Undergraduate oncology teaching OSCEs (objective structured clinical examinations): an effective method of delivering oncology education to medical students

Fei Sun[1], Finbar Slevin[2], Jason Ward[3], Ganesh Radhakrishna[4]

Abstract

Rising cancer incidence and increasing complexity of cancer treatments are major challenges for health professionals. Teaching of acute oncology emergencies is an important aspect of undergraduate medical training. At the Leeds Cancer Centre (LCC) we have run medical undergraduate Oncology teaching OSCE sessions for fourth year medical students for the past 6 years. These sessions provide valuable formative assessment and immediate feedback on performance for the students at the end of their oncology and palliative care attachment. Feedback for facilitators from students has consistently been excellent. We feel teaching OSCEs are a useful method of delivering teaching about acute oncology emergencies and assessing performance following a placement within our cancer centre.

Keywords: OSCE, Undergraduate oncology education, Teaching OSCE, Deep learning

Introduction

Globally, the incidence of cancer has increased significantly over the last 30 years and is set to become a leading cause of morbidity and mortality (Cancer research UK, 2011). Epidemiological analyses have shown that incidence for almost all cancer types have increased in recent years owing mostly to aging and higher levels of obesity and tobacco use (Global burden of disease cancer collaboration, 2013). In the UK and Europe, survival of cancer patients has improved in recent years (Coleman et al, 2011).

There is an increasing level of sophistication within cancer care (Trimble, Rajaraman and Chao, Volume 3, Chapter 15). There is evidence that medical treatment is evolving at an unprecedented rate, with huge changes taking place within management of cancer in the last two decades (Kannampallil et al, 2011), (Wilson and Holt, 2001). This upsurge of complexity has created new challenges for not only existing health professionals, but also doctors for the future.

In the UK, undergraduate non-surgical oncology teaching is guided by curricula set by the Royal College of Physicians’ and the Royal College of Radiologists’ Joint Collegiate Council for Oncology (Royal college of radiologists, 2014). These aim to equip medical students with a basic understanding of cancer diagnosis and principles of management including acute oncology emergencies. Traditionally cancer education was delivered during clinical attachments. Learning consisted of observing the assessment and management of patients with cancer in both inpatient and outpatient settings, combined with attendance at lectures. Despite this, previous surveys have identified shortfalls in medical student's ability to manage patients with cancer, in particular dealing with acute complications of cancer and its treatments (Goldacre et al, 2003), (Cave et al, 2007). Similarly, many junior doctors did not feel comfortable with the management of patients on supportive or end of life care (Bowden et al, 2013). This presents a challenging situation as more patients are living with cancer and will require more frequent access to healthcare.

The OSCE as a method of teaching

First developed in the 1970s, OSCEs have been widely adopted around the world as an effective method of clinical assessment (Khan et
They are now core features of undergraduate examinations and have been applied in a variety of different specialties and settings (Fumio Sano, 2000), (Burch et al, 2005). They form part of the current trend of increasing integrated course content for undergraduate medical education (Riffat and Quadri, 2010), (Irby and Wilkerson, 2003). The format usually involves multiple stations lasting 10-15 minutes each, with one or more examiners (usually senior health professionals) for each station. Clinical skills, communication skills and practical procedures can be assessed in different stations. Examination content can be modified to suit different medical specialties. Real or simulated patients often take part in OSCEs and can also take part in performance evaluation. Performance is scored using standardised marking schemes with subjective valuables to ensure fairness and consistency of examiners’ assessment.

There has been increasing recognition that OSCEs have an educational role in addition to assessment. Evidence points to mid-term use of OSCEs improving students’ performance at final exams and increasing confidence in clinical scenarios (Carrillo-de-la-Pena et al, 2009), (Rushton, 2005). Teaching OSCEs have been shown to be relatively easy to arrange and a cost effective method of developing particular competencies (Jeffries et al, 2011). Small, structured group activities encourage student participation and may be a more effective method of teaching specific skills than the traditional lecture format. The formal nature of OSCEs may encourage students to practice skills in advance. Scenarios encountered during an OSCE and the clinical skills required may be more likely to be retained than information delivered unilaterally. However at present most medical school programs do not incorporate OSCE into clinical attachments as a learning method.

Experience of teaching OSCEs at Leeds Cancer Centre

Prior to 2010, at the LCC, medical students undertook undergraduate non-surgical oncology training during a three-week cancer care attachment in the fourth year of their medical degree. This consisted of introductory seminars followed by experience of cancer management in both the primary and secondary care setting. Students were scheduled to attend ward rounds, clinics and radiotherapy and chemotherapy sessions in the hospital. In the community there were visits to hospices and general practise. Despite this structure, the delivery of oncology education was not consistent. Many felt the lectures were rigid and theory-based, rather than focusing on key knowledge required by a junior doctor.

In response in September 2008 the department introduced oncology teaching OSCEs (tOSCEs) as a mandatory component of the cancer attachment. These take place at the end of each three-week attachment for between 20 and 25 students. These sessions provide valuable formative assessment of learning objectives and immediate feedback on performance for the students at the end of their oncology and palliative care attachment.

The tOSCEs are organised and facilitated by a group of dedicated clinical oncology and palliative care consultants and registrars. All teaching materials are custom made and constantly updated based on student feedback and take account of changes in oncology clinical practice. The sessions initially consisted of four OSCE stations assessing performance within important acute oncology and palliative care scenarios as well as prescribing skills. All sessions are highly interactive and students are encouraged to take a lead role in feedback and discussions. The initial stations were history taking in suspected neutropenic sepsis; simulated breaking bad news; lower limb neurological examination in a patient with malignant spinal cord compression and investigation and management of a patient with abdominal pain and confusion. Each OSCE station lasts eight minutes and there are seven minutes for feedback, questions and discussion between the examiner and the students. The tOSCE is followed by a radiology slide show that assesses radiological interpretation skills and management of common cancer-related conditions (Figure 1).

