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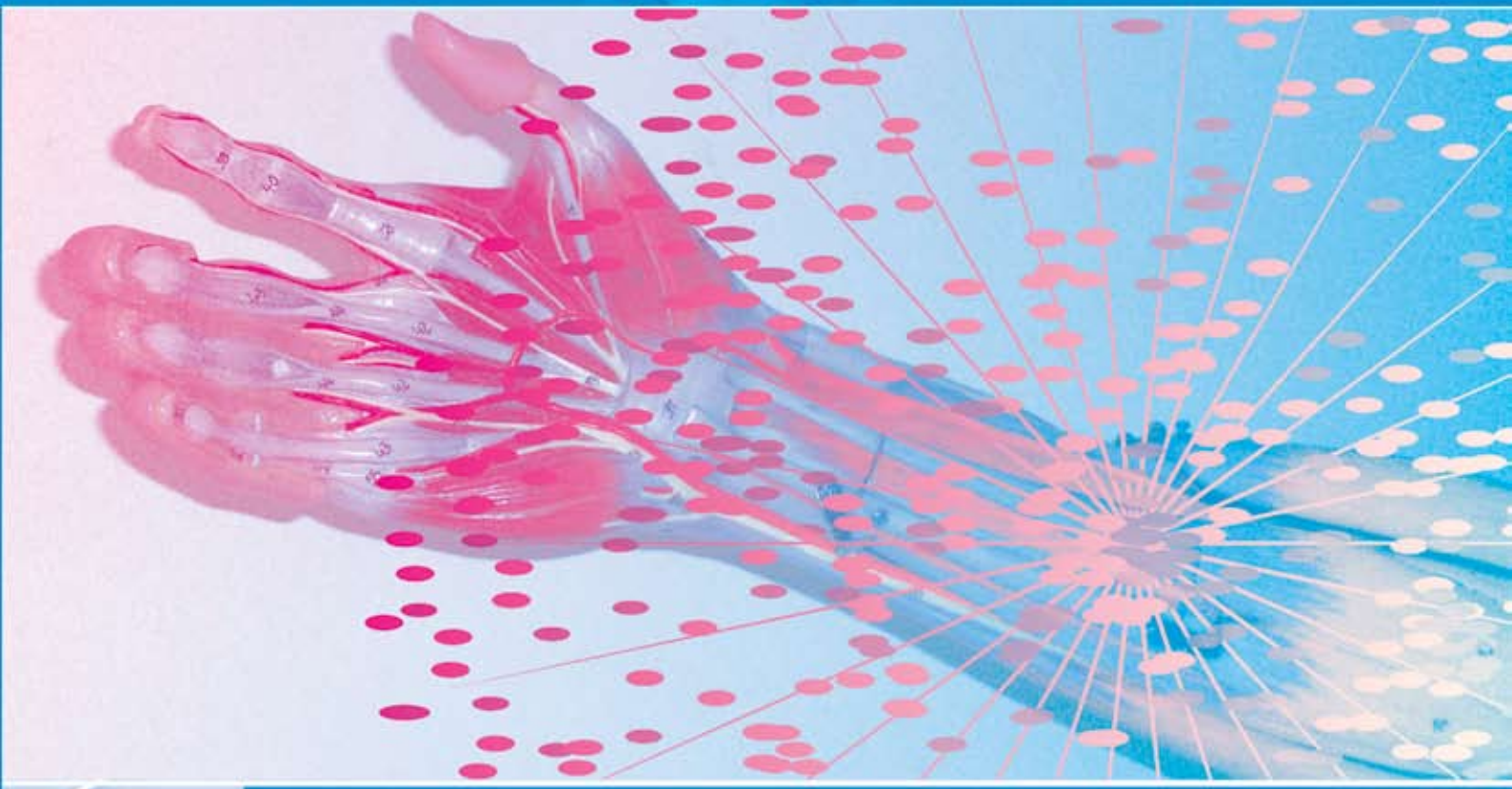

A Peer Reviewed International Journal for the Advancement of Clinical Skills
- 'docendo ac discendo' - 'by teaching and learning'

In this issue:

Executive Board

IJOCS
DOCENDO AC DISCENDO

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The International Journal of Clinical Skills looks forward to contributing positively towards the training of all members of the healthcare profession.

