



Capacity building for the provision of rheumatological services in sub-Saharan Africa

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Abstract

Introduction A project aimed to develop and deliver a clinical training course in Accra, Ghana, to increase patient access to physicians trained in the diagnosis, treatment and management of rheumatological conditions.

Methods We started with a scoping exercise followed by collaborative course curriculum development, co-delivered training course facilitated by both locally based rheumatologists and international faculty members. Evaluation data gathered from application forms, participant feedback forms and multiple-choice tests completed at the beginning and end of training and the test scores compared to evaluate a change in knowledge.

Results A 4-day clinical training course developed and delivered to twenty medical professionals based across Ghana. Test scores suggest a 15.83% increase in clinical knowledge.

Conclusions The training model with the curriculum design and delivery teams drawing expertise from both locally based rheumatologists and internationally based faculty has guaranteed both world-class approach and content while ensuring contextual relevance. The inclusion of leadership and Training of Trainer (ToT) elements into the model of training has maximised reach and increased teaching capacity. The programme has been well-received by participating medical professionals and faculty and has been demonstrated to be effective within this multinational programme and the methodology may be applicable to similar needs in other countries.

Key Points

- *The growing burden of musculoskeletal disease in West Africa means that strengthening capacity in the specialty of rheumatology is more important than ever.*
- *A pilot workshop to strengthen capacity in rheumatology care in Ghana with the curriculum design and delivery teams drawing expertise from both the UK and West Africa has guaranteed both world-class approach and content while ensuring contextual relevance.*
- *The programme has been well-received by participating medical professionals and faculty and may be applicable to similar needs in other countries across sub-Saharan Africa.*

Keywords British Society for Rheumatology · Capacity building · Clinical training · Education · Ghana · Ghana College of Physician and Surgeons · Korle Bu Teaching Hospital · Rheumatology · Royal College of Physicians · The Rheumatology Initiative · West Africa

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Introduction

Within West Africa, there is a distinct lack of rheumatologists; Nigeria reportedly has thirty and Ghana only two for a population of approximately 28 million people [1]. This is despite the fact that incidence of rheumatic and musculoskeletal disease is increasing, so much so that in the 2016 Global burden of disease study, low back and neck pain ranked fourth highest for global impact on disability-adjusted life years [2]. Not only are there not enough rheumatologists but there is also a lack of other healthcare providers who are trained in musculoskeletal problems and rheumatic diseases in the region, despite the disease incidence mirroring that of the developed world [3].

In recognition of these immense challenges, a project to create better patient outcomes through the development of rheumatology care in Ghana was conceived with the view to potentially expand into other countries in West Africa after an initial pilot and proof of concept was undertaken.

With support from the International League of Associations for Rheumatology (ILAR), the Royal College of Physicians (RCP), the Rheumatology Initiative Ghana (tRi), the British Society for Rheumatology (BSR), the Ghana College of Physicians and Surgeons (GCPS) and Korle Bu Teaching Hospital (KBTH) partnered together to develop and deliver a clinical training course in Accra, Ghana, aimed at increasing patient access to physicians trained in the diagnosis, treatment and management of rheumatological conditions.

Through a collaborative approach, the project also sought to gain further knowledge of the epidemiology of rheumatic diseases in the region and available rheumatology resources; enhance the skills of frontline physicians and allied health workers in making early and effective diagnosis in a number of key areas, to understand the most effective management plans, working with treatments available in the region for rheumatologic and musculoskeletal disorders; and increase the confidence of these physicians and health workers as healthcare leaders and community educators.

The partnership is heavily aligned with the United Nations' 2030 Agenda for Sustainable Development and the associated Sustainable Development Goals. This came into force in at the beginning of 2016, recognising non-communicable diseases (NCDs) as a major challenge for sustainable development and supporting the use of partnerships and collaboration across countries and organisations to tackle these challenges in order to meet these goals [4].

