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Building capacity to use and undertake applied health research: establishing a training programme for the health workforce in the West of England



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ABSTRACT

Objectives: Increasing research capacity is important for health services as part of improving the conduct of high-quality research, which addresses the needs of patients and the public. It is a core function of the 13 Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) established in England between 2008 and 2013. This article reports on the development of an innovative capacity building programme in CLAHRC West over an 18-month period (May 2015 to December 2016). It aims to disseminate the learning from the initiative and share our experience with other CLAHRCs.

Study design: The study design was an evaluation of a training programme to build research capacity.

Methods: We carried out a training needs assessment among local stakeholders and scoped existing provision of research-related training. This informed the development of a programme of free short courses, which were targeted at health and social care professionals including those working in local authorities and the voluntary sector. We aimed to engage professionals working at all levels in these organisations and to promote interprofessional education, to build a research culture. We engaged a variety of educators to provide a range of 1-day courses at an introductory level, which were accessible to practitioners.

Results: During the first 18 months of the training programme, we delivered 31 courses and trained 350 participants. Attendees came from secondary care (20%), voluntary sector (18%) and local authorities (18%). Professionals working in the mental health sector comprised 11% and commissioning 6%. Less well represented were primary care (3%) and community care (4%). The largest professional group was public health, followed by medical, nursing and allied health professionals in approximately equal proportions. Courses were evaluated on a scale of 1 (poor) to 4 (excellent) with the mean being 3.6 (range 3.3–4.0).

Conclusions: The training programme has been highly successful with many courses oversubscribed, and all courses being well evaluated by participants. It has met the needs of local professionals for brief, applied training in research, as well as attracting those from other parts of the United Kingdom, suggesting the courses are both appropriate and

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helping to fill a gap in provision. We are building on this work to further engage audiences working in areas such as the wider determinants of health and commissioning, as well as primary and community sectors. CLAHRCs are uniquely placed to drive a culture change in the use, understanding and application of research across the healthcare community.

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Introduction

Efforts to improve health care and population health are facilitated by policymakers and practitioners who understand and are able to critique and apply research. In England, the National Institute for Health Research (NIHR) provides ‘a health research system in which the National Health Service (NHS) supports outstanding individuals working in world-class facilities, conducting leading-edge research focused on the needs of patients and the public’.¹ In October 2008, NIHR established nine Collaborations for Leadership in Applied Health Research and Care (CLAHRCs), and in January 2014, a further allocation established a total of 13 collaborations to bring together local providers of NHS services, health commissioners, public health and other relevant local organisations delivering health and social care, with universities to drive forward improvements in health and health care. CLAHRCs aim to carry out the most relevant research focused on patient outcomes and, importantly, translate the findings into improved services and outcomes for the local population. In addition, CLAHRCs have an explicit remit to increase capacity to conduct high-quality applied health research, making skills development a core theme. CLAHRC West has taken an innovative approach to the capacity building agenda, and this article reports on how we have delivered this part of the CLAHRCs’ remit and how this is engaging professionals working in the health, social and voluntary sectors.

The CLAHRCs have been described as a ‘natural experiment’,² sharing broadly similar goals but existing in different contexts and therefore varying in nature and scope. With this discretion, different CLAHRCs have approached capacity building in various ways (e.g., Cooke et al., 2016)³ from introductory training courses to PhDs, internships and research fellowships. At CLAHRC West, we set out to promote the development of skills in understanding, using and producing evidence for the health, public health and commissioning workforce and patients and members of the public. The capacity development team, which consists of three part-time members of staff (a professor and two experienced senior lecturers from one of the universities in the CLAHRC West area), sought to address the needs of the workforce at all levels and not just those already engaged in a research career. We particularly wanted to include those parts of the sector where funding for training and research are more restricted, such as the voluntary sector. In line with Tooke’s recommendation that the NHS should ‘embed a critical culture that is more receptive to change’,⁴ we wanted to engage as many people as possible in education about research and evidence to build a research culture in the healthcare community in its broadest

sense and in this way help to close the ‘second gap in translation’.⁵ Our main focus has therefore been delivering education to individuals working in the local health and care system. A lack of skills to appraise and understand research evidence is a common barrier to evidence-informed health care, and education intended to increase research literacy is an effective intervention.⁶ In addition, such skills may help staff to collaborate in determining the priorities for research and thus shape the research agenda so that it addresses service needs.⁷

CLAHRC West covers a geographical area in the West of England (Fig. 1). This area delivers health services to a population of around 2.4 million people.