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Foreword

Globalisation and Clinical Skills

The International Journal of Clinical Skills (IJOCS) – the new road to new skills? Maybe – but it has certainly opened a platform for the globalisation of clinical skills. The World Health Organisation's (WHO) programme on globalisation targets public health risks, security and outcomes. Driven by the concept of "global public goods" and cross-border health risks, the underpinning issue is to promote health for the poor by way of achieving national health targets. As with the IJOCS, the WHO strategy seeks new technologies in the clinical arena to provide investigative tests – with the WHO being particularly interested in those tests which are suitable for developing countries along with new drugs for endemic diseases. The aims are indeed noble. Investigative and therapeutic technologies create a vacuum for the dissemination, sharing and globalisation of clinical skills, which remain the main asset and commodity which clinicians of poorer nations exercise, promote and share. The IJOCS has released a bolt for health professionals to do just that – share knowledge.

The provisions of the healthcare industry in developed countries by sheer volume and demand, streamlines clinical skills into sub-specialised areas. Clinicians (medical, paramedical and nursing) in these areas gain clinical expertise that are unique to their field and emerge from rich patient-clinician interactions. The clinical skills of dealing with children with disabilities, rehabilitation medicine and terminal care are mere examples that are deficient in the poorer health economies that spend the best part of their human resources to combat diseases of malnutrition and poor sanitation.

The IJOCS provides a global resource centre for sharing and promoting clinical skills between clinicians and health professionals. Senior clinicians, who practiced medicine during the last four decades, will have recognised a gradual and progressive pattern of dependence on technologies with less reliance on clinical skills. The IJOCS provides a platform for sharing and debating the inter-phase and interactions between new technologies and clinical skills. It promotes the development of a new layer of clinical expertise that will emerge from the interpretation, application and/or exclusion of new technologies, for the benefit of clinical care.

I trust that clinicians practicing in poorer health economies will enhance the Journal by sharing their clinical skills and knowledge. Their special expertise of managing clinical needs, within restricted resources, expectedly stimulates the human ingenuity and creativity, leading to the development of clinical skills suitable for each unique circumstance. I, for one, will be actively supporting the IJOCS innovative approach to collaboration of skills. The IJOCS will provide a vehicle for the transmission of these skills across the globe for sharing expertise between different health economies to enrich the overall clinical skills arena.

Hippocrates recognised the professional responsibility of the individual clinician by stating that physicians "must have a wealthy …medical knowledge, clinical skills, medical ethics, interpersonal skills,…". The IJOCS improves the physician's opportunity to enhance his/her clinical skills "by teaching and learning".

Dr Atef R Markos FRCOG FRCP

Designing a clinical skills programme: a partnership between students, patients and faculty

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KEYWORDS:
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Abstract

This paper describes the design and implementation of a clinical skills programme within a new UK medical school and the journey that students take in the development of their clinical skills base. The approach at Brighton and Sussex Medical School (BSMS) is to integrate clinical skills training horizontally and vertically throughout the course, providing an array of opportunities to develop specific skills and a variety of different methods including the use of purpose built clinical skills facilities and extensive patient contact. The focus of the design template was to ensure students would be able to understand the scientific and clinical basis for learning their skills and where to integrate them into their practice. This template is delivered using a building block approach, where students first develop basic skills, which are repeated and enhanced as the course progresses. The provision of extensive formative opportunities to test their own skills development including mock OSCEs and simulators has, in the eyes of the students, helped lead to high levels of competence being achieved in summative assessments. However, until the first cohort of students enter their postgraduate training and development phase, a definitive assessment of our approach to clinical skills is not possible. The feedback from students, patients and faculty thus far though, plus results from clinical skills assessments, indicate that our students are prepared for the delivery of effective patient care.

