

EDUCATION AND TRAINING Improving diabetes and endocrinology specialty training with modest resources: the Health Education West Midlands model

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ABSTRACT

Introduction

In the current pandemic, there is a significant disruption for medical training. It is essential that clinicians can access high-quality, targeted educational content to support their clinical working and training development. This content must be delivered on a background of increasing clinical pressures and budgetary restrictions.

Methods

Educational innovations and supplementary educational content (such as digitisation, simulation, curriculum mapping, trainee representative role definition, research and innovation training) were implemented. We measured the impact of these interventions on cost reductions and changes in trainees' self-reported confidence levels to manage various clinical scenarios post-interventions.

Results

Using digital technologies reduced both costs and administrative burdens. Simulation-based learning helped improve trainees' self-reported confidence levels.

Conclusion

Collaborative working across training programme directors, specialist training committee members, educational supervisors, trainee representatives and trainees themselves can develop high-quality educational programmes that support clinical exposure. We propose that elements of the model described here can be replicated across regions and different specialties to support the highest quality of education for UK trainees.

KEYWORDS: diabetes, endocrinology, medical education, digitisation, simulation

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Introduction

Diabetes and endocrinology (D&E) training within the West Midlands incorporates training in 12 participating hospital sites. There are currently 29 trainees in the region. Typically, four to seven trainees start the training programme each year. Each trainee spends 18–24 months in university hospital(s) and 36–42 months in district general hospitals.

The traditional structure of training involves 6 training days each calendar year, with trainees expected to attend at least 4 days. These teaching sessions were chaired by consultants who chose the theme for the session based on their expertise. On a rotational basis, three trainees are invited to present for 45 minutes on each of the topics, followed by a 30-minute summary presentation by the chair.

Although there has been a consistent overall satisfaction with the training programme, concerns regarding curriculum coverage have persisted. These concerns were raised both through the General Medical Council survey and at specialist training committee meetings. Therefore, there was a clear mandate to develop innovative approaches to the deanery-arranged elements of the training programme. Here, we describe how the specialist training committee and trainee representatives set out

to establish an improved training programme in Health Education England, West Midlands region.

Digitalising D&E training days

Prior to going paperless, we printed approximately 1,200 pages annually towards training days. Further, each year we spent approximately 100 human hours towards printing and organising the meeting. These tasks are usually performed by trainee representatives who are specialist registrars in the region and receive no additional time or expense towards meeting organisation.

Some of the issues with existing training days included lack of a single point of access to training day rota and other relevant documents; inability to track paper-based registration, attendance and feedback system; and lack of transparency in the training day rota. The region already had a dedicated Google-based email address and Google Drive cloud-based file storage and synchronisation service. Using the existing resources, we created a Google Forms document for trainees to register and subscribe to mailing and training activities in the region. Once registered, they had access to a trainee-led pre-registration system where they can register their interest to attend a particular training day. An on-site Google Forms-based registration was made available, which upon completion triggers another Google Forms document through which trainees can provide feedback regarding the training day. Linked to the feedback form is an automated attendance certificate generation system based on Autocrat (a flexible, easy-to-use G Suite tool that merges data from a Google spreadsheet into a Google document or PDF). Once the trainee completes the feedback form, Autocrat generates a unique time-stamped certificate personalised with the trainee's name and details of the training day. A detailed schematic of the system is depicted in Fig 1.

We also created a dedicated online folder within the Google Drive system which contains several documents relevant to D&E training, including training day rota, programmes, up-to-date specialty training guidelines by the Joint Royal Colleges of Physicians Training Board (JRCPTB), guidelines and protocols for various diabetes and endocrine conditions.



Fig 1. HEWM process for trainee access to D&E training, June 2020.

D&E = diabetes and endocrinology; GDPR = General Data Protection Regulation; HEWM = Health Education West Midlands.

In order to be General Data Protection Regulation (GDPR) compliant, we introduced a Google Forms-based system through which we seek trainees' consent to use their contact details to provide access to the above-mentioned system bi-annually.

