thus, this review highlighted that there are many different perspectives that can be taken to evaluate nursing-care quality. This review emphasized the need to enhance the understanding of the perspectives of both patients and nurses and achieve a consensus on how nursing-care quality should be measured as a first step to determine best-fit instruments to measure the quality of care delivered by nurses.</p>	<p>2015</p>	<p>3/9 (AMSTAR rating from McMaster Health Forum)</p>	<p>1/18</p>
<p>Examining the characteristics of successful behaviour-change interventions used in the healthcare system (13)</p>	<p>Translating research evidence into routine clinical practice is often facilitated through the use of behavioural-change interventions. However, the success of these interventions is variable and not clearly defined.</p> <p>This overview of reviews contained 67 articles that fell into three main categories of behavioural-change interventions: persuasive, educational and informational, and action and monitoring.</p> <p>Among the reviews that examined persuasive interventions, it was found that marketing and mass media approaches had no effect on successful behaviour change. Similarly, persuasive interventions that included local consensus processes and local opinion leaders were unsuccessful in providing effective behaviour change in healthcare practices or provided inconsistent findings.</p> <p>Within the reviews that examined educational and informational interventions, it was found that patient-mediated interventions that offered health professionals new clinical information collected directly from patients was effective in promoting behaviour change. It was also found that educational materials, educational meetings and educational outreach interventions increased behaviour change and patient outcomes in clinical practice. Moreover, two reviews found that educational outreach interventions that incorporated academic detailing were superior to all other educational interventions in promoting behaviour change.</p>	<p>2015</p>	<p>No rating tool available for this type of document</p>	<p>Not reported</p>

Using Multi-source Feedback and Other Practice Assessments for Quality Assurance in Nursing

	<p>Among behaviour-change interventions that aim to reconfigure clinical practice by continuously monitoring and reinforcing behaviours, it was found that audit and feedback lead to significant improvements in professional practice and patient outcomes. Fifteen studies that reviewed multifaceted interventions that included audit and feedback and reminders, showed them to be effective in improving professional practice.</p> <p>Limitations of this review include substantial variability in the effect sizes within each intervention. As a result, the findings of the included reviews can be expressed in general terms, but direct conclusions cannot be drawn about the effectiveness of the individual intervention components.</p> <p>The findings of this review suggest that interventions that included audit and feedback and reminders as well as various types of education are more likely to successfully change professional behaviour than those based on persuasion.</p>			
Describing team-directed strategies that improve the healthcare practices of nursing teams (23)	<p>Successful nursing practice improvement require a change of nurses' behaviour, and this behaviour is often dependent on the functioning of the nursing teams. Various strategies that differ in effectiveness exist to improve the functioning of nursing healthcare teams.</p> <p>Nine studies were included in this review to examine team-directed strategies that improve the healthcare practices of nursing teams.</p> <p>Three studies described strategies associated with education. One study examined the use of workshops to brainstorm ideas about how practice could be changed in healthcare nursing teams. Another study used information sessions to promote practice improvement within nursing teams. The final study used a training program in combination with biweekly reflection meetings to emphasize behaviour change within primary-care teams.</p> <p>Three studies used monitoring as a team-directed strategy, and one study used continual monitoring to encourage shared decision-making amongst healthcare providers and families.</p> <p>Five studies described feedback-related activities as team-directed strategies. One study used task analysis and reflective diaries to promote a new method of working for primary healthcare teams. One study used frequent evaluations to encourage behaviour change and maintain quality of team functioning. Another study used audit and feedback to implement behaviour change within a nursing-care team.</p> <p>Three studies described leadership as a team-directed strategy. Three studies used coaching as a means to encourage best practices amongst the healthcare teams.</p> <p>This review yielded a small number of studies with little evidence and provided descriptions of the interventions without a measure of effectiveness. Therefore, this review cannot be used to draw conclusions of effective behaviour-change interventions for use in nursing teams.</p>	2006	3/9 (AMSTAR rating from McMaster Health Forum)	0/9
Examining the educator's role in feedback to enhance learners' outcomes (17)	<p>Successful health professionals' education relies on effective feedback from the educator. It is not clear what constitutes high-quality, effective feedback and how educators can effectively utilize feedback to enhance learning.</p> <p>This review included 173 studies aimed at identifying distinct elements of an educator's role in feedback to help learners improve their performance. The articles obtained were used to formulate a list of 18 elements to describe the educator's role in providing high-quality feedback. The 18 elements were broken into four main themes: the learner has 'to do the learning', the learner is autonomous, the importance of the learner-educator relationship and collaboration.</p>	2013	2/9 (AMSTAR rating from McMaster Health Forum)	Not reported