Introduction

The opportunity to design a new clinical skills programme is both exciting and challenging and one that does not come along very often. When Brighton and Sussex Medical School in the UK opened its doors in 2003, its main aim was to offer a 5-year undergraduate medical course that prepares 'new doctors to meet the challenges of UK healthcare in the 21st century'. An essential part of this aim was to develop a clinical skills programme that would provide a firm foundation that students could build upon throughout the five years. The integration of a wide range of skills and up-to-date technical knowledge was aimed at developing capable junior doctors focussed on the delivery of first-class patient care. Although clinical skills have been introduced much earlier in many undergraduate programmes, evidence shows that students graduating from medical school still feel under-prepared in terms of their skills base when taking up their first postgraduate post [1,2,3]. This suggests any strategy used in the development of clinical skills must be underpinned by relevance to the principles of clinical practice, thus ensuring students not only learn the necessary skills but also when and why they would be applied. There are differing views on how clinical skills should be taught and learned [4,5], however in the UK the General Medical Council has set out the standards of practice that students are required to demonstrate by the time of graduation, [6] and curricula are devised around these.

BSMS has chosen to use a systems-based approach that combines basic scientific and clinical knowledge and skills in an integrated manner. These elements are threaded in both a horizontal and a vertical design so that students recognise the potential advantages for integrated learning at an early stage of their career [7]. From the initial phase of curriculum development, the faculty took the view that integrated learning would require clinical skills training to play a vital role. Learning opportunities were identified throughout the course where clinical skills should be used to ensure students could demonstrate the standards of practice outlined by the GMC. The increased awareness and importance of introducing clinical skills in the early years of medical programmes has led to a number of advances in the methods used to aid student and professional learning. The school recognised that an effective clinical skills programme was not a simple matter of collecting together a series of educational innovations, so a template was designed to ensure students would be able to understand the scientific and clinical basis for learning their skills and where to integrate them into their practice. Critical to the acquisition of maximum benefit from an integrated approach has been the level of patient involvement throughout the course.

A Clinical Skills Journey

The clinical skills journey for all students at BSMS starts in the first phase of the course (years 1 and 2), where approximately 25% of the learning is in clinically based modules where students gain experience in primary and secondary care as well as community medicine. At the same time, students study normal and abnormal functioning of the human body in the system-based modules. The clinical skills teaching and learning opportunities in the year-long clinical practice modules are tailored to a specific clinical area that is the focus of the

concurrently running system-based module. For example, in the system-based 'Heart, Lungs, Blood' module, students would be learning about the structure and function of the heart while the concurrent Clinical Practice module provides the opportunity and clinical placement during which they begin to develop the skills of clinical examination and history-taking related to the cardiovascular system. Such learning is further supported through living anatomy sessions, where students are introduced to the skills of anatomical examination through palpation of surface features. This consented peer examination approach also provides students with an early opportunity to understand what it is like to be a patient as well as the doctor [8]. Overall the focus of skills training in the first two years is in history taking, physical examination, basic diagnosis and effective communication with patients. Combined with this is a strong theme of reflective learning where we encourage students to think about the experiences they encounter during their clinical placements and identify opportunities for further personal development. For example, students develop reflective portfolios as part of their clinical skills training and individual patient studies, in which they relate clinical findings and treatment to the underlying clinical and social sciences. These portfolios are discussed regularly with personal tutors and feedback is given about individual learning needs and skills that need to be improved.

At the start of the second phase of the course (years 3 and 4) students consolidate the skills learned in the early years and are introduced to clinical medicine as it is practised in secondary care, within a more advanced Clinical Practice Module. This eight-week course is designed to provide an opportunity for students to apply their knowledge of basic physiology, biochemistry and anatomy to clinical situations, to build on their history taking skills and develop their basic resuscitation and examination skills to an intermediate level. By the end of the module students should have the ability to take a simple medical and surgical history from a patient and communicate an understanding of the basic legal and ethical issues that underpin the duties of a doctor. Ward-based attachments within the teaching hospitals are the location for further skills development in the areas of medicine, surgery, reproductive and child health, mental health and elderly care. These environments provide an opportunity for a progressive experience in a clinical context. During the second phase the balance between clinical and academic studies is maintained, so that students continue to recognise the relevance of the skills they are learning and put them into a context of the underlying clinical and social sciences and public health issues.