Materials and methods

Scoping and course development

In late 2018, the RCP and tRi conducted a scoping exercise to explore health needs for rheumatological services and

potential project risks, and to refine the project details to ensure alignment with the national priorities. One clear outcome was that leadership and a “train the trainer” component should be incorporated into the clinical training course to reinforce teaching expertise and maximise reach to communities deprived of rheumatological services. It was also determined that priority should be given to applicants based outside of Accra.

During this scoping exercise, the director of tRi, a rheumatologist, agreed to act as course convenor to lead on drafting the course curriculum, design and content, and to advise and support the recruitment of local course teaching faculty and course participants. The course convenor in turn identified an additional rheumatologist and teaching faculty member in Accra to co-develop and deliver the training course. The Vice President (Global) for the RCP, a rheumatologist, was approached and agreed to act as RCP faculty. The role was to work closely with the course convenor and local teaching faculty on course curriculum and content development. RCP faculty roles were advertised on the RCP website and through the RCP's specialist advisory committees. Suitable volunteers with experience of teaching in similar contexts were reviewed by the RCP project manager and RCP faculty lead and an additional faculty member from the BSR was identified and invited to co-develop and travel to co-deliver the training material.

Starting in February 2019, discussions were held over teleconference between the RCP/BSR faculty and the Accra-based tRi course convenor and faculty to agree on responsibilities and various aspects of project planning and delivery. It was agreed that the 4-day course should take place in Accra in October 2019 and cover topics including monoarthritis, polyarthritis, inflammatory arthritis, low back pain, soft tissue problems, osteoarthritis, crystal arthritis, systemic lupus erythematosus and connective tissue diseases. The course would also include practical sessions on joint injection technique and bedside teaching with patients sourced by the Korle Bu Teaching Hospital. It was agreed that teaching on medical leadership skills and teaching skills would be incorporated into the programme throughout. Presentations by course participants of clinical cases they had dealt with in their local setting were felt to be important and should be incorporated in the programme. Course topics were allocated to each of the four teaching faculty to develop lesson plans and content. All course material (lesson plans, PowerPoint slides, assessment questions, etc.) were shared amongst the course faculty for peer review to ensure a coordinated approach and contextually relevant content.

Recruitment

Eligibility criteria for applications were established and agreed to ensure course participants had potential to cascade knowledge to colleagues, patients and the wider community.

Applications to attend the clinical training course were open from 1 August to 27 September 2019 and were open to doctors practising for at least 2 years post-house job that were able to demonstrate the capacity to use their training to impact on other trainees and patient care in their institutions. The course promotional material was targeted to those doctors practising in dermatology, geriatrics, internal medicine, orthopaedics, physical medicine and rehabilitation, pulmonary medicine and family medicine.

The course was advertised through multiple streams: the RCP member and fellows networks in Ghana; local networks through tRi, Korle Bu Teaching Hospital, the Ghana and West Africa College of Physicians and Surgeons and social medical platforms of junior doctors in Ghana.

Twenty-one doctors and two nurses applied for the training, of which twenty doctors were shortlisted to attend along with the two rheumatology nurses that were asked to attend and participate based on a needs assessment.

Selected course participants included doctors who had passed their membership examinations in internal medicine, family medicine, medical officers who were yet to commence specialty training and nurses. Bursaries, based on financial need and distance travelled to the course, were awarded to seven participants.

Clinical training course

In October 2019, an in-depth training in rheumatology was delivered to eighteen doctors and two nurses who were selected as community leaders to help to establish a workforce to build up rheumatology services in Ghana. Two shortlisted doctors were not able to attend the course due to unforeseen circumstances. The course, which covered the epidemiology, pathophysiology, management and prevention of common rheumatological conditions as well as leadership roles, took place over 4 days at the Ghana College of Physicians and Surgeons premises in Accra. The course programme consisted of didactic lectures, case-based discussions, participant case presentations and workshops, as well as a hands-on practical session on knee joint injection. The model knee and injection equipment was kindly loaned to the course by Limbs and Things Ltd. for the duration of the training.