McMaster Health Forum

	<p>Additionally, within the review, 10 instruments were identified that assessed face-to-face verbal feedback within health professionals' education. However, none of the instruments were designed to assess an educator's contribution to feedback following an instance of observation of a learner's performance. Thus, they could not be included in the analysis.</p> <p>A limitation of this review was that there was little high-quality evidence to clarify the effects of the specific elements of feedback. As a result, these elements need further research to investigate their impact within clinical healthcare practice.</p> <p>Ultimately, this review provides a list of key elements of an educator's role in feedback that can potentially enable a learner to improve their performance within clinical practice. Further research should be done to clarify the impact of these elements within clinical practice.</p>			
<p>Assessing the effectiveness of multifaceted interventions in comparison to single-component interventions in changing healthcare professionals' practice (32)</p>	<p>Multifaceted interventions are believed to be superior to single-component interventions to promote behaviour change within healthcare professionals. However, the evidence of the effectiveness of multifaceted interventions in changing healthcare professionals' behaviour is unclear.</p> <p>This overview of reviews included 25 articles aimed at determining the effectiveness of multifaceted interventions compared to single-component interventions in changing healthcare professionals' practice.</p> <p>Three reviews provided effect size statistical analyses of the effectiveness of multifaceted interventions. The effectiveness of these interventions was examined, and it was found that there was no relationship between the number of intervention components used in the study group and the effect size.</p> <p>Eight reviews reported direct comparisons of multifaceted to single-component interventions. However, only half of these reviews demonstrated that multifaceted interventions were more effective than single-component interventions in changing healthcare professionals' practice.</p> <p>Twenty-three reviews reported indirect comparisons of multifaceted to single-component interventions. However, the results were found to be inconsistent, and conclusions regarding the effectiveness of multifaceted versus single-component interventions were unable to be formulated.</p> <p>The findings of this review do not support other literature that suggests that multifaceted interventions are superior to single-component interventions when being used to change healthcare professionals' practice. The findings of this review suggest that multifaceted interventions may be useful, but single or less complex multifaceted interventions may be more appropriate. This review emphasizes the need for further research to examine multifaceted interventions with differing numbers of components to promote successful behaviour change amongst healthcare professionals.</p>	2012	No rating tool available for this type of document	Not reported
<p>Examining the effectiveness of knowledge-translation interventions directed towards nurses to promote the use of evidence in practice to improve healthcare outcomes (24)</p>	<p>Within their clinical practices, nurses are expected to use evidence to promote improved patient and healthcare system outcomes. However, the use of research evidence in clinical practice is inconsistent among nurses.</p> <p>Thirty studies were included in this review to assess the effectiveness of knowledge-translation interventions directed towards nurses to promote the use of evidence in practice to improve healthcare outcomes.</p> <p>Eight studies examined knowledge-translation interventions to promote the use of research evidence, in the form of guidelines, protocols, or pathways, for practice change. Studies that used single-component education interventions, such as guidebooks and self-study packages, resulted in the largest effects on nurses' use of evidence in their clinical practice. Moreover, studies that used self-report or observational measures demonstrated an effect in changing practices compared to studies that used chart audits, which showed no effect. However, studies that implemented educational meetings and materials with group or individual feedback had no effect on nurses' practice change.</p>	2012	8/10 (AMSTAR rating from McMaster Health Forum)	8/30

Using Multi-source Feedback and Other Practice Assessments for Quality Assurance in Nursing

	<p>Thirteen studies explored the contextual factors related to successful implementation of knowledge-translation interventions. It was found that strong healthcare leaders resulted in more successful behaviour-change interventions, leading to improved practice.</p> <p>This review demonstrated that knowledge-translation interventions, in the form of single-component education interventions, increased the use of evidence in practice among nurses, which translated to improved healthcare practice.</p>			
Assessing the effects of audit and feedback on the practice of healthcare professionals (16)	<p>Audit and feedback, either alone or as a component of a multifaceted intervention, is commonly used to improve healthcare professionals' practice. Although this strategy is widely used, there is uncertainty regarding the effectiveness of audit and feedback as a strategy to improve performance.</p> <p>This review included 140 studies aimed at assessing the effects of audit and feedback on the practice of healthcare professionals.</p> <p>Among studies that assessed the effects of audit and feedback alone compared to no intervention, it was found that audit and feedback significantly improved healthcare professionals' practice. Likewise, among the studies that assessed the effect of audit and feedback as the core feature of a multifaceted intervention compared to no intervention, it was found the interventions that included audit and feedback significantly improved health care professionals' practice. However, upon further analysis, it was determined that multifaceted interventions did not significantly enhance the effects compared to single-component audit and feedback interventions.</p> <p>Moreover, the delivery of audit and feedback was assessed within the interventions. It was determined that feedback was the most effective when it was provided by someone with authority, such as a senior staff member, and when it was delivered at a high frequency. Feedback was also determined to be effective when it was delivered in both a verbal and written format, aiming to decrease rather than increase behaviours.</p> <p>A limitation to this review is the high heterogeneity that existed between the included studies, as well as the variations in study quality of the included studies. In addition, the difference in effect between interventions that aimed to decrease or increase behaviours were not taken into account during the analysis. Thus, the findings should be interpreted with caution.</p> <p>In summary, this review highlighted that audit and feedback, both as a single-component or a multifaceted intervention, has the potential to improve health care professionals' behaviour.</p>	2010	9/11 (AMSTAR rating from McMaster Health Forum)	11/140
Describing the summative assessment of nurses' practice currently in use (34)	<p>Assessment is an important component to ensure nurses are reaching their educational and clinical practice goals. There remains a lack of consensus on the competency areas for nurses, and the best models that should be used to evaluate nursing students.</p> <p>Twenty-three studies were included in this review to provide an overview of the approaches to the summative assessment of student nurses' practice that are currently in use. From the included studies, three main themes that encompass the important aspects for assessing clinical practice of student nurses were generated.</p> <p>The first theme was 'acts performed before final assessment of student nurse clinical practice'. This theme highlighted the importance of having a teacher, mentor and student meeting at the beginning of the clinical practice period, the importance of orientation for the assessment process and the evaluation requirements, and the importance of learning in the environment that the evaluation will occur in.</p>	2014	3/9 (AMSTAR rating from McMaster Health Forum)	Not reported

