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Ultrasound Clinical Progress Monitoring: Who, Where and How?

Abstract:

Introduction: Prior to assessment of final ultrasound clinical competency it is important to monitor clinical progress, provide high quality feedback and encourage skills development. The role of the supervisor, mentor and assessor are fundamental to the on-going progress monitoring of ultrasound trainees.

Aims: This article forms the second part of a larger project which was to elicit ultrasound practitioners' opinions on how progress should be monitored, where and by whom.

Method: An on-line questionnaire was used to gain opinions from ultrasound practitioners

Results: 116 responses were received from professionals with an interest in ultrasound assessment. Results suggested that experienced, qualified ultrasound practitioners should undertake the role of supervisor and assessor, having been prepared for that role by the training centre. Formative monitoring should take place both within the clinical department and possibly the training centre, using a range of methods. Following completion of the training, practitioners should have a preceptorship period to consolidate their knowledge and skills for 3 to 6 months, or until further competencies have been demonstrated.

Conclusion: Formative progress monitoring should be a recognised part of ultrasound training. Essentially staff undertaking supervision and assessor roles should be supported and trained to ensure high quality, consistent learning experience for ultrasound trainees. Additionally they should provide appropriate feedback to the trainee and education centre.

Introduction:

It has been advocated that practitioners undertaking ultrasound examinations should have a recognised qualification.¹ Clinical competency assessment is a crucial part of that ultrasound training and qualification,^{2,3} however prior to competency testing it is important to monitor trainee progress and determine their skill level. This formative feedback will assist trainees achieve learning objectives and develop their abilities in preparation for final summative competency assessment and independent practice.^{4, 5} To achieve final safe clinical competency it is recommended that effective clinical supervision should be provided, to assist the trainee to identify goals and objectives to develop their clinical skills and competency, in addition to adding to their existing knowledge base.⁵⁻⁷ Support should be available to help the trainee progress from novice to competent practitioner during the training period.^{5,7} Clinical supervision is also advocated for qualified practitioners, to ensure on-going

identification of learning needs and skills development,^{5,8} so supervisory skills can be developed to support not only trainees, but other colleagues.

Constructive feedback should be provided, to ensure that competencies develop and any issues are highlighted at an early stage during training.^{7,9,10}

Crofts¹¹ recommends using a “guided framework for learning” where a trainee spends the initial part of their training with the same supervisor, to ensure consistency in the feedback process. It is recommended that the supervisory role should be undertaken by someone with relevant skills, qualifications and experience, who has undergone suitable training for that role.^{1,5-7,12}. Optimal methods of supervision for clinical practice are less clearly defined, as suggested in the literature review by Franklin.⁶

Following a previous article,³ which considered summative final clinical competency assessment, this second article will review findings from the same survey,³ focussing on formative progress monitoring, training of clinical staff in their role as mentors and assessors and post qualification support.

Method

An on-line SurveyMonkey™ questionnaire using convenience sampling was carried out as described by Harrison.³ Questionnaires were sent to Consortium for the Accreditation of Sonographic practice contacts and details of the survey disseminated at the British Medical Ultrasound Society conference in 2011. In

addition to the questions on summative assessment, already reported,³ questions were asked relating to progress monitoring, qualifications and experience and training of clinical mentors and assessors and support for the trainee post qualification, to gain a wider perspective on issues relating to clinical competency assessment.

Questions ranged from closed questions, likert scale options and space for comments. The chair of the School of Health Sciences ethics committee suggested that ethics approval was not necessary, due to the nature of the questionnaire and self-selecting sample.

Results:

One hundred and sixteen questionnaires were completed by a range of health care professionals and educationalists, as previously reported.³ Due to the nature of the questionnaire, a number of responses were given for some questions, so results are demonstrated in percentages.