In September 2014 a prescribing station was added in response to student feedback highlighting the desire for more stations and smaller teaching groups. The new station involved assessment of performance within acute clinical scenarios and demonstration of prescribing skills. Feedback from students about these stations has been positive.

Figure 1: Current format of the teaching OSCE and radiology slide show.
From September 2014 to September 2015 we conducted nine tOSCE sessions and collected feedback from more than 200 students. Over 99% of the students found the sessions to be a useful way to learn and covered relevant learning objectives for the placement. 92% of the students felt that their knowledge was enhanced after the tOSCE. 93% of the student believed the sessions highlighted gaps in their knowledge and skill and 95% of them felt they were better prepared for the June exams. All candidates found the sessions ‘interesting and enjoyable’ and 87% of the students had increased motivation to explore subjects in greater depth (Azer, Guerrero and Walsh, 2013). We believe that by utilising the tOSCE we manipulate students’ strategic learning objectives (i.e. pass the exam) to help facilitate a reflective learning spiral based on the specific case scenario encountered in the station to engage deeper learning of acute oncology and allow them to synthesise and apply these skills in their future practice as junior doctors.

In December 2015 the tOSCEs were conducted within in a former hospital ward now repurposed as our oncology education hub. Prior to then an outpatient department had been used. The hub allows teaching within a simulated clinical environment with realistic equipment but remains a safe space for training and development of clinical skills. It has been designed specifically for the purpose of teaching and feedback from students using the hub since its inception has been positive. We plan to further develop our learning platform with the use of filming to allow us to review specific evidence of good performance and areas to be improved with the students.

The tOSCE has encouraged inter-departmental collaboration between clinical oncology and palliative care. Specialty registrars in oncology and palliative lead these sessions and they encourage participation in medical education. Involvement in facilitating tOSCEs has led to registrars undertaking other teaching activities including lectures and training as summative OSCE examiners for the University of Leeds. Other registrars have further developed their interest in medical education with the pursuit of higher qualifications such as the postgraduate certificate in education (PgCE) and medical education fellowships.

**Conclusion**

Increasing numbers of patients are being treated for cancer and may present to healthcare professionals outside of the oncology department therefore communication and acute oncology emergency skills are transferable to many medical specialties and are not unique for those interested in oncology. Our experience of using teaching OSCEs for assessing performance of these key clinical skills and testing the acquisition of learning objectives for the undergraduate cancer care placement is very positive. Students value the opportunities for personal involvement that small group teaching provides and feel that the sessions aid the development of important clinical skills. They provide an experience of the OSCE format that assists with preparation for summative university OSCEs. We have used feedback from students to develop our learning platform with new scenarios and the creating of the medical education hub environment. The registrars organising and facilitating the teaching OSCEs have used their positive experiences to further their own interest in medical education.

**Take Home Messages**

Teaching OSCEs (tOSCEs) for undergraduate oncology education have been used at the Leeds Cancer Centre for 6 years.
>90% of students found tOSCEs useful and enhanced knowledge in oncology.

tOSCEs assist with deep learning.

Notes On Contributors

Dr Fei Sun - Specialist registrar in clinical oncology at Leeds Cancer Centre, UK

Dr Finbar Slevin - Specialist registrar in clinical oncology at Leeds Cancer Centre, UK

Dr Jason Ward - Clinical Senior Lecturer in Palliative Medicine, Consultant in Palliative Medicine, St Gemma's Hospice, Leeds, UK

Dr Ganesh Radhakrishna - Joint Cancer and Continuing Care Academic Manager for undergraduate oncology education at university of Leeds, Consultant Clinical Oncologist and RCR College Tutor

Acknowledgements

Bibliography/References

1. Alison Rushton, Formative assessment: a key to deep learning? Medical Teacher Vol 27, Iss. 6, 2005

http://dx.doi.org/10.1080/0142159050129159


http://dx.doi.org/10.3109/0142159X.2013.775413


http://dx.doi.org/10.4997/JRCPE.2013.105


http://dx.doi.org/10.111/j.l1365-2929.2005.02192.x


7. Carrillo-de-la-Pena, Maria T.; Bailles, Eva; Formative Assessment and Academic Achievement in Pre-Graduate Students of Health Sciences; Advances in Health Sciences Education, v14 n1 p61-67 Mar 2009


http://dx.doi.org/10.1038/sj.bjc.6603888


http://dx.doi.org/10.1016/S0140-6736(10)62231-3


http://dx.doi.org/10.1001/jamaoncol.2015.0735

http://dx.doi.org/10.1136/bmj.326.7397.1011


http://dx.doi.org/10.1046/j.1525-1497.2003.21049.x


http://dx.doi.org/10.1007/s10459-011-9275-6


http://dx.doi.org/10.1016/j.jbi.2011.06.006


http://dx.doi.org/10.3109/0142159X.2013.818635


http://dx.doi.org/10.1023/A:1009763812617

18. Riffat Shafi, K. H. M. Quadri Experience with a theme-based integrated renal module for a second-year MBBS class Advances in Physiology Education Mar 2010, 34 (1) 15-19;

http://dx.doi.org/10.1152/advan.00069.2009


http://dx.doi.org/10.1136/bmj.323.7314.685

Appendices

Declaration of Interest

The author has declared that there are no conflicts of interest.