McMaster Health Forum

	<p>The second theme was ‘the actual situation of final assessment of student nurses’ clinical practice’. This theme emphasized the importance of having a proper assessment situation with the teacher, mentor and the student present, the importance of assuring relevant criteria for assessment, and the importance of assigning an accurate final grade to the students.</p> <p>The third theme was ‘acts after the assessment situation of student nurse clinical practice’. This theme described the importance of assuring relevant documentation, the importance of organizing extra time for failing students, and the importance of ensuring support for mentors.</p> <p>Within this review, the main finding was that the evaluation process of student nurses was inconsistent. Substantial variation existed within the methodologies and was found to be highly dependent upon the mentors’ knowledge and assessment skills, the educational institutes and the international educational assessment practices.</p> <p>Limitations to this review included the absence of a standardized tool for quality assessment during the screening process, as the included studies varied in their research approaches. Moreover, the review excluded articles that focussed on student nurses’ patient assessment, therefore there was no overview of the nurses’ assessment by receivers of care.</p> <p>This review highlights the need for more rigorous research to improve assessment practices and develop a standardized quality of the assessment process.</p>			
<p>Examining trainee and trainer perceptions of workplace-based assessments (7)</p>	<p>Workplace-based assessments are commonly used in postgraduate medical training, and the acceptability of these assessments is crucial for their successful implementation into training curriculums. Developing insight into the trainee and trainer perceptions towards these assessments will help to improve the implementation.</p> <p>This review included 31 studies and review papers aimed at examining trainee and trainer perceptions of workplace-based assessments.</p> <p>One included review paper concluded that only multi-source feedback had significant evidence of effectiveness in improving trainee performance, suggesting that workplace-based assessments were not having their intended impact. Likewise, 10 included studies found that trainees felt that work-based assessments did not add value to their training and learning experiences.</p> <p>Conversely, seven included studies found that workplace-based assessments were beneficial when included in postgraduate medical training. However, it must be acknowledged that these workplace-based assessments were taken voluntarily by trainees, rather than as a mandatory component of training.</p> <p>Six included studies examined why negative feelings towards workplace-based assessments exist in the medical workplace. These studies identified that time constraints, poor assessor engagement and understanding of the assessments, and a lack of formal training in the educational basis of workplace-based assessments were the main factors driving the negative feelings.</p> <p>Ten studies examined the trainer’s perspective on workplace-based assessments. These studies demonstrated that the understanding of these assessments by trainers was lacking, and that this may be driven by the lack of trainer involvement in the workplace-based assessments. Despite this, it was found that trainers perceived these assessments as being valid assessment tools in medical practice.</p> <p>The major limitation of this review was that a majority of the literature was from the United Kingdom, which limits the generalizability of the findings.</p>	<p>2015</p>	<p>5/9 (AMSTAR rating from McMaster Health Forum)</p>	<p>Not reported</p>

Using Multi-source Feedback and Other Practice Assessments for Quality Assurance in Nursing

	<p>Ultimately, this review highlighted that workplace-based assessments are not currently successful as formative assessment tools. However, the findings of the review highlight that the underlying problems to this method of assessment include the lack of user understanding, lack of available time and insufficient training of the trainers. Thus, these problems must be addressed in order to improve the potential success of this assessment method.</p>			
<p>Examining the use of simulation-based assessments as surrogates for patient-related outcomes assessed in the workplace (29)</p>	<p>Assessment of patient-related outcomes in the workplace is desirable, however this is often limited by costs, safety concerns, and infrequent clinical events. Thus, simulation-based assessments would allow for improved assessment for healthcare professionals.</p> <p>Thirty-three studies were included that aimed to examine the use of simulation-based assessments as surrogates for patient-related outcomes assessed in the workplace.</p> <p>Within the included studies, it was found that simulation-based assessments were good surrogates for provider behaviours, moderate surrogates for time behaviours, and relatively weak surrogates for patient outcomes.</p> <p>Moreover, the included studies provided limited support for specific instruments to measure assessment. The three most commonly used instruments included the ‘Objective structured assessment of technical skills’ instrument, the ‘Fundamentals of laparoscopic surgery’ instrument and the ‘Goal-oriented assessment of life skills’ instrument. The validity and effectiveness of each tool was not evaluated within this review.</p> <p>The main limitations to this review was the high between-study inconsistency, which was likely a result of the variation that existed from the included study methodologies.</p> <p>This review highlighted that most simulation-based assessments demonstrate positive effects with provider and time behaviours, but there is limited evidence of its effectiveness with patient-related outcomes. This review also demonstrated the lack of validity evidence available for the assessment instruments. Thus, this review suggests that more research should be conducted prior to using simulation-based assessment tools in education curriculums.</p>	2013	8/11 (AMSTAR rating from McMaster Health Forum)	Not reported
<p>Examining the recommendations that exist on the use of high-stakes testing within nursing programs (35)</p>	<p>High-stakes testing is a method of assessment that can be implemented in nursing programs. However, mixed opinions and understanding exists between nursing faculty, students, organizations and state boards regarding the use of this method.</p> <p>This review included 14 resources that aimed to examine the recommendations that exist on the use of high-stakes testing within nursing programs.</p> <p>From the included resources, this review reached a consensus that high-stakes testing should be defined as a test or series of tests used to make important decisions or lead to important consequences for students, educators or schools for the accountability for the education covered on the test. High-stakes testing commonly includes medication calculation examinations, assessment of performance using simulation and standardized examinations.</p> <p>It was found that high-stakes testing was usually implemented when a decline occurred in nursing programs’ standardized testing pass rates. In such situations, high-stakes testing was implemented as an examination to predict students’ success on the standardized testing pass rates, and to determine the readiness for student progression.</p> <p>Furthermore, it was found that high-stakes testing in nursing has both positive and negative consequences. The positive consequences include that the tests encourage the students to study, be more prepared and take the test more seriously. The negative consequences include that the tests can cause increased stress for both nursing faculty and students.</p>	2017	4/9 (AMSTAR rating from McMaster Health Forum)	0/14