Formative monitoring, which involves formal feedback on the trainees progress, but does not count towards an award, is used to establish clinical skills development during a full programme e.g. post-graduate certificate or diploma. The majority of respondents thought that this should be completed at 1 to 3 monthly intervals (Figure 1). A number of respondents suggested that the timing of formative monitoring would depend on the nature of the training, the general

ability of the trainee and the time they spend scanning. Suggestions included 3 monthly formative monitoring *“unless there are concerns about the student's ability, then more regularly i.e. monthly”*. Others were supportive of more regular formal monitoring e.g. *“Anything more than monthly will not highlight areas of concern quickly enough therefore bad habits can be formed at an early stage”*. *“Sufficient time gaps between assessments needs to be factored in to allow a student to respond to previous educational feedback by improvements in practice and techniques. Conversely, the gap should not be so large whereby the student is not aware of the priority areas to be addressed”* and *“Formative assessment provides the student with focus and direction and is an essential tool for the assessor to be able to provide a safety net for potentially failing students.”*

The majority of respondents (96%) thought that formative monitoring should be either within the clinical department or shared between the clinical department and training centre, with 58% suggesting this should be done by the clinical department mentor. One respondent suggested *“These assessments can be undertaken in a relaxed and supportive manner and involve discussion of positive and negative aspects of the students practice, the overall aim should be to support and empower the student whilst identifying their learning needs in a non threatening environment”* ...with *“allocated protected time”* to do this. How

the formative monitoring should take place gave rise to a range of responses, with no agreement between a short written report, competencies or clinical assessments (Figure 2).

Participants were asked for further information about the clinical experience of the mentors and assessors for ultrasound trainees. Some of these questions had multiple responses, however it appears that most respondents think two years or greater than two years' experience is essential for the clinical mentor and assessor (Figure 3). An overwhelming majority of respondents felt that training was essential for mentors and assessors, with only two (9%) respondents somewhat agreeing that no training was necessary (Figure 4). It should be noted that this question had a low response rate of only 23 people, the reason for this is uncertain, as the other questions relating to mentor and assessor training had response rates of between 73 and 98. Generally there was agreement that updates for mentors and assessors should be either on an annual basis or at least every 2 years. The majority of respondents strongly or somewhat agreed with statements suggesting that training should take place at the education centre (84%) and/ or online (83%) (Figure 4).

As a final question, opinions about preceptorship were elicited. The majority of respondents suggested that there should be a period of preceptorship following completion of the ultrasound training, with 39% suggesting a 3 month

preceptorship period and 27% responding to the statement “yes, until they demonstrate additional competencies. Eight (8%) respondents suggested that a preceptorship period would not be available.

Discussion:

Feedback is essential to developing health care professionals' skills, competence and confidence.¹⁰ It is recommended that formative assessment is essential to help the trainee develop skills, identify strengths and weaknesses and plan development accordingly.^{4,5,13,14} Formative monitoring should be an on-going process and Stuart⁴ suggests that the assessment should be undertaken by a mentor who is aware of the student's abilities and progress. This is relevant to responses to questions about who should undertake formative monitoring of the ultrasound trainee and how often this should be recommended for a full postgraduate programme. Most respondents agreed that regular monitoring should take place (Figure 1) and more than half thought the department mentor should be the one responsible for this formative monitoring (Figure 2). It is evident that many respondents also thought there should be some independence within the formative monitoring, rather than the mentor taking sole responsibility for progress monitoring, as 65% suggested that both the clinical department and training centre should undertake this review of progress. Twenty five percent wanted another member of staff, who is

not the mentor to undertake the formative review and 17% wanted a completely external review.

No real consensus was gained, when asking if the assessor should have more experience than the mentor (Figure 3). The majority of respondents did not feel that managerial or lecturing experience was necessary for the mentor and assessor roles, however a large number of respondents felt that assessors should have a postgraduate qualification in the clinical area they are responsible for assessing. Duffy¹⁵ suggests that inexperienced mentors/assessors, with less confidence in their role are more likely to give the trainee the “benefit of the doubt” in borderline cases or would “fail to fail” a trainee. It could be surmised that clinical experience does not necessarily lead to more confidence as an assessor, however if someone is confident in their own scanning abilities, this may impact on their confidence when making decisions about a trainee’s competence. It was clear from the written responses that currency and competency are essential traits for anyone supervising or assessing ultrasound trainees. One respondent highlighted concerns about the use of outdated terminology or lack of adherence to national guidelines by supervisors, suggesting that *“These are the kind of things that are important, not how long someone has been qualified or whether they are band 7 or 8”*.

This study came to no clear conclusion about how best to monitor formative clinical competency, a slightly higher number of respondents suggested that competency levels should be used (Figure 2). Hauer et al¹⁴ suggested that specific competencies can be helpful tools to monitor on-going progress.