Methods

Needs assessment

We began with a needs assessment exercise consisting of three elements: qualitative interviews with senior staff involved in learning and development in the CLAHRC’s partner organisations; data from a survey of staff in a local commissioning group; and a review of existing research training provision.

Ten in-depth interviews were undertaken by the CLAHRC West Ethnography Team, with senior leaders representing public health, acute care, ambulance services, and mental health services. Participants were asked about their understanding of the evidence-based culture in their organisation and access to training and barriers to using evidence and research. They were also asked about how such education and training could be best delivered for their staff by CLAHRC West. Data were transcribed and analysed thematically, with AS and SG confirming themes. Whilst initially it was intended to include a wider group of respondents, there were practical constraints in arranging times when these individuals could be interviewed. Although formal data saturation was not achieved, there were strong similarities in themes across different organisations.

Next, we had access to local survey data (unpublished) from a similar exercise recently completed with managers from clinical and other backgrounds in a clinical commissioning group. This asked about the evidence culture, current use of research evidence and facilitators and barriers to using evidence. The survey was administered to 134 people, of whom 48 replied (36%). A simple descriptive analysis was conducted, which we used to inform our needs assessment.

Finally, we carried out a scoping exercise to identify the provision of research-related training by other organisations in our geographical area. This included contacting a range of providers, including universities and the NHS. Courses were recorded in a searchable database.⁸



Fig. 1 – Map of CLAHRC West area. CLAHRC = Collaboration for Leadership in Applied Health Research and Care.

Outcome of needs assessment

Interview data revealed that evidence-based practice is generally accepted as important. However, some very real practical constraints, such as staffing levels and budget cuts, were identified with respect to engaging staff in research-related training. Organisations felt that their primary focus was ensuring that staff were compliant with statutory and mandatory training requirements—none of which pertain to research. They perceived that undergraduate training or postgraduate training in local universities was the main source of education and training for staff, and there was generally no systematic approach within their own organisation. These senior leaders identified that staff lack confidence in the subject, and many staff have not undertaken recent training in research (unless recently qualified) or do not perceive this to be relevant to their role. As a result, research concerns the few rather than the majority and typically those at higher levels in the organisation.

The data revealed that to help engage staff, there was a need to provide shorter (half- or 1-day) courses rather than multiple day courses; to provide 8–10 weeks' notice of training dates; ideally, local or on-site training, and the need to link content to issues of clinical importance rather than theory-based research. It also revealed the value of librarians as an underutilised resource.

Key themes from the local survey of Clinical Commissioning Group staff were that the majority of staff (90%) said they used research/evidence in their role and there was clear agreement with a statement that the organisation encourages the use of research and evidence. However, the overall mean was 2.68 on a scale from 1 (strongly agree) to 5 (strongly disagree), suggesting some scope for building this further. Staff confidence in finding evidence, determining the relevance of research/evidence and assessing trustworthiness were all around the midpoint or below on a scale of confidence, again suggesting areas for development. The biggest barriers to using evidence were lack of time, a lack of skills and, finally, an uncertainty regarding resources. The most common training requirements included finding research and service evaluation skills.

The scoping exercise identified more than 50 courses relevant to research in the local area, which were collated in the searchable database to help promote opportunities for training; however, it revealed that many courses were of a longer duration (either multiple days or study over several months), and in general, a shortage of basic, introductory courses. There were also notable gaps around service evaluation and finding evidence.

Establishing the capacity development programme

Drawing on the priorities identified in the needs assessment, we developed a programme of new courses, which covered topics from finding relevant evidence to improving research and evaluation skills (e.g., service evaluation, designing questionnaires and data analysis) and to critiquing research for practice (see full list in [Table 1](#)).