Each course participant was asked to prepare a case presentation before attending the training to be presented to their fellow course participants and teaching faculty. The case presentations from participants offered the chance for a broader discussion of topics and highlighted issues that were relevant to local practice. Each participant was given feedback on the presentation and teaching methods by both local and RCP/BSR education experts. The programme also included bedside teaching and case presentations of patients from Korle Bu Teaching Hospital. All lectures were delivered as per course outline with the inclusion of additional lectures based on case

Table 1 Specialty of participants

Specialty	Number of participants
Internal medicine	7
Family medicine	4
Medical officer	7
Nursing	2

presentations like relapsing polychondritis and systemic vasculitis. All participants received twelve continuing medical education points for completing the course.

Faculty observed an initial difference in confidence and active participation between participants with more experience in rheumatology compared to general practitioners. However, there was a rapid increase in participation and confidence as the programme progressed and incorporated more interactive sessions and less didactic lectures. Evaluation of clinical knowledge and confidence gained was measured by pre- and post-tests, as well as post-course discussions with local and international faculty.

Results

The monitoring and evaluation framework draws from management information systems, participant feedback and faculty feedback.

Management information systems

Number of course participants, practicing specialty and geographical spread of practice were obtained from the application form records. The course was attended by twenty participants including doctors who had passed their membership examinations in internal medicine, family medicine, medical officers and nurses. (Table 1). Sixty five per cent of course participants were based in tertiary hospitals (Table 2). Demographic data collected from application forms indicate 70% of participants were based within the Greater Accra Region in Ghana (Table 3). Multiple-choice tests were completed at the beginning and end of the training and the test scores compared to evaluate a change in knowledge. Compared pre- and post-test scores suggest an average

Table 2 Type of health centre of practice

Type of health centre	Number of participants
General/referral hospital	2
Tertiary hospital	13
Primary health centre	3
Other	2

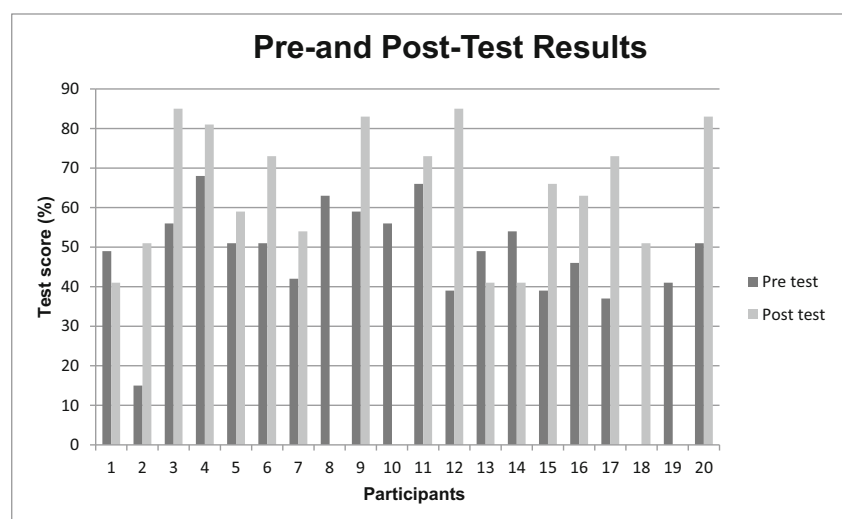
Table 3 Geographic spread of participants in Ghana

Region in Ghana	Number of participants
Greater Accra Region	14
Volta Region	1
Central Region	4
Ashanti Region	2

15.83% increase in clinical knowledge (Figs. 1, 2). Feedback, gathered by participant feedback forms, suggests that over 175 clinical staff will benefit from the knowledge gained on the training course through mentoring by course participants at home facilities.

Participant feedback

Evaluation forms were circulated to course participants at the end of each training to illicit feedback on the quality of training and logistical organisation. Seventeen of the twenty (85%) participants completed the evaluation forms and all seventeen reported that they would recommend this course to their colleagues if it was offered again in the future. They reported that the level of difficulty of the course was adequately set and the knowledge and skills gained would change their future practice. They felt that the course should have been offered to more doctors including more junior colleagues. A 6-month post-training survey will also be circulated to and completed by course participants to highlight how they have implemented the knowledge gained into their everyday practice. These post-training surveys will also be used as an opportunity to learn more about resource availability and the expected level of dissemination of information within a participant's local facilities, which can be used to inform and improve future trainings.