Competencies could also help enable consistency across cohorts of trainees. A study of medical students suggested that over three quarters preferred having a grade in association with feedback from an assessor, to determine their level of competency against defined standards for the stage of training.¹⁶ The study did however highlight some limitations of a grading system, in that it can demotivate those with lower grades or promote complacency in the high achievers. It was also recognised that consistency is required, to make the grading meaningful, so the same person should perform the grading at each stage of training and refer back to the previous feedback, to ensure progression is evidenced.¹⁶ It could be that a combination of competencies, formative assessment and formal written feedback with an action plan might be the optimal way to ensure that trainees' needs are met and the training centre and clinical department can monitor progress with some element of consistency.

Currently training centres generally provide support for clinical supervisors, mentors and assessors. Anecdotal evidence suggests that this often takes the format of short face to face training sessions, to provide advice on how to

conduct progress reviews, clinical assessments and to share experiences and good practice. This current study suggests that face-to-face training at the education centre is the preferred option (85% agreement), with some agreement that on-line training may be of value. The majority of respondents suggested training updates either annually or ever two years. It was interesting to note that 2 (9%) respondents somewhat agreed that no training was necessary, contrary to current evidence. Being an excellent practitioner does not necessarily imply that that someone can be an effective supervisor / mentor. Training and support is required to assist professionals to develop in their role as a supervisor, ^{9,12,13, 17} indeed the RCR standards¹ recommend a formal teaching qualification for those supervising ultrasound trainees. Current literature suggests that it is becoming more challenging to release staff to attend training days,¹⁷ making on-line learning a viable option to further develop training and provide access to a wider range of clinical staff. Technology enhanced learning is becoming more common in health care education and in ultrasound.^{18,19} On-line resources are available for helping to provide feedback on clinical and communication skills^{10, 20} and supervision,²¹ however these are not specific to ultrasound training or the requirements of the educational institution. It may be helpful to have generic on-line resources available for mentoring, supervision and assessing, to provide advice and support on how to

supervise within the clinical setting, deal with challenges that may arise and support the learning process to achieve a competent, reflective practitioner. These generic resources could be supplemented by institution specific on-line tools for disseminating information about local requirements for monitoring and assessing the trainee. Blended learning and the flipped classroom method of teaching is becoming more common and is used within ultrasound. This focuses on the theoretical taught content being available on-line and the face-to-face time is used to explore issues and concepts in more depth¹⁹. The flipped classroom method may be an option for training a larger number of supervisors and assessors, allowing them to revisit the material for updates. They could then attend training workshops to share ideas, discuss challenges and undertake interactive learning in the training centre. It is important to ensure that sufficient time is available for staff to undertake on-line training to help with their role, as technology enhanced learning may lead to an expectation that staff will do this in their own time.¹⁷

Whilst the questionnaire did not specifically ask about the time available for supervision and mentoring of trainees, a number of comments were made by respondents, relating to issues of support for them to undertake this important role e.g. *“mentors and assessors need to be given time to do their role properly - with shortage of sonographers and increasing demand for scans we are not*

giving them time". It has been suggested that supervision of trainees can be challenging for staff, who have many competing responsibilities.^{9,14} Bindal et al¹³ suggest that time pressures are a common problem when undertaking work based assessment. Their study highlighted issues relating to timeliness of feedback and the importance of providing immediate high quality feedback praising good practice and providing an action plan to address any issues that arise during the assessment.¹³

Within this study 89% of respondents suggested that feedback from the learner should be provided to the education centre relating to the quality of the mentoring experience (Figure 4), Currently within quite a number of accredited programmes anecdotal evidence suggests that clinical mentors and assessors provide feedback to the education centre on the clinical progress of the trainee, however it is unclear whether feedback from the learner, in relation to the quality of supervision within the clinical department, is formally monitored by the education centre. In most CASE accredited programmes, the clinical department select their own student(s) and chose which education provider to send their student, to undertake the academic work and gain the ultrasound award. There could be potential conflict of interest, in a highly competitive environment where educational funding is being challenged,²² for educational centres to question the quality of mentoring provided by a clinical department,

