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# Best Practices for Improving Blended Learning in Nigeria: Critical Reflections on the Breast Cancer Clinical Pathway Development Course

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REVIEW AND BEST PRACTICE

# Best Practices for Improving Blended Learning in Nigeria: Critical Reflections on the Breast Cancer Clinical Pathway Development Course

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## ABSTRACT

Although cancer clinical pathways (CPs) are standardized care plans for the treatment of specific cancers, they are not commonly used in Nigerian hospitals. Many Nigerian clinicians do not have the requisite skill for developing and implementing the use of CPs. Critical reflections provide an important perspective in the philosophy, design, implementation, and outcome of interventions. This paper critically reflects on the design and implementation of a multidisciplinary, blended learning (i.e. online and in-person) course which sought to improve the competence of local doctors, nurses, and allied students in developing clinical pathways. Reflective feedback was obtained from a mix of project designers (n=4) and participants (n=3). The group critically analyzed the project planning and implementation in comparison with best practices. The analysis considered the design of the online course, the distribution of learners, the conduct of the in-person workshops, and the overall evaluation of the educational intervention. Positive aspects of the online learning included the unique design of the green-themed PowerPoint slides and the vibrant discussions through a WhatsApp group. Poor internet services in many parts of Nigeria affected synchronous online discussions that were conducted on Google Meet. The in-person workshops at the three locations enjoyed great community support, especially because the course provided free cancer screening. Future courses should emphasize asynchronous models while ensuring that online tools that allow for low bandwidth are used for synchronous meetings. Community involvement must be emphasized during the planning of blended learning courses in which participants would need healthy volunteers to practice skills. The use of multidisciplinary teams for the planning and implementation of courses should be the standard of practice

**Keywords**

Nigeria, Early detection of cancer, Critical pathways, Students, Breast neoplasm

## INTRODUCTION

Clinical pathways (CPs) are evidence-based multidisciplinary care plans that outline the essential steps needed in providing care for patients with specific clinical conditions (e.g. breast cancer). When properly developed and implemented, CPs optimize patient outcomes and maximize clinical efficiency. (Pittathankal & Davidson, 2010; Zon et al., 2016) In the treatment of breast cancer, the use of CPs has been shown to reduce hospitalization, improve patient care process, reduce patient anxiety (Pittathankal & Davidson, 2010), and improve overall patient satisfaction. These care plans are critical for linking the wealth of empirical evidence for specific health conditions with basic rule guides for clinical practice. (Cui et al., 2014)

The development of clinical pathways requires skills that involve translating universal clinical guidelines into local protocols to inform clinical practice. Although such skills are not directly taught during regular undergraduate education, there is evidence that professional development courses can be used to improve skills regarding clinical pathways development. (Eguzo et al., 2018; Eguzo et al., 2019) With the increasing prevalence of cancers in Nigeria, (Azubuike et al., 2018; Morounke et al., 2017), the use of clinical pathways (CPs) for the management of breast cancer is not common practice in Nigerian hospitals. (Eguzo et al., 2019) It is therefore important to promote this practice using a combination of approaches, including blended learning.

Meanwhile, reflection is a process of 'inward evaluation' that helps practitioners gain a greater understanding of both themselves and their context or situation such that the understanding would guide future actions. (Horton & Deutsch Sherwood, 2021; Sandars, 2009) It is a key component of experiential learning, which involves an iterative cycle of experience, analysis, critical review, and planning for future action. (H, 2021) Critical reflection provides an avenue for teachers and learners to reconsider the design, process, and outcomes of an educational experience with the view to gain better insights into the experience. Earlier reports described the process and outcomes of a blended learning course that sought to improve the competence of Nigerian clinicians in the development of clinical pathways. (Eguzo et al., 2018; Eguzo et al., 2019) The development of clinical pathways is an iterative, consultative process that involves experts from different disciplines. (Girgis et al., 2018) This article critically reflects that educational intervention. It draws from the perspectives of course participants (n=3) and project designers (n=4).