Simulation via Instant Messaging – Birmingham Advance: paving the way to simulation training in endocrinology and diabetes

Developments in digital health-based educational interventions have also allowed for the specific development of low-cost digital simulation.¹ Simulation-based learning (SBL) has been increasingly used in both undergraduate and postgraduate medical training curricula.²⁻⁷ To our knowledge, SBL has not been used in the field of endocrinology except for the use of SimMan 3G.⁸ Although the use of SimMan in training provides trainees with realistic experiences in patient management, they are expensive and not widely available.⁹

Simulation via Instant Messaging – Birmingham Advance (SIMBA) is an innovative simulation-based learning model developed in collaboration with the Institute of Metabolism and Systems Research, University of Birmingham, and Health Education West Midlands D&E specialist training committee. Fig 2 describes the events and process that happen during a SIMBA session. A detailed description of the methods used to develop SIMBA is reported elsewhere.¹⁰ We conducted two SIMBA sessions (one endocrine focused and another diabetes focused) as part of the Health Education West Midlands D&E training day in 2019. In the endocrine session, there was a significant improvement in trainees' confidence in the management of craniopharyngioma ($p=0.0179$) and acromegaly ($p=0.0025$). There was a trend towards improved confidence levels to manage Cushing's disease and macroprolactinoma. In the diabetes session, there was a significant improvement in trainees' confidence to interpret continuous glucose monitor readings ($p=0.01$). There was a trend towards improvement for managing monogenic diabetes, hypoglycaemic unawareness and interpreting Libre readings. Overall, there was a significant improvement in trainees' confidence in managing cases that were discussed post-simulation. Also, 70.8% (17/24) and 75.0% (18/24) strongly agreed the simulation session accommodated their personal learning style and the session was engaging; 66.7% (16/24) strongly felt that the simulation was worth their time. Based on these results, SIMBA can be considered an effective learning model to improve trainees' confidence to manage various diabetes and endocrine case scenarios. This has now been incorporated as an integral part of specialty training in the West Midlands and more sessions with a variety of other specialty case scenarios are being planned.

Incorporating additional educational opportunities

As part of the overhaul of specialty training days in 2019, the Health Education West Midlands specialist training committee approved increasing the number of training days from six to seven to incorporate SIMBA. After liaising with the specialist training committee and Midlands Endocrine and Diabetes Club (MEDC) organising committee, MEDC is now incorporated as a part of the mandatory training days. The latter is a biannual regional meeting in the West Midlands designed to bring

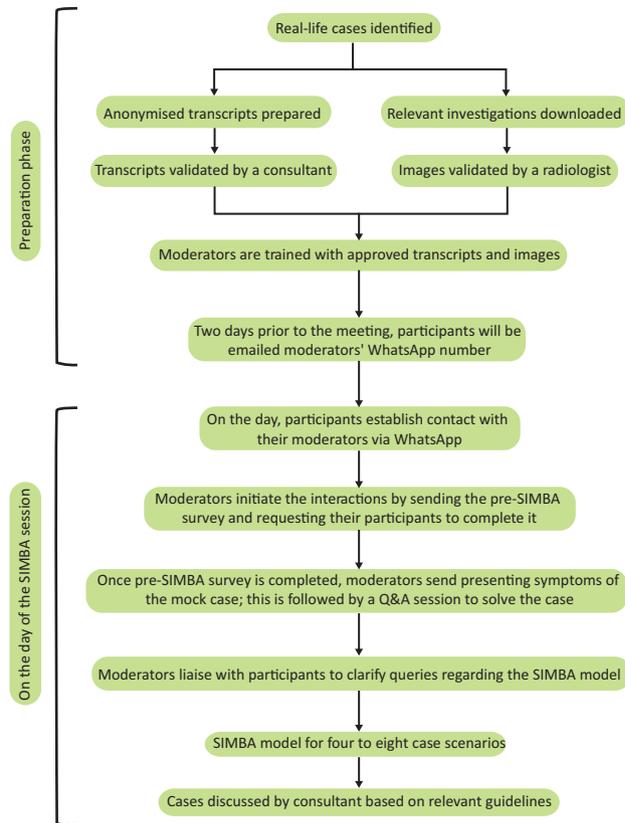


Fig 2. Events and process during a SIMBA session, January 2021.