which is in effect the purchaser of their service. A study, looking to develop a method of evaluating the mentor relationship suggested that there are many challenges to formal evaluation of mentors, including the lack of clear outcome measures and difficulties providing a standardised method of assessing the relationship, because of varying needs and motivation of learners, different personalities, expectations of the mentoring process and limited authority of the training centre in relation to the mentors.²³ These factors could add to the challenges faced by the education centre, when evaluating the quality of the supervisor and assessor relationships. As the role of the supervisor and assessor is so important to the learning process in clinical practice, trainee feedback could be helpful to support clinical staff in their role and ensure a high standard of supervision and communication between training centre, clinical staff and trainee. It may also be a valuable learning tool for new assessors to be mentored by experienced, trained assessors, to ensure the quality of clinical teaching and assessment within departments, as recommended by Hauer et al.¹⁴

Preceptorship

The positive responses (92% agreed that preceptorship period should be offered) to the question about preceptorship (Figure 5) is in line with the Department of Health²⁴ guidelines for preceptorship for any newly qualified

practitioner. A small number (8%) of respondents felt that the no preceptorship period should be provided with comments including “*students should undergo training from which they should emerge fit for practice*”... *I believe it is perfectly acceptable for newly qualified sonographers to work unsupervised but with an 'open-door' policy, supported by the department, to request a second opinion from co-workers whenever required.*” The recently published guidelines by the Royal College of Radiologists (RCR) and the Society and College of Radiographers (SCoR) also support the need for a 6 month preceptorship period for any newly qualified practitioner.¹ Of respondents in this study, 21% (n=21) agreed with the 6 month preceptorship period, with 27% (n=27) suggesting until additional competencies are demonstrated. The majority of comments related to preceptorship suggest that an initial period of supported practice and reduced lists should be provided, with monitoring until the newly qualified practitioner is confident working unassisted. A number of respondents highlighted that it is in the best interests of the department and practitioner to provide a supportive preceptorship period, to allow the new practitioner to “*find their feet*” and reduce the chance of them making errors.

- *It would be unfair to expect a student to work entirely alone and sufficient support should be given*

- *Think that preceptorship is essential as it is quite daunting "setting off" on your own.*
- *A newly qualified member of staff should work alone but with available support when they feel they need it. Light lists ...without too much pressure, first to get good, then fast...too much pressure may result in pathology being missed.*
- *The amount of time needed will vary from person to person.*
- *The length of preceptorship may depend on the speciality and on the student's confidence/competence levels.*
- *It is in the departments interest to fully support their staff at whatever level.*

Limitations of the study:

The study has some limitations, which have been highlighted in the previous article.³ A self-selected sample could bias the results, as respondents are more likely to have an interest in ultrasound education. Since the completion of this questionnaire some time ago, new guidelines have been published,¹ which may have an impact on how participants might respond, if the study were to be repeated.

Conclusion:

Formative monitoring of clinical progress is an important part of the learning process. Appropriate, timely feedback can assist the trainee to develop into a

confident and competent ultrasound practitioner. Results from this survey suggest that trainee progress should be regularly monitored every month to 3 months when undertaking a full programme, more frequently for shorter courses. For full programmes the monitoring of progress should be within the clinical department and the training centre, by the clinical department mentor with possibly some element of external review. To ensure consistency, in addition to specific, relevant feedback and action planning the formative review could be a combination of competencies and written report, with possible formative clinical assessments in addition. Supervision and assessment of trainees should ideally be undertaken by staff with a postgraduate qualification in the area they are assessing, two years clinical experience and training by the education centre to undertake the role(s). In practice many ultrasound professionals with less than two years clinical experience assist in ultrasound training, this could be used as a developmental role to develop their skills to become an assessor in the future. Annual updates were the preferred frequency for ensuring currency of assessors' knowledge and skills. Technology enhanced learning may be a valuable contribution in the training of supervisors, mentors and assessors for ultrasound, to ensure that on-going updates are provided, at a time when departments are under great pressure.

The majority of respondents recommended that support following completion of the ultrasound training is important for the trainee and the department, to ensure safe, competent practice. This is in keeping with recently published national standards¹ recommending that newly qualified ultrasound practitioners should benefit from a 6 month preceptorship period, to assist them to develop their skills and confidence.