## OVERVIEW OF THE EDUCATIONAL INTERVENTION

The intervention was a blended learning course, which was deployed in two consecutive parts. The first part consisted of a six-week online course that focused on breast cancer guidelines and clinical pathway development delivered using Google Classroom®. As part of the online course, participants were instructed about breast cancer guidelines using the National Comprehensive Cancer Network (NCCN) Harmonized Guideline for Sub-Saharan Africa. Content on steps to develop clinical pathways was adapted from the Cancer Institute of New South Wales. During the online course, participants were reminded periodically to complete assigned tasks, such as quizzes. The quizzes were self-grading, such that participants obtained their quiz scores upon submission. The quizzes were formatted in a way that question and answer options were shuffled automatically. This was aimed at reducing the potential for cheating among course participants.

The online course was followed by a series of two-day in-person workshops. The workshops were held at three locations (i.e., Aba, Obong Ntak, and Benin City). At each of the locations, Day One was devoted to revising the key concepts that were taught during the online component of the course. The second day was used to practice clinical skills that were relevant to cancer management, including clinical examination. Participants also worked in groups to develop local clinical pathways using a worksheet that was adapted from the Cancer Council Victoria and of New South Wales. (Rushton, 2018; Thomas et al., 2021).

Meanwhile, course participants were primary care providers (e.g., family physicians and general nurses), specialists (including radiologists and surgeons), residents, and radiographers. Students of medicine, nursing, and allied courses were also eligible to participate. Other aspects of the intervention, including course design, have been described in the research protocol article. (Eguzo et al., 2018).

## REFLECTIONS ON THE COMPOSITION OF COURSE PARTICIPANTS AND RESOURCE PERSONS

This course was set up to promote multidisciplinary training and practice regarding the care of cancer patients. Over 400 individuals self-registered for the course. The mean age of participants in the online course was 27.46 (±9.25) years, with a range of 18 to 54 years. The participants consisted of healthcare students (55.1%), physicians (22.1%), nurses (18.8%), and others (3.9%). Multidisciplinary care has been identified as an essential component in the provision of quality care for cancer patients. This approach pools the combined skills of healthcare professionals from different fields to provide holistic patient care. Multidisciplinary teams often improve communication, care coordination, and decision-making among the participating professionals. Multidisciplinary care has been considered the standard of practice for cancer management since the early 1980s. (Silbermann et al., 2013; Taberna et al., 2020).

Similarly, individuals from different fields with relevance to cancer care (e.g. surgeons, clinical oncologists, nurses, radiographers) composed the resource persons for the online and in-person components of this project. This enhanced the richness of the course content. The multidisciplinary composition of the team was also reflected in the distribution of course participants, which included professionals from different but relevant backgrounds. It was interesting to observe the collaboration among participants, such that communication during group projects was greatly enhanced. It is expected that learning in a multidisciplinary setting will translate into managing cancer as multidisciplinary teams locally. This multidisciplinary approach to training and practice should be further promoted in Nigeria, as a potential solution to the incessant interprofessional conflict in the healthcare industry. (Oleribe et al., 2018; Suleiman & Martyn, 2020).

## REFLECTIONS ON THE ONLINE COURSEWORK

The online course was divided into four modules which spanned six weeks. Registration for the course allowed potential participants to carry out a personal assessment of their

exposure to online courses, breast cancer (as a theme) the requirements both in time and data consumption needed to fully participate in the course. This set the background for some participants who were new to online courses and hardly knew what to expect. Data from the course registration showed that 63.6% (259/400) of participants did not have previous exposure to online learning. It was interesting to find that the presentation slides had a unique, green-based theme. The colourful slides design aided learning through their beauty, consistency, and easy layout of content. Research shows that the use of colourful presentations led to greater retention by participants in the long term. (Cockman, 2018). Results from the historic study involving college students indicated the colour green provoked the "feelings of relaxation and calmness, followed by happiness, comfort, peace, hope, and excitement". by Kaya et al (Kaya & Epps, 2004, p. 400). This was also echoed by other studies. (Cretenet & Dru, 2009; Lichtenfeld et al., 2012).