McMaster Health Forum

	<p>The recommendations of state boards and nursing organizations was found to be mixed. In the states where there was an established policy for high-stakes testing, it was determined that the use of high-stakes testing as a single measure for the progression through the nursing curriculum was prohibited, and thus, high-stakes testing was used as one component of the assessment process. In states where there was no established policy, the schools of nursing make their own decisions about the use of high-stakes testing, therefore, substantial inconsistencies in the use of the testing exists.</p> <p>The main limitation to this review was the availability of current literature on high-stakes testing. Therefore, to supplement the available literature, the authors included dissertations and editorials to further explore the use of high-stakes testing. Another limitation was the inconsistency of the definitions of high-stakes testing, and this may have caused potentially relevant literature to be excluded.</p> <p>The findings of this review suggest that there is limited research on the use of high-stakes examinations, and accurate conclusions were not able to be drawn about the use in nursing curriculums. The review suggests that the potential benefits and negative outcomes should be evaluated prior to implementing high-stakes tests. Future efforts should be directed towards creating a standardized method to use or not use high-stakes testing in nursing education.</p>			
<p>Assessing the important components of the simulation-based learning debriefing process (30)</p>	<p>An integral component of simulation-based learning is the debriefing process. Despite this, the debriefing process has not been thoroughly investigated as a component of this process.</p> <p>This review included 21 studies that aimed to assess the important components of the simulation-based learning debriefing process to develop best practice guidelines.</p> <p>The results of this review were presented in eight predominant themes that encompassed simulation-based education: types of debriefing; debrief in simulation versus post simulation; environment in which the debrief takes place; the person who should facilitate the debrief; assessment and training of the person who debriefs; identification of the learning outcomes; method of debrief; and structure of debrief.</p> <p>Within these themes, it was determined that facilitator-only debriefing was as effective as facilitator- and video-assisted debriefing in accomplishing learning outcomes, and debriefing was more effective when it immediately follows the simulation-based learning experience. Additionally, it was essential to create a safe environment to be effective in this process, and the debrief facilitator should be formally trained in debriefing to maintain the desired environment. It was also suggested that debriefing will be most successful if it was based on the present learning outcomes, and also based on a structured framework.</p> <p>Ultimately, simulation-based learning encourages the improvement of behaviours in healthcare professionals. Debriefing has the potential to enhance this learning, and this review highlighted eight themes that should be considered when implementing debrief into practice.</p>	<p>2012</p>	<p>3/9 (AMSTAR rating from McMaster Health Forum)</p>	<p>Not reported</p>
<p>Describing the existing observation instruments that are used to assess nurses' skills in patient mobilisation (36)</p>	<p>Patient-mobilization tasks are integral within the nursing workforce to support the mobility of persons who are unable to move independently. Comprehensive knowledge about instruments for assessing nurses' skills in patient mobilization is limited.</p> <p>Twenty-six studies that reported on 16 instruments were included in this review. The instruments varied in their content and method of observation, and a consensus on the best instrument was unable to be determined.</p> <p>Three instruments focused on a specific mobilization task, which was bed-to-wheelchair or bed-to-bed patient transfer. The other 13 included instruments focused on a variety of patient-mobilization tasks.</p>	<p>2013</p>	<p>6/10 (AMSTAR rating from McMaster Health Forum)</p>	<p>Not reported</p>

	<p>Five instruments focused on nurses only, and four instruments considered patient aspects such as communication with patients prior to mobilizing. Eight instruments equally considered perspectives from both nurses and patients and included patient assessment before and after mobilization, cooperation, communication and motivation.</p> <p>Seven instruments used a highly structured methodology to assess nurses' skills in patient mobilization. In doing so, defined steps and criteria were used to assess the environment, manners, and technique of the nurses. The remaining instruments used a less structured methodology to assess nurses' skills.</p> <p>Eight instruments were developed for direct observation, and one instrument was developed for direct and video observation. The remainder of the instruments were developed for video observation.</p> <p>All of the 16 instruments were assessed through the use of a psychometric appraisal score. The instruments that received the highest score were the instrument developed by St. Vincent et al. which assessed patient transfers through direct observation, the instrument developed by Engels et al. which used a checklist to determine the number of ergonomic errors made by nurses' performing standardized nursing tasks, and the instrument developed by Kjellberg et al that used 24 items to score nurses' performance during patient mobilization. However, none of the instruments received high psychometric scores - the three listed above received moderate scores, and the remaining instruments received low scores.</p> <p>A limitation to this review was that only one author critically appraised the instruments, and the quality appraisal of the instruments was not validated. Thus, the scoring of the instruments should be interpreted with caution. In addition, only studies published in English or German were included. Consequently, relevant reviews and instruments may not have been included in this review.</p> <p>This review provides an overview of the instruments available to assess nurses' skills in patient mobilization, and highlights the need for a new instrument that is comprehensive and has high psychometric properties to assess nurses' skills accurately. If such an instrument is developed, it will enable the evaluation of educational interventions for nurses and will help determine whether additional training for nurses is needed to improve clinical practice.</p>			
<p>Evaluating the Nurse Competence Scale (18)</p>	<p>The Nurse Competence Scale is the most widely used instrument to assess nurses' competence throughout their careers. The in-practice evidence and psychometric properties of this scale have not been systematically identified.</p> <p>Thirty studies were included in this review, which covered over 11,000 independent competence assessments.</p> <p>In almost all of the included studies, there was a correlation between the length of experience and competence. Likewise, higher age and higher levels of education, and positive perceptions of practice environment exhibited a positive correlation with competence.</p> <p>The psychometric properties of this instrument were assessed utilizing the included studies. The internal consistency, content validity, and structural validity were all determined to be high within the included studies. None of the studies reported test-retest, inter-rater, or intra-rater reliability or measurement testing error. Moreover, as no gold standard instrument exists, criterion validity was not able to be determined.</p> <p>Only studies published in English and Finnish were included, therefore language bias was a potential limitation in this review.</p>	<p>2015</p>	<p>7/10 (AMSTAR rating from McMaster Health Forum)</p>	<p>0/30</p>