SIMBA = Simulation via Instant Messaging – Birmingham Advance; Q&A = question and answer.

together consultants, doctors, specialist nurses and trainees.¹¹ In this model, we conduct SIMBA sessions in the morning and participate in the MEDC in the afternoon biannually. Trainees attend at least one such day each year including a case abstract submission for presentation at the MEDC meeting. This has two benefits: providing a platform to showcase regional research and practice; and improving networking opportunities. This is now well received by the trainees reflected by increasing attendance in the last such training day.

Fixed curriculum training days

Historically, training days were based on curriculum coverage over a 3-year period. And the existing training days were based on the individual chairs' expertise, which may have resulted in repetition of certain topics and the recommended syllabus could not always be covered in the 3-year period. Therefore, we introduced a fixed curriculum rota based on JRCPTB recommendation for D&E training.² The model covers the entire curriculum in 2.5 years so that all trainees rotate through the curriculum twice during their 5 years' specialty training programme, thereby maximising educational opportunity. The fixed rota also incorporates wider innovation including simulation, respectful challenge and is future-proofed to include topics proposed in the new curriculum currently being developed by the specialty advisory committee.

The development of the fixed rota with the curriculum item mapped code and subsequent distribution over a 2.5-year rolling rota is shown in the supplementary material S1.

Defining trainee representative roles

The trainee representatives play a key role in organising training opportunities and facilitating communication with trainees. Previously, the arrangement for trainee representation was informal with no agreed roles. In November 2019, we established an agreed trainee role descriptor that outlined both the key representative roles, length of post for trainee representatives and recruitment process for new trainee representatives to ensure transparency for trainees, trainee representatives and the specialist training committee (supplementary material S2).

Discussion

In the current context of resource-limited NHS services and educational budgets, it is vital to ensure high-quality education is provided to prepare the best possible specialists who can adapt to the ever-changing medical field.¹² A particular strength of the interventions described is that using digital technologies limits both costs and administrative burdens; this is further supported by clear role descriptors. The average number of participants increased from 20 to 26 per session following the changes described. The possible reasons for improved trainee engagement in the region could be the tailored innovations based on the local needs and increased opportunities. However, this is speculative as we did not measure the reasons as part of our changes.

These innovations were supported by regional charities and academic institutes who were, in turn, supported by unrestricted educational grants by pharmaceutical companies. Therefore, long-term sustainability depends on their ongoing support. Also, all administrative aspects for these meetings and innovations are delivered by trainee representatives supported by several other members in the West Midlands deanery. While we have made some effort to clarify the trainee representatives' roles, this may need revising depending on how the meetings evolve in the long term.

Summary

We have shared some of the practices we introduced to help improve the quality of training and education we provide for D&E trainees in the West Midlands. We feel this model is generic and can be adapted to any specialty and region with necessary adaptation to suit individual needs.

Future directions

We are currently focusing on sustaining our initiatives. A survey is currently underway to map all diabetes and endocrinology consultants in our region and their expertise. This directory will help us bring in diverse chairs sharing their expertise and, thus, maximise our trainee's educational opportunities. We are also mapping the clinical training opportunities for diabetes and endocrinology across the region to ensure greater transparency to trainers and trainees during their choice of registrar training rotations. This will be particularly important to accommodate the Royal College of Physicians' internal medicine training system

that concentrates the time needed to gain specialist diabetes and endocrinology skills. ■

Supplementary material

Additional supplementary material may be found in the online version of this article at www.rcpjournals.org/fhj:

S1 – Recommended curriculum for diabetes and endocrine with new topics in blue.

S2 – Syllabus spread over 2.5 years of training days.

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