



Original Article

Case-based Discussion: Assessment Tool or Teaching Aid?

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Abstract

Aims: Workplace-based assessments were recently introduced into oncology training and include case-based discussions (CBDs). These are primarily designed as assessments and involve the formal discussion of a patient's case followed by feedback and scoring using a structured assessment form. The purpose of this study was to evaluate the role of CBDs in teaching and learning in oncology and to assess perceptions of teachers and learners.

Materials and Methods: The study used qualitative research methods and involved recording, transcribing and analysing a total of six CBDs, conducted by the researcher and two other consultants, to assess evidence of teaching and learning. The data collection also included semi-structured interviews conducted with five consultants and five trainees in oncology, to evaluate the perceptions of teachers and learners about CBDs.

Results and Conclusions: The analysis of the CBD transcripts revealed many interesting aspects of language within the interaction, indicating that reasoning and learning were taking place. Several themes emerged from the interviews, suggesting that CBDs were perceived as useful in teaching and learning, including aspects of oncology difficult to teach in other contexts. It was felt that participants require protected time within their job plans to conduct CBDs. Although the online form was considered useful, the scoring system was not thought to add value. CBDs could be used as highly effective teaching sessions, if sufficient time is spent on a face-to-face session. Further research is required into the format, including modification of the scoring form.

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Key words: Case-based discussion; oncology teaching; workplace-based assessment

Introduction

Learning and assessment are often seen as separate processes, but assessment could foster learning by providing structured feedback [1]. Historically, post-graduate medical training used the apprenticeship model, with knowledge and skills gained through observation and participation in clinical work. In this model, assessment primarily focused on testing knowledge using examinations, with no formal evaluation of progress in the workplace. Workplace-based assessments (WpBAs), which assess doctors in the workplace, were piloted in clinical oncology in 2008–2009 and are a key component of the 2010 clinical oncology curriculum. They aim to assess competencies specific to clinical oncology, in addition to general ones for higher specialty training [2]. The clinical oncology ePortfolio was introduced in 2010 to facilitate

recording of WpBAs and to provide an electronic record of progress.

WpBAs include case-based discussions (CBDs), which involve the discussion of a case in a semi-structured way. CBDs evolved from an American assessment known as 'chart stimulated recall', which uses the patient's chart to analyse the thinking behind diagnostic testing and management decisions [3]. The CBD uses the patient's notes as a starting point for the discussion, which assesses the trainee's knowledge and clinical decision-making. An online assessment form is used to score aspects such as record keeping, clinical assessment, management plan, future planning and clinical judgement. These are scored as separate domains as being below, at, or above the expected level for each stage of training.

As with all WpBAs, the CBD is primarily meant to be trainee-led, with the trainee requesting a session. The Academy of Medical Royal Colleges recommends that the CBD should be conducted as a face-to-face discussion of a case, to 'probe the reasoning behind any decisions made', while offering constructive feedback to the trainee [4]. The implication is that CBDs should be used as supervised learning

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opportunities. However, the requirement for a minimum number of assessments to successfully complete the Annual Review of Competence Progression, in conjunction with time constraints, has created a situation whereby CBDs could potentially be seen as tick-box exercises.

The CBD is an example of formative assessment, which is an ongoing process in which learners take an active role, and includes an interaction in the form of a teaching and learning conversation [5]. This is in contrast to summative assessment, which tests acquired knowledge, usually in the form of an examination [6]. Formative assessment is specifically intended to give feedback as an ongoing process and thereby improve learning by making learners aware of gaps in their current knowledge [7].

The CBD was chosen as an example of a WpBA because of its similarity to the informal case discussion, which has previously been widely used in oncology teaching. CBDs have been introduced into clinical oncology recently, and teachers and learners are still in the process of integrating them into practice. This paper describes a qualitative research project, the aims of which were to evaluate the current role of CBDs in teaching and learning, and to assess how they can be developed as effective teaching aids.