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Figure 1: How often should formative monitoring take place?

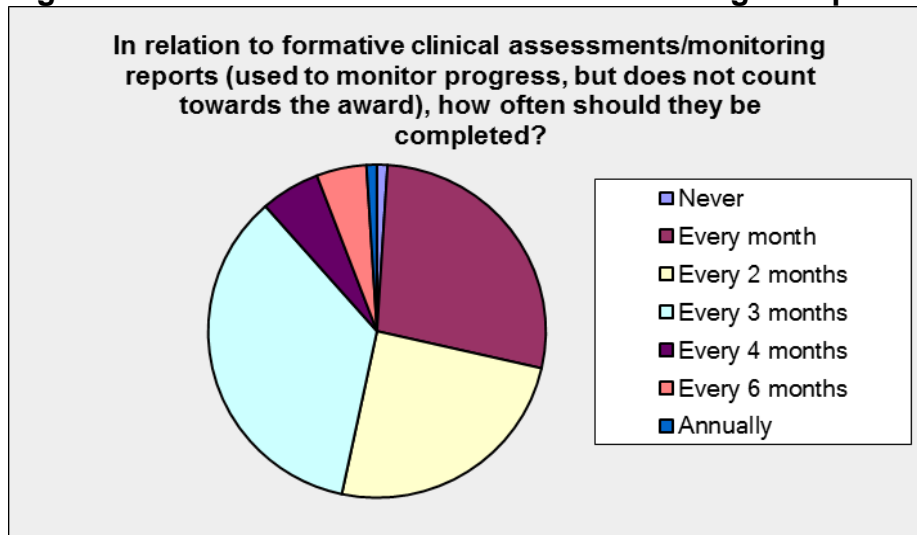


Figure 2: Where, who and how should formative monitoring be undertaken (percentage)

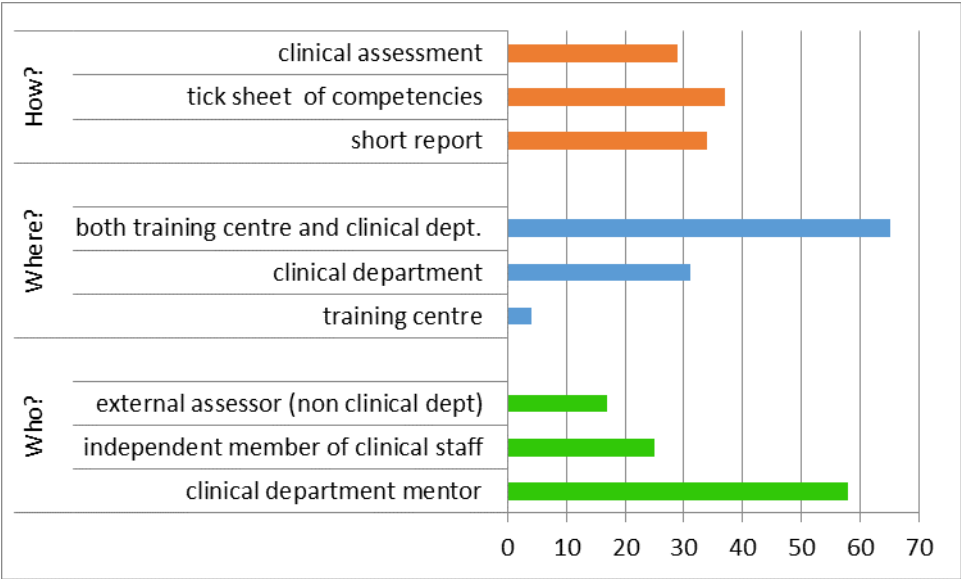


Figure 3: What experience should mentors and assessors have? (%)