McMaster Health Forum

	<p>Ultimately, this review confirms that the Nurse Competence Scale can determine variables related to higher competence. The findings of this review suggest that healthcare professionals and policymakers can direct their efforts towards influencing the level of competence among nurses, which can translate to improved healthcare system and patient outcomes.</p>			
<p>Examining trends in the evaluation of clinical competence in nursing students and newly qualified nurses (20)</p>	<p>The definition of competence within nursing lacks consensus and is not universally defined. As such, the evaluation of clinical competence has not been standardized.</p> <p>This review included 23 articles which aimed to examine trends in the evaluation of clinical competence in nursing students and newly qualified nurses in the decade 2001 to 2010.</p> <p>This review found that since 2001, new measurement tools have been developed and both new and old instruments have been tested with larger sample sizes and improved statistical methods. It was determined that both new and old instruments require further testing to assess reliability and validity before they can be used as standardized measurement tools.</p> <p>This review highlighted that the Six-Dimension Scale of Nurse Performance and the Nurse Competency Scale were the only instruments that were used frequently in practice and have undergone rigorous testing.</p> <p>The use of portfolios, in which students are required to demonstrate evidence related to their academic and clinical skills, have been frequently used to assess competency in educational settings. Several studies have demonstrated that the use of portfolios promotes active learning, individual accountability and the development of critical thinking skills.</p> <p>Moreover, objective structured examinations have been widely implemented as a method of assessment in many countries. However, studies assessing the use of this evaluation method have had small sample sizes and have lacked psychometric property testing, limiting the generalizability of the findings.</p> <p>The heterogeneity within the included studies, and the absence of the assessment of the psychometric properties of the instruments limits the findings of this review.</p> <p>In summary, this review demonstrates that within the last 10 years, there has been some improvement within nursing clinical competence assessment. To continue progressing in this area, more studies are required to reach a consensus on the best ways to assess competence within nursing students and newly qualified nurses.</p>	2010	3/9 (AMSTAR rating from McMaster Health Forum)	0/23
<p>Examining the clinical competency assessment for undergraduate nursing students (21)</p>	<p>Clinical practicums prepare nursing students to develop the competency required to work as a practitioner. The clinical competency assessment is an important component for undergraduate nursing students regarding professional standards.</p> <p>This review included 33 studies to examine the clinical competency assessment for undergraduate nursing students.</p> <p>From these included studies, it was determined that the assessment processes used to evaluate nursing students' competency were similar across different countries. Most of the clinical competency assessments focussed on collaboration between academics, students, preceptors and hospitals. It was found, that in order to be most successful, competency assessment should involve a preceptor that is familiar with the student, feedback should be incorporated within the assessment, and structured assessment tools should be used throughout the assessment process.</p> <p>Twelve studies reported the tools that are currently used to assess the competency of nurses. These tools included the 'Competency Inventory of Nursing Students', 'Clinical Nursing Competence Questionnaire', 'Structured Observation and Assessment of Practice', 'Assessment Form in Clinical Nursing Education', 'Shared Specialist Placement Document',</p>	2013	6/10 (AMSTAR rating from McMaster Health Forum)	0/33

	<p>'Nursing Competencies Questionnaire', 'Competency Assessment Tool', 'Swedish National Clinical Final Examination', 'Model of Practical Skill Performance', and 'Assessment of Clinical Education'. This review highlighted that the 'Competency Assessment Tool' was designed to modify novice to expert skill acquisition and levels of learning that are able to represent the expected level of competency for nurses, thus making it a very useful tool for clinical practice. Similarly, the 'Assessment of Clinical Education' tool was designed to indicate how and to what extent a nursing student is expected to accomplish the intended learning outcomes depending on where they are in their education and careers.</p> <p>The reliability and validity of the tools was either not reported within the included studies, was reported without statistical data to support the testing, or was not reported in a way that could be compared across the various studies. Thus, the tools need further evaluation to verify their validity and reliability. Further limitations to this review include the heterogenous nature in the study designs that may limit the feasibility of the funnel plot results, and prohibited the use of a meta-synthesis within the review. Moreover, the review only included studies published in English, and the included studies were mainly from Europe, Asia and Australia, which may limit the generalizability of the findings.</p> <p>In summary, this review indicates that collaboration within the assessment process leads to improved outcomes. This review also highlights that there is a need to complete further research to examine the psychometric properties, and the validity and reliability of the tools, in order to reach a consensus on standardized tools to assess nurses' competency.</p>			
<p>Examining the competence measurement instruments available for community healthcare nurses (22)</p>	<p>Instruments designed to measure the competency of nurses in clinical practice can be useful tools to promote learning, behaviour change and improve healthcare practice. Competency-assessment instruments that would be optimal for use in community healthcare nursing settings have not been systematically evaluated.</p> <p>This review included 14 articles that described 11 instruments used to measure the competency of nurses in community healthcare. Five of the instruments measured the competence of several groups of nursing staff in community healthcare settings, and six instruments measured the competence of nurses exclusively.</p> <p>The included instruments varied in their definitions of competence, and the methodologies used to assess competence. Most of the instruments did not report psychometric properties or measures of validity or reliability. Thus, more research is needed before they can be recommended for use in practice.</p> <p>Although most of the instruments lacked testing and development, a few well-tested instruments were identified within this review. The instrument designed to evaluate community healthcare nurses in Canada assessed five standards of community health nursing: health promotion; building individual and community capacity; building relationships; facilitating access and equity; and demonstrating professional responsibility and accountability. Based on a systematic evaluation, it was determined that this instrument is a good choice for measuring competence within community healthcare nurses, as it received high reliability, validity, precision and acceptability scores.</p> <p>Moreover, the instrument designed to evaluate nurses' competence in Switzerland nursing homes assessed the knowledge of nurses regarding patient urinary incontinence as well as their practice within the area of urinary incontinence. Based on a systematic evaluation, it was determined that this instrument may be a good choice for assessing nurses' competence in this specific area.</p> <p>Articles published in English or Scandinavian only were in this review, which may have limited the articles and instruments that were included and assessed within this review.</p> <p>This review identified that the quality of available instruments to measure competence in community healthcare nurses varies substantially. Although two instruments were identified that have been classified as good tools for competency</p>	<p>2012</p>	<p>5/10 (AMSTAR rating from McMaster Health Forum)</p>	<p>1/14</p>