Materials and Methods

The study used qualitative methods [8] to explore and analyse the role of CBDs in teaching and learning, and to understand the views and perceptions of participants. This type of research was previously considered unscientific, but is now increasingly accepted as a form of interpretive research [9]. The participants were consultants and specialty trainees (StRs) in clinical oncology. Five consultants (including the researcher) and five StRs were from the researcher's department, and one consultant and one StR were from another National Health Service trust. Written informed consent was obtained from all participants using a formal consent form. The participants, including the researcher, were made anonymous by designating them consultant 1–6 and StR 1–6.

The data collection included two separate components, CBD transcripts and semi-structured interviews. The CBD transcripts were analysed for evidence of teaching and learning. The interviews were used to evaluate perceptions of teachers and learners about the CBD, and their views on how it could be improved. Over a period of 3 months, six CBDs were recorded fully and transcribed manually. Of these, four CBDs were conducted by the researcher with three different StRs, and two by consultant colleagues. The recording was carried out using a dictaphone, in the consultant's office. The language transcripts used basic transcription symbols modified from Mercer [10]. These included symbols for overlapping speech, pauses and emphasis to aid in the analysis of language (Table 1). Manual transcription was used in preference to automated methods, as it ensured accuracy and allowed the identification of themes for analysis. The interviews were semi-structured, starting off with open questions and using an

Table 1
Key for case-based discussion (CBD) transcripts

StR 1–4	The oncology registrars who are learners in the CBD
Consultant 1–3	The oncology consultants taking part in the CBD
[Overlap of words/sentences
]	Pause less than 4 s
[4s]	Pause 4 s or more showing length
.....	Drawing out a word
<u>Underlining</u>	To emphasise a word

'interview guide' at the end consisting of pre-set questions on specific topics [11]. Four consultants and four StRs working in the researcher's department were interviewed initially. One of the StRs who was involved in CBD recording had left the department and was unavailable for interview. The four consultants included the two who conducted the recorded CBDs, and two others chosen randomly from the consultants involved in WpBAs in the researcher's department, to obtain a wider range of opinions. A further consultant and an StR chosen randomly from staff and students at an oncology MSc course were interviewed at the end, to include views of participants from other hospitals.

Qualitative methods were used to analyse the transcripts and interviews. Conversational analysis was used to evaluate the language and content of the CBD transcripts, to identify features indicative of teaching and learning. This form of analysis studies what happens between people participating in a conversation, and attempts to analyse patterns of speech and interactions [12]. Thematic analysis was used to analyse the interviews, in that the content was studied to identify common or recurring themes [8]. Annotations were used on the margins of the transcripts to identify the themes visually.

Results and Discussion

Case-based Discussion Transcripts

All the transcribed CBDs started with a formal presentation of a case, which led on to the discussion. The filling in of the assessment form was carried out at varying times, mostly towards the end of the discussion, and was the aspect of the CBD that contrasted most to the informal case discussion. The transcripts showed evidence of teaching taking place during the CBD, including interactions where the consultant attempts to explain aspects of oncology that are not easily accessible from textbooks. In the following example, consultant 1 is explaining to StR 2 ways of introducing the concept of hospice referral to a patient with advanced cancer.

Consultant 1: The other thing I find really useful is I often start off by saying... community palliative care team, not use the word hospice, and say... just like we're trained to

give chemotherapy and radiotherapy, they're trained to help with symptoms, and introduce the whole idea, and say we often refer people very early in.

StR 2: Sure

Consultant 1: And then I say... it's a community team, but their office is actually based in the hospice, and introduce it that way [round. Because... a lot of people, once they hear the word hospice

StR 2: [Yeah that's that's a good way

In another section of the same CBD, the discussion revolves around how a patient might feel when told the news that her cancer has relapsed. Empathy, an essential quality in an oncologist, is the main focus of this discussion.

Consultant 1: And it's actually... I think emotionally a lot of people [] it's like almost harder to to talk about relapse compared to when there's.... when they're given the first diagnosis of cancer

StR 2: Mhmmm

Consultant 1: And the first... and you you've absolutely done it the right way because often after that initial shock and the tears, the first question is is there any treatment?