To maximise our reach and impact, our aim was to offer training across the CLAHRC West patch and to as wide an audience as possible in an interprofessional setting. While health professionals receive most of their education in cohorts of their own profession (e.g., undergraduate education in medicine, nursing and so on), there are strong arguments for designing continuing professional development opportunities in mixed groups. One of the most compelling arguments for this is that these professionals will usually need to work in interdisciplinary teams. Communication between professions, with a shared language and understanding, is therefore key to providing good care. Interprofessional education occurs when students from two or more professions learn with and from each other. Evidence of the importance of interprofessional education for effective collaborative practice in health care, which in turn leads to better health outcomes, and patient satisfaction has been summarised elsewhere.⁹ It is also a potential vehicle for encouraging greater collaboration between public health and those working in the wider determinants of health.¹⁰

A range of training models was used. Some courses were run by the Capacity Development team, and some were

Table 1 – Attendances and overall feedback for all courses delivered by CLAHRC West (May 2015 to December 2016).

Date	Course	Location	Duration of course	Number attending	Feedback: mean of overall rating ^a
May 2015	Getting Your Article Published	Bristol	2 d	10	3.8
July 2015	Public Health Economics: Social Return on Investment	Bristol	1 d	16	3.5
July 2015	Introduction to Service Evaluation	Bristol	1 d	14	3.8
September 2015	Finding the Evidence for Commissioning	Bristol	2 h	8	3.7
October 2015	Writing an Article and Getting It Published	Bristol	1 d	10	3.5
October 2015	Getting Your Article Published	Cheltenham	2 d	7	3.8
November 2015	Using and Understanding Research Evidence	Bristol	1 d	12	3.5
November 2015	Introduction to Critical Appraisal for Healthcare Professionals	Bristol	1 d	8	4.0
December 2015	Introduction to Service Evaluation	Bristol	1 d	11	3.6
December 2015	Using Evidence to Lead	Bristol	1 d	21	3.5
February 2016	Public Health Economics and Social Return on Investment	Bristol	1 d	12	3.4
February 2016	Using and Understanding Research Evidence	Bristol	1 d	8	3.9
March 2016	Getting your Article Published	Bristol	2 d	11	3.8
April 2016	Introduction to Critical Appraisal for Healthcare Professionals	Cheltenham	1 d	13	4.0
April 2016	Introduction to Realist Evaluation	Bristol	1 d	24	3.5
May 2016	Finding the Evidence for Public Health	Bristol	2 h	5	3.6
June 2016	Introduction to Service Evaluation	Bristol	1 d	7	3.3
June 2016	Public Health Economics: Social Return on Investment	Bristol	1 d	15	3.3
June 2016	Introduction to Questionnaire Design and Delivery	Bristol	1 d	12	3.6
June 2016	Introduction to Genetics and Epigenetics for Public Health	Bristol	1 d	8	3.6
July 2016	Introduction to Critical Appraisal for Healthcare Professionals	Bristol	1 d	12	3.8
September 2016	Introduction to Basic Statistics	Bristol	0.5 d	10	3.5
October 2016	Writing for a Lay Audience	Bristol	2 h	12	3.7
October 2016	Finding the Evidence for Commissioning	Bristol	2 h	7	3.3
October 2016	Writing an Article and Getting it Published	Bristol	1 d	10	3.6
October 2016	Introduction to Service Evaluation for Public Health	Bristol	1 d	10	3.9
November 2016	Introduction to Questionnaire Design and Delivery	Bristol	0.5 d	16	3.9
November 2016	Project Evaluation for Voluntary Sector Organisations	Bristol	1 d	8	3.8
November 2016	Using and Understanding Research Evidence	Swindon	1 d	12	3.3
December 2016	Finding, Using and Understanding Evidence – Workshop for NHS Graduate Management Trainees	Bristol	1 d	10	3.5
December 2016	Introduction to Basic Statistics	Bristol	0.5 d	11	3.3
Total				350	3.6

CLAHRC = Collaboration for Leadership in Applied Health Research and Care.

^a Ratings of 1 being 'poor' and 4 being 'excellent'.

developed by them in conjunction with colleagues in CLAHRC West (researchers, the Information Scientist, the Patient and Public Involvement Team and the Communications Manager) and partner organisations (Avon Primary Care Research Collaborative, University of Bristol and UWE, Bristol). Another model was to commission external trainers where a need was identified. This wide range of approaches gave us the flexibility to respond to training needs in the most efficient way possible, rather than being constrained by a 'one-size-fits-all' approach.