Year 5 provides clinical and professional preparation for the first postgraduate year and again is a time for recall, consolidating and extending of the knowledge, skills and professional attitudes required as a junior doctor. Students undertake three periods of regional attachment in which they experience a rotation of clinical placements in hospital and community settings. Students are provided with a list of conditions that they are likely to encounter after they graduate and which the faculty consider essential for students to clerk and demonstrate an understanding of their management. Between the attachments students attend a block of instruction in practical emergency medicine, based in the school's clinical skills facilities. In addition an online programme of study has been constructed that contains over 400 case studies designed to enhance clinical and professional skills development while testing the knowledge base required for effective patient management. In view of the progressive nature of the clinical skills training over a number of years of study it has been necessary to build upon skills and practices the students have already gained, whilst providing opportunities for repetition, which has been shown to reinforce learning [4]. Year 5 is an opportunity for a more self-directed learning experience and students are therefore encouraged to make the most of any chances to learn from patients and the multi-disciplinary team immediately responsible for their care.

Clinical Skills Facilities

The Clinical Skills Facilities at BSMS are central to the delivery of effective training in clinical skills at all stages of the programme. Providing a realistic setting early on in the programme allows students to gradually enhance their proficiency in specific skills, including team working and to build their confidence to perform similar tasks when they move into a real clinical environment [9,10]. Students are encouraged to reflect on their own competencies in each skill and identify their strengths or weaknesses. Members of faculty are well placed to assess students' development and provide relevant and demonstrable feedback quickly. Building upon the facilities found in other centres in the UK, the clinical skills suites at BSMS are equipped with basic and more advanced clinical skills instruments housed within replicated wards and GP surgeries [10,11]. An array of interactive audio-visual equipment has been installed alongside several sophisticated simulators, all of which are staffed by technical and clinical support staff as well as faculty. Students use the facilities at all stages of the course, with defined training periods and skill acquisition targets built into the clinically focussed modules and rotations, as well as stand-alone sessions encompassing specific skills development such as practical emergency medicine training. Time has been set aside, especially within the later years, as 'open sessions' for students to use the facilities to further develop those skills that require additional practice. A series of videos filmed by members of BSMS clinical faculty demonstrating specific clinical skills are available for students to use and download via the managed learning environment. Students have commented that these resources have been 'invaluable' especially in preparation for Objective Structured Clinical Examinations (OSCEs).

Simulation has been an integral part of training in the aviation industry for many years [12] and has more recently become an established mode of learning for medical students and practitioners [9]. We use a range of low technology and high-fidelity simulators, with the complexity of the system related to the nature and level of the skills being developed. The Cardiopulmonary Patient Simulator commonly known as 'Harvey' is used for instance when students are learning diagnostic skills in the field of cardiac care, whereas the system designed by Medical Education Technologies Incorporated (METI) is used for the more advanced students to assess their ability to manage scenarios that require clinical input, or where pharmacological manipulations are necessary. The interactive nature of the manikins helps to re-create some aspects of a real clinical situation, but in a safe and controlled environment. Students work in teams and provide each other with effective support and feedback thereby introducing an interprofessional approach that prepares students for the reality of the clinical setting. Despite the apparent lack of evidence in the literature to date [9], we firmly believe that it is important to give students

the opportunity to learn from the mistakes they make in a simulated environment, in the hope this will better prepare them for managing such emergencies in the work place. This simulated approach also teaches students in a powerful yet safe way to recognise the potential consequences to the patient if a mistake occurs. The student response to the use of simulators has been mostly positive with students reporting that "it prepares you for the impact emotions and pressure can have upon your clinical judgement" and "builds on experience so your first job is not the first time you encounter such challenging situations". Students also comment "you learn from your mistakes so getting a chance to try it out first is great". When first confronted with the manikins students take a little time to get into character and suspend the reality that the manikin cannot communicate, but soon become engaged in the process of patient care. Students are able to demonstrate empathic behaviours towards the simulators and communicate appropriately, although this is probably to a lesser extent than when using real patient situations. A similar outcome has been noted when using virtual patient scenarios [13].

The role of the patient

Professional bodies recommend the involvement of the patient in the development of the learning philosophy and training of healthcare students including medical trainees [14]. In the past, the role of the patient has been largely passive, but in most cases has been received as a positive experience by the patients involved. More recently 'real' and standardised patients and in some cases their carers have become patient partners or patient instructors and are active participants in aspects of curriculum development, delivery and even assessment [15,16,17,18]. At BSMS, a patient-centred approach to the acquisition of clinical skills is embedded from the first year so that students are exposed to the doctor-patient interaction early on and can see how illness and healthcare issues can affect an individual and their family [19]. Work with patients in the community and out in primary and secondary care environments enables students to gain experience of real clinical problems in clinical settings, often involving a multi-professional healthcare team.