Analysis of the language used in the CBDs revealed many features indicating that learning and reasoning were taking place. This included exploratory talk, which was defined by Mercer as 'that in which partners engage critically and constructively with each other's ideas. Relevant information is offered for joint consideration, and ... reasoning is visible in the talk' [10]. The following section, from a CBD discussing treatment for lung cancer, is an example of exploratory talk.

StR 2: Sure. I wouldn't have been able to.... tell Erlotinib I probably would have thought about chemotherapy first. So... just like I think... a gap in the knowledge. So... but I just... I need to read up... I have read up a bit about that. So would you not have..... [considered chemotherapy...

Consultant 3: [The reason... the reason I...did were threefold.

Learners' questions were also identified as an indication of learning occurring in the CBD. These questions often allow teachers to understand the learners' thought processes and support development of knowledge [13]. Wolpaw *et al.* [14] studied teacher–learner interactions in the context of a busy outpatient clinic, and concluded that learners' questions could be used as a tool to access the teacher's knowledge and increase the value of brief educational encounters. In the interaction below, StR 1 asks a question about the significance of multifocality in deciding on adjuvant chemotherapy for breast cancer, triggering a discussion with consultant 1.

StR 1: The other thing I wanted to clarify was when ah... we had this multifocal tumour do we add up.....?

Consultant 1: Yeah. The... again nobody knows, because [] TNM still staged them based on the size of the biggest focus.

StR 1: Hmmm

Consultant 1: Especially if they're all adjacent to each other, I would actually... quote the figure based on you know, if it's all adjacent and not [] sort of multi quadrant, then I would quote the figure based on the total size.

The analysis also revealed several instances of 'scaffolding', defined as a 'process that enables a novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts' [15]. Scaffolding is different from other forms of help in that the teacher has tuned into the learner's current level of understanding, and supports the learner to understand a specific concept or to reach a certain level of knowledge [16]. The following extract is an example of scaffolding, showing teaching and learning occurring during the CBD.

Consultant 1: Yeah so so the CA125 went up to 200, you do the CT scan, [] and it's normal.

StR 3: It's normal. So at the moment we haven't..... we only have biochemical [abnormality

Consultant 1: [Yeah

StR 3: But microscopically something is happening. We have a rising CA 125, and therefore if she wanted to consider treatment I would recommend treatment at that point.

Consultant 1: No. The thing is, ermmm... if you have a high CA125, but a normal CT, you would not recommend chemotherapy because... first of all it's not a specific test for cancer,

StR 3: Right.

Consultant 1: Secondly, if they relapse with such microscopic disease that you can't see it on a CT scan, you're not going to prolong their survival.

Interviews

When asked about the value of CBDs in teaching and learning, all five StRs felt it was a learning opportunity and two suggested that this depended on the consultant conducting the session. StR 6 gave this reply, which summarised the teaching and learning potential of the CBD. Although the need for preparation is stressed, as for summative assessment, it is suggested that this could enhance the educational value.

StR 6: So before actually I come for the CBD I have to read, so I have to sort of prepare myself so he could ask me everything from the type of cancer and also then relate to this patient and having discussed how we manage this patient and how could we manage, help and how we could have done better and I found this quite useful to me

The five consultants were asked the same question, and four felt that the CBD was a useful teaching tool. The one who disagreed felt that teaching worked better in the context of an informal case discussion. Consultant 3 explains how the CBD could support learning, as follows.

Consultant 3: If you actually put aside half an hour to talk though a case, then I think it is an excellent tool because it prompts you to do that. You and I as registrars, you never got that, it was just learn on the job with the odd pat on the back or slap on the wrist if you did something stupid, but this forces you.....I cannot recall ever having half an hour ring-fenced to sit down with a consultant to have a feedback session.....so that in respect it is good and think it's down to the individual isn't it? If you set aside the time and talk around the case then hopefully it is a mutually constructive use of time.