All courses were offered free to participants. Shortlisting of applicants was based on a 'capacity to benefit' basis, and a list of criteria was drawn up to facilitate unbiased decision-making. These included giving priority to applicants from within the CLAHRC West patch and to those working in the NHS, voluntary sector and in local authorities.

Where new courses were developed by CLAHRC West colleagues, a pilot was often run to test timing and content. Pilots were advertised to postgraduate students and CLAHRC staff.

Developing courses with CLAHRC West colleagues led to greater integration of our team within CLAHRC and the usual benefits of collaboration, such as shared learning for the trainers and a programme incorporating a range of expertise for the course participants.

We sought to maximise the accessibility of our training by not only delivering it in a range of locations, but by keeping it as short as possible, in line with findings from the needs assessment. Our scoping exercise identified that most courses provided by higher education institutions (HEI) were either longer credit-bearing modules or short courses of 3–5 days duration. We, therefore, offered shorter, introductory level courses, mostly of 1 day to complement other local provision, and we reflected the introductory nature of our courses in their titles. The target audience for each course was included in the advertising material. Signposting to further courses was also sometimes given if a candidate was not selected at shortlisting, and at the end of our training courses.

Finally, for some courses, follow-up support was offered. We trialled Action Learning Sets at 3 and 6 months after two courses as a way to extend the learning and provide additional support for carrying out an evaluation project.

Course evaluation

Evaluation forms were given to participants at the end of training courses. These asked for ratings of content and delivery on a scale from 1 to 4 (1 being 'poor' and 4 being 'excellent') and an overall rating for the event using the same scale, seeking to capture 'reaction' to the training at level 1 in Kirkpatrick's evaluation model.¹¹ The form also invited comments about the most helpful and least helpful elements of the course; the first to gauge learning (level 2 in Kirkpatrick's model), and the second to help inform improvements to future courses. Immediate impact of the course on behaviour (level 3), also referred to as 'transfer' in this context,¹¹ was captured in a question asking for one action they were planning to take as a result of the training. As we did not have scope to follow-up all participants at a later date, this served as a proxy for measuring actual behaviour back in the workplace. The piloting of Action Learning Sets was also an opportunity to explore how the participants had applied their learning (level 3) and the longer-term impact of training.

Results

Table 1 shows the titles and location of all courses delivered between May 2015 and December 2016, together with the numbers attending and mean overall rating for each course. Most courses (90%) were hosted in Bristol being a hub for healthcare research and teaching. We delivered 31 courses in this period with 350 participants attending; the number of people attending each course ranged from 5 to 24 (median = 11). The majority (68%) of these courses was 1 day in duration.

An assessment of the job titles of participants shows by far the largest group was public health professionals, followed by medical, nursing and allied health professionals (AHP) in approximately equal proportions. Dentists were not well represented. Table 2 shows attendees most often came from secondary care (20%) followed by Local Authorities (18%) and the voluntary sector (18%). Professionals working in the mental health sector comprised 11% and in commissioning 6%. Less well represented were primary (3%) and community care (4%).

Table 3 breaks down those who attended CLAHRC West courses by geographical location of employer. Almost half (47%) were based in organisations in Bristol. Another 19% represent organisations that work across the CLAHRC West area (Fig. 1). Most other unitary authorities in the area are well represented. It is also notable that 5% of attendees came from outside the CLAHRC West patch.

Course evaluation

Completed forms were received from 86% of participants. The mean of overall ratings on course evaluation forms was

Table 2 – Organisational reach of CLAHRC West training (May 2015 to December 2016).

Sector	n (%)
Primary care (NHS)	12 (3.4)
Secondary care (NHS)	71 (20.3)
Community care (NHS)	14 (4)
Mental health (NHS)	38 (10.9)
Local authority	62 (17.7)
University	41 (11.7)
Voluntary sector	63 (18)
Non-departmental public body	15 (4.3)
Other public sectors	7 (2)
Commissioning	20 (5.7)
Other (e.g., private sector, networks)	7 (2)
Total	350 (100)

CLAHRC = Collaboration for Leadership in Applied Health Research and Care; NHS = National Health Services.

Table 3 – Geographical reach of CLAHRC West training (May 2015 to December 2016).