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	assessment, there is need for further evaluation of the available instruments to determine the best tools and methods for assessing competence in this area of nursing.			
Identify factors that affect the acceptance and effectiveness of multi-source feedback on physician performance (11)	<p>Multi-source feedback has been implemented in many healthcare settings. However, it is unclear whether multi-source feedback actually yields improvements in physician performance. This review sought to identify the key factors that influence the effectiveness of multi-source feedback on improving physician performance.</p> <p>The review identified 16 studies. One was a randomized controlled trial. The rest used cross-sectional surveys, mixed methods, or qualitative methods. The identified studies also focused on different physician sub-populations, including primary-care physicians, specialists, surgeons and trainees. Only the one RCT was able to measure a significant improvement in performance.</p> <p>Three studies examined how the source of the feedback affects the participants' acceptance and use of the feedback. Acceptance and use of feedback was influenced by whether the physicians felt that the rater had sufficient knowledge of their work and whether they had experience working alongside them. Two studies found that patients had a greater impact on improving patient communication than colleagues.</p> <p>There was some evidence that implementing a facilitated reflective component helped increase behavioural change. The studies that did not include facilitated feedback noted that facilitated feedback would likely have tempered the emotional response to the feedback. This is especially important, as physicians who were emotionally distressed by the feedback had a greater tendency to question the credibility of the feedback process.</p> <p>There was some evidence that physicians preferred feedback that included written comments rather than just numerical scores.</p> <p>The content of feedback also affected whether or not the physician improved in performance. Physicians who received more negative ratings reported contemplating or initiating more behavioural changes, especially when the same piece of feedback was given from several sources. On the other hand, physicians who received positive ratings saw little need for change.</p> <p>Ultimately, a multi-source feedback tool should engage raters who are familiar with the physician's practice, provide boxes for written comments, and include a facilitated reflective component after feedback has been collected.</p> <p>It should be noted that 15 of the 16 studies included were descriptive and relied on self-reported data. As well, most of the studies used small, volunteer-based samples.</p>	2014		8/16
Review evidence on the validity of multi-source feedback for assessing medical performance (8)	<p>This review synthesized evidence from eight systematic reviews to evaluate the validity of multi-source feedback for assessing performance. The review only focused on data from peers, colleagues and co-workers. Data from patients was not analyzed. Most of the studies included were observational in design.</p> <p>The findings were analyzed through the "APA framework" which was developed by the American Psychological Association, the American Educational Research Association, and the National Council on Measurement in Education. This framework had five domains for validity evidence: content validity, response process, internal structure, relationship with other variables, and consequences.</p> <p>This review concluded that there is sufficient evidence supporting the statistical and psychometric properties of multi-source feedback. The instruments are often statistically reliable and valid in internal structure. The results of multi-source</p>	2018		N/A (Overview of systematic reviews)

	<p>feedback tools also often correlate with results from other workplace-based assessment methods. Lastly, the review found that multi-source feedback is a feasible assessment method in terms of cost, time and response rates.</p> <p>The review also identified three areas that need more validity evidence: content validity, consequential validity, and response process validity. Content validity examines whether the multi-source feedback tools measure what they intend to measure. Consequential validity looks at how we can maximize the positive impact of these tools. Response process validity examines how we can ensure that the delivery of multi-source feedback is rigorous and free from bias.</p> <p>The review identified one threat to assessment validity. Physicians often choose their own assessors, who may be biased and give more favourable results. More research is required to understand the impact of this upon assessment validity.</p> <p>The relative importance of each validity domain differs based on the purpose of the multi-source feedback. If the multi-source feedback is primarily intended to be used in high-stakes scenarios for regulatory processes and identifying poor practices, reliability and internal structure are more important. Conversely, if multi-source feedback is to be used in low-stakes scenarios as a formative tool for personal development, content and response process, consequential validity is more important.</p> <p>There were several limitations to this review. First, the grey literature was not searched, and non-English publications were excluded. As well, there was variability in the reporting of reliability and validity measures between reviews, making it difficult to combine consistently.</p>			
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Appendix 2: Summary of findings from primary studies about multi-source feedback for quality assurance