All five consultants and four StRs felt that time constraints had a negative effect on CBDs. Four each also felt that they would like further training in using the actual online form. These concerns were also raised by the two interviewees from other centres suggesting that this was not a local issue. When asked whether they received or provided formal feedback as part of the CBD, all five trainees and all five consultants gave an affirmative response. This suggested that the CBD was being used appropriately as a formative assessment. During the interviews, when asked their opinion of the CBD assessment form, StRs and consultants gave widely varying answers. Three of the five StRs felt that the form was useful, and that it was suited to its purpose. The other two StRs found the scoring format of the assessment form unhelpful, as StR 4 explains:

StR 4: That was the bit we struggled with. I think if it had been a just had a free text, I can see that there were bullet points that you have to cover, particularly when it's for the college or for appraisals and I understand that but it is quite difficult to sometimes fit what you have discussed into what they are asking and a lot of the time you find you are thinking "actually that does not apply".

Of the five consultants interviewed, four found the form user friendly, and did not have any particular issues with it. The fifth one felt it was a little 'clunky' and that the wording of the questions was not clear. Four of the consultants filled in the assessment form at the time of the case discussion, and the StRs felt that this was the ideal format. When asked if they would make any changes to the CBD format, two of the StRs said that they would like the assessment form to have more details regarding the type of case and that they would make the format more flexible. Four of the consultants felt they would not change the format in any way. However, two consultants commented on the fact that they found it difficult to score when the StR was present at the session. Consultants often sounded apologetic or hesitant in the transcripts, when scoring the StR as 'meets expectation' rather than 'above expectation'.

None of the StRs interviewed appeared to find the form intimidating in any way; it was not raised as a concern when they were questioned about the negative aspects of the CBD. It therefore appeared that consultants had more issues with the scoring system than StRs. There are no defined criteria for allocating scores, which could be contributing to the anxiety. It has been suggested by previous authors that the scoring system for WpBAs could be removed, and word descriptors in free text boxes used instead [17]. Crossley *et al.* [18] suggested that the reliability of scoring in WpBAs could be affected by different interpretations of the scoring scales, and that this could be improved using 'construct-aligned' scales, which give descriptions of levels of clinical competence required for each level of rating.

There have been few published studies on the value or validity of CBDs in teaching and assessment. Miller and Archer [19] conducted a systematic review of studies evaluating the effect of WpBAs on education. They found no evidence that CBDs improved performance. However, other subjective reports showed a positive educational value. The PMETB trainee survey of 2007 reported that trainees found the CBD to provide the most helpful feedback compared with other WpBAs [20]. Other reports, also based on surveys of trainees, found CBDs to be more useful than other WpBAs [21].

In all the CBDs analysed, StRs were marked as 'meets' or 'above' expectation for their level of training. This is consistent with the audit carried out by the Royal College of Radiologists, which showed that in another WpBA, the Direct Observation of Radiotherapy Planning, a survey of 1246 ST3 trainees, showed that no trainees were marked below or well below expectation for stage of training, and only 1–2% were marked borderline. Most were at or above the expected level (J. Booth, Head of Specialty Training, Royal College of Radiologists, personal communication).

Concluding Reflections

The data from the transcripts suggest that CBDs are used beneficially as educational sessions as opposed to mere assessment tools. Analysis of the transcripts revealed evidence of teaching and learning in the form of exploratory talk, learners' questions and scaffolding. The CBD could be used to explore concepts such as empathy and communication, which are difficult to address in other teaching formats. It could allow learners to assimilate abstract knowledge and ideas that are essential for professional development. However, this research was not designed to assess whether this learning is retained or effective in the long term. Analysis of the interviews showed that all five StRs and four of the five consultants felt that the CBD was useful in teaching and learning. Most of the participants felt that one of the main strengths of the CBD was that it provided a ring-fenced session for formal discussion of a case; they felt that this allowed more time for teaching compared with opportunistic ad hoc teaching in clinics.