Area	n (%)
Gloucestershire	28 (8)
South Gloucestershire	15 (4.3)
Bristol	163 (46.6)
North Somerset	7 (2)
Bath and Northeast Somerset	21 (6)
Wiltshire	7 (2)
Swindon	22 (6.3)
Pan CLAHRC West area	68 (19.4)
Outside CLAHRC West area	19 (5.4)
Total	350 (100)

CLAHRC = Collaboration for Leadership in Applied Health Research and Care.

3.6 with the range from 3.3 to 4.0, representing very positive feedback across our programme. Comments on the evaluation forms were reviewed by the team and any external speaker involved. Negative comments were unusual, but cases were discussed and informed changes to the course where this was felt to carry weight; for example, if several comments were made about content being too difficult or about a particular activity not being helpful then adjustments were made. Common themes in positive feedback were around valuing the expertise of presenters and the practical focus of courses. We also analysed comments from the question about a planned action following the course. A selection is shown in Table 4. These highlight that individuals recognised the value of what they were learning and could see how to apply it within their own workplace showing clear intent to implement new practices and methods learned during the training.

The action learning sets, which were trialled after the first two service evaluation courses, were attended by 50% (course 1) and 25% (course 2) of participants. Although attendance was low, those who came gained help with progressing their data collection and analysis; no formal evaluation was carried out but informally at the end of the sessions, participants reported that they found the process helpful in providing continuing

Table 4 – A sample of quotes from participants about planned actions following the course.

Title of course	Quotes from participants about: 'One action I will take as a result of today'
Introduction Public Health Economics and Social Return on Investment	'Apply this thinking to evaluating/identifying social value in my own services.' 'Integrate a health economics approach from the start in my social prescribing project and in other areas in my programme of work.'
Introduction to Service Evaluation	'Review the evaluation I had already planned and improve it.' 'Develop focus groups and develop methods of data collection.'
Introduction to Critical appraisal for Healthcare Professionals	'Look at methods of a paper more closely to assess quality of the work prior to reading results/discussion.' 'Critically appraise evidence we're using to change practice.'
Introduction to Questionnaire Design and Delivery	'Design better quality questionnaires with greater understanding of the concepts.' 'Pilot questionnaires more and conduct cognitive interview.'
Finding, Using and Understanding Evidence for NHS Graduate Management Trainees	'Critically appraise data and research evidence with greater process and review.' 'Have healthy scepticism when reviewing research and data.'

NHS = National Health Services.

momentum for their projects, and their progress was clear evidence of the impact of the training on their workplace practices. This was useful in deciding to continue the action learning sets with future cohorts.

Discussion

The programme of courses offered by the Capacity Development Team reached 350 participants in the first 18 months of CLAHRC West. Interestingly, a recent comprehensive survey of research training needs of healthcare staff identified similar priorities for training¹² to those addressed by our programme. Our participants represent many professions from a diverse range of sectors including NHS, local authorities and voluntary organisations from across the CLAHRC West area. Five percent of participants came from outside the area (travelling up to 160 km to Bristol), suggesting that our provision has appeal in the wider region. The feedback obtained from participants suggests that the courses have been well received, and that the opportunity to attend this free training, the experience of the training environment and the educational content are all highly valued by this varied audience.

We believe there are a number of key features of our programme that have contributed to its success. These include the small group sizes, which engender a safe, open environment for learning and opportunity to interact with the tutor. We have also seen the benefit of different professionals interacting with, and learning from, each other and in some cases building networks outside the course. Building relationships and collaborations is a desired outcome of capacity building as a way to enhance the exchange of knowledge and promote research activity.¹³ In addition, the space and time away from highly pressured workplace environments were positive factors that enabled people to focus and learn effectively. A further factor, which may have helped engage new audiences, was badging the courses as CLAHRC West training; with its close NHS partnerships, this may have helped the courses seem more accessible compared to university-based education, and similarly, the predominantly 1-day format increased accessibility to busy professionals.

Focus for improvements

Participants on our courses reported a positive evaluation of training including intention to take action in the workplace to improve the quality of research and evaluation practices. However, this was only a relatively superficial evaluation of courses due to the resourcing of the team, and we have since put in place more sophisticated processes for evaluating longer-term impact of training (level 4 of Kirkpatrick), which will include follow-up interviews.