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
<p>Explore feasibility and perceptions of the utility of multi-source feedback (5)</p>	<p><i>Publication date:</i> 2016</p> <p><i>Jurisdiction studied:</i> Victoria, Australia</p> <p><i>Methods used:</i> Phase one: One group of graduate nurses were given multi-source feedback, while the other group received feedback from one rater. All participants then filled out a questionnaire on their perceptions on the received feedback.</p> <p>Phase two: Graduate nurses in the multi-source feedback (intervention) group and Clinical Nurse Educators were interviewed three months after the first phase.</p>	<p>Phase one involved 24 graduate nurses practising across three hospital sites.</p> <p>Phase two involved 11 graduate nurses who had been in the intervention group for phase one, and five Clinical Nurse Educators.</p>	<p>The intervention group received structured multi-source feedback from the Nurse Unit Manager, the Clinical Nurse Educator, and the preceptor. Participants also self-appraised their performance.</p> <p>The non-intervention group continued with the existing organizational practice of receiving feedback from one rater (usually a Clinical Nurse Educator or a preceptor.)</p>	<p>Graduate nurses found that multi-source feedback was useful to improving their performance. Participants perceived multi-source feedback to be more accurate and less biased than single-rater feedback, and thought that the self-appraisal portion of multi-source feedback encouraged reflective practice.</p> <p>The interviews revealed several findings. First, the participants expressed that they preferred to receive feedback from a self-selected mentor, whom they felt could accurately comment on their performance, rather than their preceptor, whom they did not see often. As well, participants expressed that they would like to receive more regular, informal and real-time feedback in addition to the formal evaluations.</p> <p>There were several challenges with implementing multi-source feedback. It was difficult to engage enough raters, and it was time consuming to collect and collate information from multiple sources.</p> <p>Due to the presence of many confounding factors, it was not possible to determine whether multi-source feedback actually had an impact on performance.</p> <p>Limitations to this study included the small sample size and the contamination of ideas among participants (i.e., participants spoke about other participants during the interview phase.)</p>
<p>Determine the effectiveness of using multi-source feedback and coaching for professional development among nurse practitioners (2)</p>	<p><i>Publication date:</i> 2018</p> <p><i>Jurisdiction studied:</i> British Columbia, Canada</p> <p><i>Methods used:</i> Participants received multi-source feedback in the form of an online questionnaire completed by at least six nurse practitioner and non-nurse practitioner colleagues. They then received an hour-long coaching session to explore the feedback received.</p>	<p>Twelve nurse practitioners practicing in facilities within the Vancouver Island Health Authority. Some practised independently, while others practised in teams.</p>	<p>The intervention consisted of an online multi-source feedback questionnaire and a coaching session.</p> <p>The multi-source feedback questionnaire evaluated seven CanMEDS domains: medical expert, communicator, collaborator, leader, health advocate, scholar and professional. Participants received multi-source feedback from three other nurse practitioners and three non-nurse practitioners. A five-point Likert scale was used, and each domain had free-text response boxes as well.</p>	<p>More than half of participants reported that participating in multi-source feedback led to changes in their practice. The participants found the coaching session especially valuable for professional development.</p> <p>The effectiveness of multi-source feedback seemed to depend on whether the nurse practitioner operated independently or worked with other nurse practitioner colleagues. Specifically, independent nurse practitioners found it difficult to identify nurse practitioner colleagues who could provide informed feedback about their performance.</p> <p>The study coordinators found that the multi-source feedback component of the intervention was easy to administer, especially as it took place online. However, it was more difficult to schedule the coaching sessions.</p> <p>Several limitations were noted. The study had a short follow up period, a small sample, and relied on self-reported data.</p>

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
	<p>Participants then completed two online surveys, one right after the coaching session and one two months later. The surveys asked about their perceptions of the effectiveness of multi-source feedback.</p> <p>One meeting was also held with the coaches and the study coordinators to discuss the feasibility of implementing multi-source feedback.</p>		<p>After the feedback was collated and delivered to the participant, participants partook in a coaching session that explored their reactions to the feedback received and coached them through implementing changes in practice.</p>	
<p>Develop a multi-source feedback tool that can be used to assess the performance of nurses (3)</p>	<p><i>Publication date:</i> 2015</p> <p><i>Jurisdiction studied:</i> London, England, U.K.</p> <p><i>Methods used.</i> A new multi-source feedback tool was developed through an iterative consensus method. The created tool and a control tool were then administered to the nursing staff to collect multi-source feedback. The reliability and feasibility of the new tool were then assessed through calculations and unstructured interviews, and its validity determined by comparing its results to the control tool.</p>	<p>Nursing staff in two London hospitals (n=452) were asked to complete a self-assessment. Each nurse was also evaluated by 15 other assessors through the old and new tools. Of the 15 assessors, there had to be at least two assessors from each group: doctors, nurses, allied healthcare workers, and clerical/managerial staff.</p>	<p>During the development process for the new tool, participants were encouraged to draw from any assessment frameworks they knew, as long as the final product included the six domains of the United Kingdom Knowledge and Skills Framework (KSF): communication; personal and people development; health, safety and security; service improvement; quality; and equality and diversity.</p> <p>The final tool had 15 questions. Assessors could rate the nurse's performance as poor, fair, good, or very good. Assessors were also asked to give examples to justify their scores, especially if they had given extreme ratings.</p> <p>The control tool was strictly based off of the KSF.</p>	<p>The authors recommended using the new tool to collect multi-source feedback for nurses. The new tool was reasonably feasible, with a voluntary response rate of 60%. Participants reported that the main barrier to responding related to the limited time available to access email and complete the assessment. A minority of participants did not fill out assessments due to employment-related issues (e.g., they were switching jobs or were under investigation).</p> <p>By comparing the responses to the control and new tool, the authors were also able to conclude that the new tool demonstrated construct validity.</p> <p>The tool also demonstrated inter-rater reliability. Most of the variation in scores came from the subjectivity of the assessor rather than the performance of the individual being assessed.</p>
<p>Determine whether synchronous collection of multi-source feedback has better inter-rater reliability than</p>	<p><i>Publication date:</i> 2011</p> <p><i>Jurisdiction studied:</i> U.S.</p>	<p>Twenty-one emergency medicine residents were evaluated synchronously and asynchronously by nurses and faculty staff. An average of 37</p>	<p>In the synchronous (intervention) group, the performance of the resident was evaluated by nurses and faculty physicians immediately after the conclusion of a resident-patient interaction. Raters were</p>	<p>Inter-rater reliability did not improve through the synchronous assessment method. As well, while faculty ratings remained the same, nurses assigned slightly higher ratings with the synchronous assessment method. However, these differences were not clinically significant.</p>