In the past, the variability in the experience students receive from interactions with patients has led to the use of standardised patients in medical training [15]. At BSMS we use standardised patients (SPs) in a variety of situations including acting as a mainstay of the OSCEs that are held throughout the programme. We encourage SPs to be fully involved in the process, asking them to comment on the efficacy of the stations and providing a global score for the performance of each student. Although not yet used as a part of the formal marking system at this stage, this feedback is an essential part of the review process. This patient led teaching provides benefit to both patients and students [17]. Using either real or standardised patients within the clinical skills teaching requires varying degrees of training, as it is important for the patients to remain aware of the purpose of the specific session and their role in the educational process.

The majority of students have expressed the view that the most valuable resource that has been afforded to them throughout their medical school training is the opportunity to interact with and learn from patients. They believe that sessions where patients provide feedback on the skills and attitude of the 'would be' doctor have been the real 'litmus' test of how well they have progressed through the five years. The interweaving of clinical skills training through the medical school apprenticeship appears to have changed the dynamic of student-patient interactions. Towards the end of this training students have gradually succeeded in taking on the role of provider towards patients rather than recipient.

Assessment

The introduction of clinical skills training as early as year one of the curriculum has shaped the time-line by which learning outcomes can be demonstrated. The faculty at BSMS felt it was essential that the ability of students to perform and engage certain skills be formally evaluated throughout the course, including year 1. Whilst others have used clinical-skills assessments at the end of the first year of medical school [20], there are relatively few examples of using a substantive OSCE at this stage of training [21]. OSCEs are probably the most widely used form of clinical skills assessment and have been shown to be a reliable and valid approach in both undergraduate and postgraduate medical training [22,23]. It is important that the year 1 and 2 OSCEs are set at the appropriate skill level based on the curriculum content. The experience must be as non-threatening as possible, whilst retaining a clear standardised format. The ability of students to integrate their clinical skills with the basic science knowledge they have gained in the system-based modules is assessed through a number of integrated stations threaded through the OSCE examinations. The inclusion of OSCEs so early in the curriculum has the advantage of familiarising students with what is expected in this form of assessment and the nature of the stations that are likely to be used for final assessment. Our observations are that when students are again assessed by OSCEs or Integrated Clinical Examinations (ICEs) later in their course (in years 3 and 5) students are less flustered by the examination format itself and instead are able to concentrate on demonstrating the examination and communications skills they have learned. Students observe that first year OSCEs are indeed "nerve racking" but on reflection they can see that their inexperience and inelegance in these early assessments is replaced by confidence and capability as they reach the final year. Although students still feel nervous during final year OSCEs, they have reflected that the past experiences support the acquisition of a sense of confidence and empowerment as the skills of the past five years of clinical training fall into place.

Formative opportunities to practice skills in an OSCE and ICE setting are built into the programme and faculty use these mock assessments to provide feedback to students on their skills development and to direct further training. Others have used OSCEs as teaching tools as it allows feedback to be directly linked to the observation of the students performing the skills [24]. This chance to observe students in a less threatening environment along with summative clinical skills performance acts as an additional facet of curriculum review [23].

Student Evaluation

Involvement of the student population in the development of the clinical skills programme has been an evolving one. We have had the advantage of student input into curriculum design from