Our courses have attracted staff in a range of public health roles and from the core healthcare professions such as medicine, surgery, nursing and allied health professionals but with a notable gap among dentists. We have also reported that primary (3%) and community care (4%) were underrepresented on our courses. This could potentially be due to the current pressures on the workforce in primary care but also the wider opportunities in secondary care for doing research alongside clinical work. Given that we were unable to engage representatives from these sectors in our needs assessment exercise, further work is needed to understand the barriers to training in these areas and the training needs.

Engaging a significant number of staff from the voluntary sector, a trend which developed over the 18-month period on which we are reporting was a positive outcome. Several of our courses have been attractive to those working in this sector, and in addition, we developed the course on 'Project Evaluation for the Voluntary Sector'. Similarly, we have delivered courses targeted at commissioning groups where the decision-making context and evidence culture are quite different to other areas of the health service.^{14,15} Despite this, only 6% of our participants came from this sector, and we are continuing to develop ways of working successfully with these organisations to build an evidence culture; for example, shorter, on-site 'taster' workshops and electronic formats.

Although we have trained people who work outside the traditional health sectors (NHS, public health and voluntary sector), there is still scope to further engage those working in areas such as social care and the wider determinants of health. A recent development has been a new course, 'Understanding Evidence for Local Authorities', which attracted people from across planning, housing and environmental

health showing that we are delivering to new sectors not traditionally engaging in training in evidence-based practice.^{16,17} We note that this is a particular focus for the NIHR.¹⁸

The training needs assessment identified that librarians are a valuable resource in building an evidence-based culture, and our work coincided with a new NHS Library and Knowledge Services policy which set out for the first time a commitment to developing librarians to use their expertise to mobilise evidence in decision-making in health care.¹⁹ We have, therefore, sought to engage with healthcare librarians to support our programme by funding two librarians from an NHS hospital on a course at the Centre for Evidence-Based Medicine in Oxford. Together we then developed an information-sharing workshop for healthcare librarians in the CLAHRC West area, which was successfully delivered in April 2017. This model of training and collaboration will continue in the future.

Skills and expertise in appraising and undertaking research and evaluation are central to capacity development within the NHS. The work that we have done has identified an appetite for skill development across a range of different organisations delivering health and social care and public health services across the CLAHRC West footprint. However, it is striking that whilst organisations recognise this as important, there is little or no systematic attempt to provide continuing professional development (CPD) training in research across different professional groups, and a belief that undergraduate and postgraduate training, mostly within HEIs, is the key vehicle for delivering this.

Although research skills are a critical part of the Faculty of Public Health's competences,²⁰ annual CPD does not have a specific research requirement. Other professions have also identified their own curricula around research, evidence and critical appraisal. Within nursing and midwifery, for example, research is compulsory within preregistration training, linked to the Nursing and Midwifery Council's Code of Conduct, which requires all staff to practise in line with the best available evidence,²¹ but there is no compulsory CPD beyond this to deepen and embed skills in keeping up-to-date with evidence. The General Medical Council is developing the concepts of generic professional capabilities, which includes both research and scholarship,²² and this may drive the development of common curricula and educational materials across postgraduate medical training. Revalidation may boost demand for research-related CPD outside formal academic providers.

In conclusion, our interprofessional capacity building programme has successfully met a need for brief, practical training in evidence and research, as evidenced by strong demand and positive feedback, and we have shared these findings with other CLAHRCs nationally. We would suggest that engagement could be extended through a more systematic approach to skill development in the critical use of evidence, research and evaluation within the health, social care and broader public health communities. The current strong reliance on undergraduate and postgraduate professional training, primarily in HEIs, is not meeting the more immediate, practical and applied needs of a pressured workforce with many demands on their training budget and time. Because of the close working relationships between providers and applied health researchers, CLAHRCs are uniquely placed to

begin to address these needs in their local healthcare communities and contribute to the development of a workforce receptive to embedding the use of evidence into practice at local level.

Author statements

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Ethics approval

Not applicable (this was an educational evaluation).

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Competing interests

None declared.

Authors' contributions

AS and IB collated the data, and all authors contributed to data analysis and interpretation. AS and IB wrote the first draft of the article and all authors contributed to editing and approved the final draft.

Availability of data

The database used to administer CLAHRC West training cannot be shared openly to protect the privacy of applicants. However, the authors will consider reasonable requests for access to anonymised data for specific purposes.

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