Fig. 1 Pre- and post-test results

Faculty feedback

Training reports are also completed by the local course convenor, local faculty and international faculty to gather feedback on the structure of the programme and delivery of the curriculum. The feedback seeks to capture the observations of the convenor and faculty, identify key challenges and lessons learned. The reported feedback from convenors and faculty will contribute to the continued revision of the curriculum content and design. Feedback suggests that valuable partnerships have been formed and that the exchange in knowledge across geographies has benefited both RCP faculty and local faculty.

Challenges and limitations

Owing to the variety of partners involved in the project and the multitude of stakeholders both at the country and regional levels, the implementation of the project has not been without challenges. Challenges included covering as many topics as participants wanted in rheumatology within the time constraints, pitching the lesson plans to such a varied audience in terms of experience level and providing adequate logistical support to those participants based outside of Accra. Recruiting ideal participants from the districts was limited by the criteria of selection used and the cost implications of travel and accommodation in Accra. Any future training would work to address these challenges. The geographical distribution of participants was limited, with no representation from the Northern part of the country. In addition, there were fewer participants from the district and regional hospitals. Greater efforts need to be made to improve advertisement and recruitment from regions further afield or host future courses in locations that are more accessible for most participants around the country.

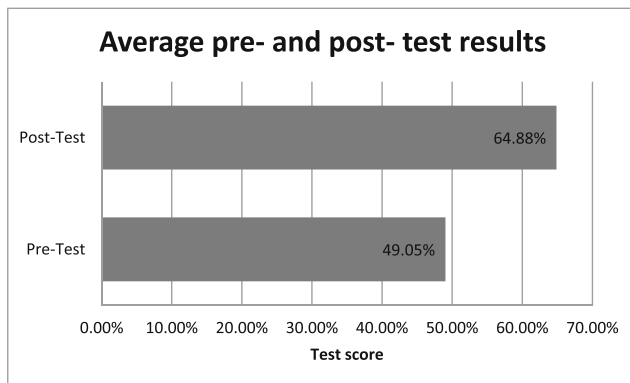


Fig. 2 Average pre- and post-test results

A significant limitation of the programme is how its impact can be effectively measured. The implemented methods of monitoring and evaluation (evaluation forms, post-course surveys, focus group discussions) all mainly rely on self-reporting from participants. Given the remit of the programme, it is not possible to equate self-reported increase in knowledge and confidence to patient outcomes.

Conclusions

Across West Africa, there is a growing burden of musculoskeletal conditions. The growing burden of disease means that strengthening capacity in the specialty of rheumatology is more important than ever. The programme and partnership between the RCP, tRi, BSR, GCPS and KBTH have aimed to strengthen capacity in rheumatology care through a unique training model. The training model with the curriculum design and delivery teams drawing expertise from both the UK and West Africa has guaranteed both world-class approach and content while still ensuring contextual relevance. The inclusion of leadership and the ToT elements into the model of training courses has allowed for rapid dissemination of information, maximizing reach and increasing teaching capacity. The programme has been well-received by participating medical professionals and faculty and has been effective within this multinational programme. While this complex programme has endured several challenges, the methodology may be applicable to similar needs in other countries across sub-Saharan Africa.

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Code availability Not applicable.

Authors' contributions J.E., D.D., M.B.A.A., K.C. and A.J. contributed to the design and implementation of the project, to the analysis of the results and to the writing of the manuscript.

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Data availability The datasets generated during and/or analysed during this project are available from the corresponding author on reasonable request.

Compliance with ethical standards

Disclosures None.

Ethics approval The project was approved by the RCP Global Executive Board. The RCP Global Executive Board deemed neither approval from an ethics committee nor informed consent from the course participants was required for this medical education and capacity building project.

Consent to participate The project was approved by the RCP Global Executive Board. The RCP Global Executive Board deemed neither approval from an ethics committee nor informed consent from the course participants was required for this medical education and capacity building project.

Consent for publication Not applicable.

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