a very early stage and student representatives are members of all the committees that are responsible for reviewing and managing the course. In addition we encourage students to provide qualitative and quantitative feedback on all aspects of the course through end-of-module questionnaires. Student evaluation of the clinical skills learning reveals that students have identified the usefulness of having clinical skills sessions from an early stage of their learning. 94% of the last cohort of first year students felt they learned a lot from the clinical skills sessions and by the end of the year 95% of them felt more confident about talking to patients and taking patient histories and 92% of students agreed or strongly agreed that they felt more confident examining patients at a basic level. This trend continues in year 2, where an average of 88% of students still feel they learned useful information from defined clinical skills sessions, with particular comments directed at psychiatry skills. Surprisingly, only 72% found they were more confident about examining patients at the end of this year, which may be due to less new techniques being introduced or students already feeling comfortable about their level of skill. Students appear to respond well to the development of more advanced skills in later years, with 88% of students, for example, agreeing or strongly agreeing that the Clinical Foundation Module at the start of year 3 prepared them for subsequent clinical rotations. Students identified improvements in their skills in all subject areas covered in years 3 and 4 although there was variation in the ratings achieved. 89% of students declared strong or very strong improvement in their dermatology skills for instance compared to 53% in ophthalmology/ENT based skills. Students like the formative opportunities they receive to practise their skills, with 94% of first and second year students learning a lot from the mock OSCEs, and which they describe as 'incredibly helpful' and 'great preparation'.

There are a small number of students that suggest that some skills receive too much repetition. Others have identified that several of the skills taught in the early years are not directed in the way they would be approached on the ward and we are using this feedback to review how and where these skills are taught in the future. Despite this 90% of students thought the teaching and facilitation of clinical skills sessions was either good or excellent, and regular comments are made about the enthusiasm and commitment of the staff.

The Thinking Performer

The deliberate attempt at BSMS to instil a building block approach to clinical skills and its interwoven relationship with reflective learning is designed to drive our students to taking on the role of the 'thinking performer'. Such a concept has been used in the area of Human Resource Management and is designed to focus trainees on thinking and reflecting as well as performing and to promote a critically thoughtful approach[25]. The 'thinking performer' paradigm is probably even more relevant to the medical community where students are required to respond to new and different situations and be able to subsequently critically reflect on experiences. In this way, students continually challenge themselves and impose their own improvement goals. As early as the first few weeks of year one, students are encouraged to give more than just a superficial review of their clinical experiences and instead are asked to provide evidence of some deeper reflection by scrutinizing rather than simply describing their thoughts. Although students find this skill difficult at first, the aim is for them to begin to naturally reflect in all areas of their learning. It is important that we do not end up with the 'non-thinking performer', where a student carries out instructions and skills without knowing or perhaps even caring about the purpose or potential consequence.

Near-Peer Teachers

The past experience of junior doctors feeling under-prepared when entering the clinical environment and similar perceptions from mentors has been one of the main drivers in developing our integrated and vertical approach to learning clinical skills [1,2,3]. We have encouraged students to recognise that opportunities to identify and develop skills are directed at preparation for the work place and treating patients and not just as an aid to passing examinations. One way to enhance this further is to increase the amount of near-peer teaching within the programme, thus allowing more experienced students to emphasise the importance and relevance of certain skills and attitudes to lesser-experienced colleagues. In addition, such teaching sessions provide the near-peer teachers with an unrivalled opportunity for reinforcing their own learning [26]. At present we have fourth year students teaching clinically related anatomy to first and second year students during dissection sessions. Fifth year students aid in the teaching of clinical skills to students in earlier years of the course and play an invaluable role in the OSCE preparation of students in years 1 and 2, as they help develop particular skills and provide important feedback, a practice that has been shown to enhance the value of the OSCE [21]. All participating students receive the necessary training and feedback suggests that they have begun to recognise themselves as teachers and the phrase "see one, do one, teach one" is already a familiar part of their practice.

Conclusion

The opening of Brighton and Sussex Medical School in 2003 afforded an exciting opportunity to design a new clinical skills programme. The approach taken was to integrate clinical skills training from the first year of study and provide an array of opportunities to develop specific skills and use a variety of different methods including extensive patient contact. So how do we know whether our method of clinical skills training is successful? Obviously until the first cohort of students enter the postgraduate years of their training and development, we will not be able to definitively assess the success or failure of our approach. However our earliest indications from students, patients and faculty plus results from clinical skills assessments show that we are indeed instilling these skills into our trainees.

Information on authors

Prof. Darrell Evans is Associate Dean and leader of Phase I of the Undergraduate Medical Course at Brighton and Sussex Medical School. As an anatomist and Professor of Developmental Tissue Biology, Prof. Evans has extensive experience of teaching and assessing in medicine and dentistry. In addition he is a member of the Medical Education Unit and his pedagogical research specialises in communicating with different audiences.

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