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
asynchronous collection (37)	<p><i>Methods used</i> The inter-rater reliability of ratings that were given synchronously (i.e., in real time) were compared to the inter-rater reliability of ratings that were given asynchronously (i.e., after a time lag.)</p>	asynchronous evaluations and five synchronous evaluations were completed for each resident.	<p>told to base their ratings on the specific resident-patient interaction observed, and not on other interactions or previous impressions of the resident.</p> <p>The asynchronous (control) group followed usual practice, with assessments being completed during the rater's free time, and with a time lag between the observation of clinical performance and the rating.</p> <p>Both groups used the Emergency Medicine Humanism Scale to assess the resident.</p>	<p>Synchronous assessments proved to be less feasible than asynchronous assessments. It was much more challenging to collect evaluations from raters in real time due to competing priorities. Less than half of the evaluation forms were completed in the synchronous feedback group. As well, raters did not have the time to observe every item on the questionnaire for each encounter, resulting in incomplete assessments. By comparison, it was easier for raters to complete evaluations online, during non-clinical time (i.e., asynchronously).</p> <p>Ultimately, due to challenges with implementing synchronous assessments and the lack of observed improvements in inter-rater reliability, the authors recommended continuing with asynchronous assessments.</p>
Explore trainee and trainer perceptions of the utility of workplace-based assessments (38)	<p><i>Publication date:</i> 2016</p> <p><i>Jurisdiction studied:</i> Ireland</p> <p><i>Methods used:</i> One-on-one semi-structured interviews which focused on the participants' perceptions and experiences of workplace-based assessments. Teunissen's <i>experience, trajectories and reifications conceptual framework of workplace learning</i> was used to inform the study.</p>	Nine consultant physician trainers and eight postgraduate physician trainees who had used at least one workplace-based assessment tool in the previous year.	Characteristics of the assessment methods were not described. It is also unclear whether the participants had used the same workplace-based assessment method.	<p>Experiences with workplace-based assessments were limited and inconsistent. Many interviewees felt that there was limited learning value to workplace-based assessments. Trainees thought that the concept was valuable, but that the implementation was not successful. When asked, trainers could not link experiences of delivering workplace-based assessment feedback with a concrete example of learning.</p> <p>However, trainees found that workplace-based assessments were helpful, as they provided explicit opportunities to garner feedback from their mentors. This can otherwise be difficult given the scarce one-on-one time they have with their trainers.</p> <p>The authors concluded that workplace-based assessments need to be implemented as an ongoing practice and be supported by well-designed tools. As well, there needs to be more longitudinal studies to explore the trajectory and impact of workplace-based assessments upon interviewee performance.</p>
Evaluate the effectiveness of using 360 Degree Evaluations to measure the clinical competency of graduate advanced practice nursing students (4)	<p><i>Publication date:</i> 2018</p> <p><i>Jurisdiction studied:</i> South Carolina, U.S.</p> <p><i>Methods used:</i> Objective Structured Clinical Exam (OSCE) scores (compiled from graded rubrics, standardized</p>	54 graduate advanced practice nursing students	<p>Previously, nursing students had only been evaluated with preceptor evaluations and OSCEs.</p> <p>The new 360 Degree Evaluation is a form of multi-source feedback. Like before, it had OSCEs and preceptor evaluations. However, the new method also incorporated</p>	<p>With OSCEs, students were assessed through a grading rubric and given general feedback summaries of their best practices and learning opportunities. The faculty used the feedback summaries and preceptor evaluations to analyze where students generally underperformed and modified the curriculum in turn.</p> <p>The standardized patient evaluations demonstrated that the students significantly grew in their therapeutic communication skills throughout their learning.</p>

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
	<p>patient survey scores, student reflections and preceptor evaluations) were analyzed through statistics and Jonckheere's Trend Test.</p>		<p>standardized patient evaluation of the student's performance through an electronic survey, and a student-written self-reflection on their OSCE performance.</p>	<p>The student self-reflections also gave insight into student learning trajectories and growth in skills. For instance, earlier in their education, students tended to identify organizational skills while taking patient histories as a weakness. This diminished as students progressed in their learning.</p> <p>Overall, students appreciated that the structure of the 360 Degree Evaluation clearly communicated what was expected of the students. The faculty also liked having formal evaluation rubrics as it eliminated biases.</p> <p>Cumulatively, these assessment methods were able to recognize strengths and weaknesses, skills, attitudes, knowledge, and overall growth. The assessment methods also allowed the faculty to tailor the curriculum for each cohort. Students were able to evaluate their progress and set individual learning goals.</p>
<p>Discuss how clinical competence is evaluated in postgraduate student nurses (28)</p>	<p><i>Publication date:</i> 2014</p> <p><i>Jurisdiction studied:</i> Australia</p> <p><i>Methods used:</i> Perform a literature review into three contemporary methods used to evaluate competence: direct observation, self-assessment and practice portfolios.</p>	<p>Postgraduate student nurses undertaking certification in neonatal intensive care</p>	<p>Direct observation: the learner is directly observed during evaluation.</p> <p>Self-assessment: The learner assesses their own performance.</p> <p>Practice portfolios: The learner submits a portfolio of reflective and peer feedback components, including: journaling; evidence of attending conferences and other educational seminars; critical analyses and reflections of clinical episodes of practice and direct observation feedback from peers and colleagues.</p>	<p>Direct observation is a well-established method of assessing clinical competence. However, it is a resource-intensive and subjective process, where ratings can be inconsistent between different raters, especially when assessing higher order cognitive abilities.</p> <p>Self-assessment is not a great method for students and inexperienced or incompetent nurses, as this evaluation process requires that the person have some insight and self-awareness into their abilities. As well, there is evidence that incompetent individuals over-rate their abilities while competent individuals under-rate their abilities. However, there is also conflicting evidence that older, more experienced nurses are also more confident in their competence.</p> <p>There is evidence suggesting that practice portfolios are not as valid or reliable as first thought. This evaluation method can be very subjective, especially given that marking the reflective components can be strongly affected by values and attitudes. As such, there is poor inter-rater agreement in assessing these portfolios. It is also difficult to evaluate task-based skills. Ultimately, the paper suggests that this method requires lots of effort, which may result in students doing the bare minimum to pass. One study cited expressed concerns regarding the integrity of the work.</p>



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