Time constraints and inadequate training in the process have been suggested as the main barriers to conducting

CBDs. The assessment form was felt to add structure to the discussion. However, the scoring scale did not seem to add any significant value, in that most trainees were scored at or above the expected standard. Consultants generally found the scoring process difficult, and this could potentially detract from the educational value due to a tendency to focus on the scoring.

An obvious weakness of the study is the fact that four of the six CBDs analysed were conducted by the researcher, introducing potential bias in that the researcher would wish to prove that learning was occurring. In addition, the conclusions are difficult to generalise in view of the small numbers of participants and the fact that only two were from a different centre. In spite of these constraints, the CBD seems to be regarded by both teachers and learners in clinical oncology as educationally beneficial. The educational value could be improved by providing ring-fenced time for WpBAs in consultants' and trainees' job plans, to improve educational content by providing sufficient time for teaching. Further research is required to explore modification of the scoring scale, to enhance effectiveness.

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References

- [1] General Medical Council. *Learning and assessment in the clinical environment: the way forward*. General Medical Council; 2011.
- [2] Gilson D, Illidge T, Ford D. Current developments in specialty training. *Clin Oncol* 2011;23(7):431–433.
- [3] Jennet P, Affleck L. Chart audit and chart stimulated recall as methods of needs assessment in continuing professional health education. *J Contin Educat Health Prof* 1998;18(3):163–171.
- [4] Academy of Medical Royal Colleges. *Improving assessment*. London: Academy of Medical Royal Colleges; 2008.
- [5] Fish C, Coles C. *Medical education: developing a curriculum for practice*. Maidenhead: Open University Press; 2005.
- [6] Bloom BS. Some theoretical issues relating to educational evaluation. In: Tyler RW, editor. *Educational evaluation: new roles, new means*. Chicago: University of Chicago Press; 1969.
- [7] Black P, Wiliam D. Assessment and classroom learning. *Assess Educat: Principles Policy Practice* 1998;5(1):70–74.
- [8] Green J, Thorogood N, editors. *Qualitative methods for health research*. London: Sage Publications; 2009.
- [9] Pope C, Mays N, editors. *Qualitative research in health care*. Oxford: Blackwell Publishing; 2006.
- [10] Mercer N, editor. *Words and minds. How we use language to think together*. New York: Routledge; 2000.
- [11] Seidman I. *Interviewing as qualitative research; a guide for researchers in education*. New York: Teachers College Press; 1998.
- [12] Burns A. *Analysing English in a global context: a reader*. London: Routledge; 2001.
- [13] Collins J, Harkin J, Nind M. *Manifesto for learning: fundamental principles*. London: Continuum; 2002.
- [14] Wolpaw TM, Wolpaw DR, Papp KK. SNAPPS: a learner-centered model for outpatient education. *Acad Med* 2003;78(9):893.
- [15] Wood D, Bruner JS, Ross G. The role of tutoring in problem solving. *J Child Psychol Psychiatr* 1976;17(2):90.
- [16] Maybin J, Mercer N, Stierer B. 'Scaffolding' learning in the classroom. In: Norman K, editor. *Thinking voices: the work of the National Oracy Project*. London: Hodder & Stoughton; 1992.
- [17] Wass V, Van der Vleuten C, Shatzer J, Jones R. Assessment of clinical competence. *Lancet* 2001;357(9260):945–949.
- [18] Crossley J, Johnson G, Booth J, Wade W. Good questions, good answers: construct alignment improves the performance of workplace-based assessment scales. *Med Educ* 2011;45:560–569.
- [19] Miller A, Archer J. Impact of workplace based assessment on doctors' education and performance: a systematic review. *Br Med J* 2010;341(C5064):1–6.
- [20] Smith D, Kazmierczak A, Aitken M. *National survey of trainees 2007*. Postgraduate Medical Education and Training Board; 2008. 22–40.
- [21] Babu KS, Htike M, Cleak VV, et al. Workplace-based assessments in Wessex: the first 6 months. *Psychiatr Bull* 2009;33(12):474.