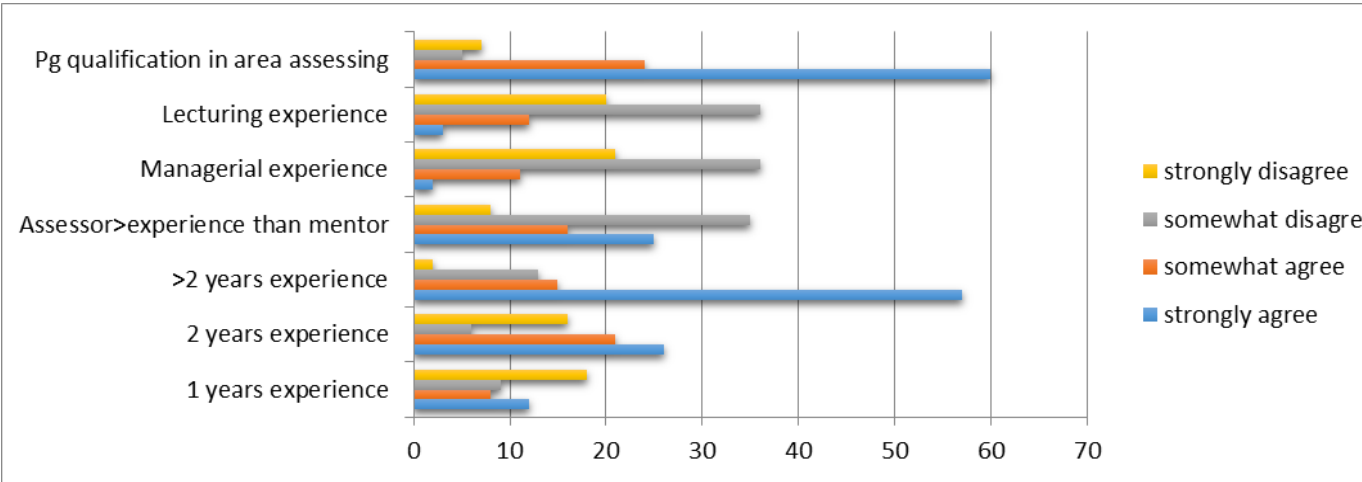


Figure 4: Mentors and assessor training (%)

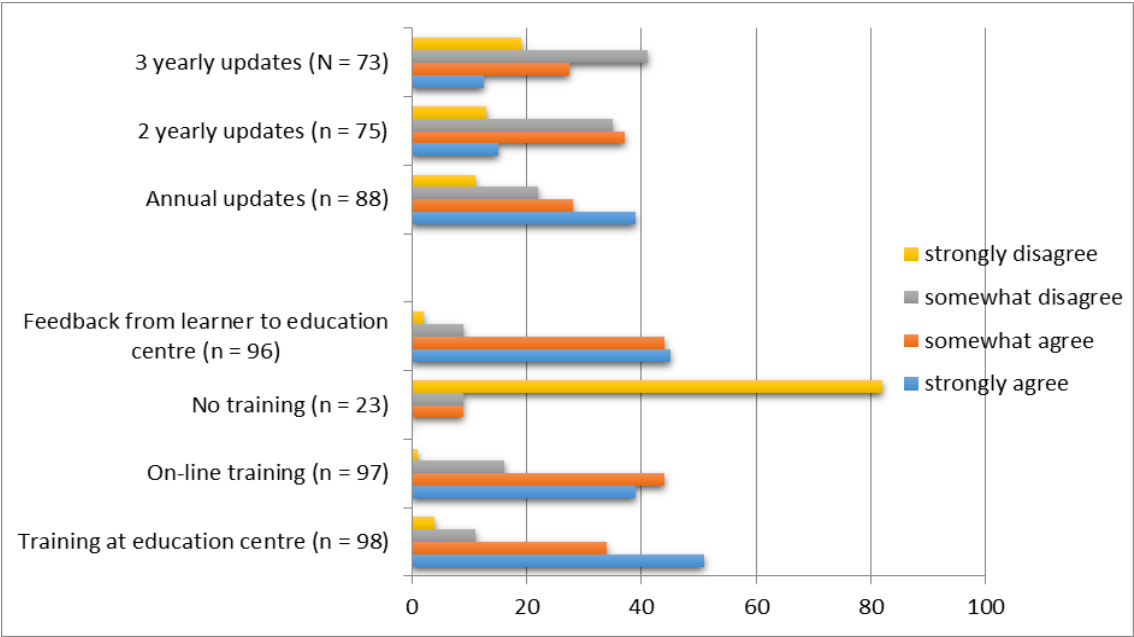


Figure 5: Response to the question: Following qualification or completion of training should there be a period of preceptorship, to support the learner. This might include supported sessions, light lists, mentoring.