Also, the organization of pretest and post-tests in each module made it easy for participants to stay focused on the content of each module. Across all the groups of learners (i.e students, physicians, nurses, others) there was significant improvement in the mean post-test scores when compared to mean pretest scores for all the modules (17.41±1.78 vs 12. 45±2.82). Future courses should ensure more variation in the wording and complexity of questions that would be used for the quizzes. It is also important to restrict student's access to new course content until they have completed quizzes regarding the previous modules. Participants in this course were able to access new modules without necessarily completing the post-tests of previous modules. This was observed as a lapse of the technology regarding Google Classroom. Although Google Classroom was easy for the learners and instructors to use due to its appealing interphase, it did not have the feature that would limit access to new content pending the completion of some key activities in a previous module (i.e. 'access restriction'). The course instructors attempted to manage this challenge by delaying the release of new content using a calendar feature on Google Classroom. The use of a different learning management system (e.g., Moodle) would overcome this limitation. (Moodle, 2021; Team, 2020)

Meanwhile, after completing the online enrolment participants were sent a link to join a WhatsApp group that was set up for the course. This tool was deployed primarily to help provide technical support regarding access to the course content on Google Classroom. As the course evolved, the WhatsApp group was used to promote discussion and collaboration among the course participants. Many participants responded to messages or questions on WhatsApp faster than they responded to posts on the Google Classroom, thus WhatsApp helped sustain interest in the course. This was perhaps because WhatsApp is one of the most popular messaging apps in Nigeria. (Varrella, 2021). The course instructors exploited this technology by posting reminders about new content or quiz deadlines on the Course WhatsApp Group.

## REFLECTIONS ON THE IN-PERSON WORKSHOPS

Each of the three workshop sessions started with a revision of the concepts that were previously discussed in the online class. The topics were reviewed in order of increasing difficulty. For instance, breast anatomy was discussed before breast pathology, so that learners would be more comfortable with the content. The lessons taught included introduction to radiotherapy, ultrasound-guided breast biopsy and introduction to cancer chemotherapy. Other topics were as described in Appendix 1, which shows the complete course outline, including the workshop schedule.

In planning the workshop locations, the team considered the use of functioning but remote health centers. The consensus was to use the hands-on sessions as an avenue to promote awareness of breast and cervical cancers locally. Evidence suggests that most Nigerians do not know enough about cancer early detection, nor do they have access to such services. (K. Eguzo et al., 2020; K. N. Eguzo et al., 2020) Thus, it was decided to hold the workshops in the villages of Owo-Ahiafor (Abia State), Obong Ntak (Akwa Ibom State), and Ugbekun (Edo State). These locations were also easily accessible by road. Volunteers at each location collaborated with the project managers to promote the community screening events which were hosted alongside the training workshop. This resulted in the significant participation of community members. Such findings have also been reported in the literature, where community health educators directly increased uptake of screening services. (Chigbu et al., 2017)

Interestingly, many of the female course participants chose not to be examined, especially for cervical cancer screening. Although the examination rooms were largely private, many of the health professionals and students declined the free screening. This may be partly because many of the trainers were males, and some students did not want to be examined by their peers who participated in the training. Also, considering the sensitive nature of the clinical examinations for breast and cervical cancers, it understandable why learners would not want to be exposed to their peers. The low uptake of cancer screening by healthcare professionals in Nigeria has been previously reported. (Afam & Ba-Break, 2017) It is possible that the attitude of being examined by peers could contribute to this low uptake. Future courses should explore the use of community volunteers or standardized patients as they would be more appropriate for such intimate examinations.

## CONCLUSION

This reflective essay provides an in-depth analysis of the planning, execution, and pitfalls of the blended learning course on the development of the breast cancer clinical pathway. The project provided a unique opportunity for students and healthcare professionals to be trained on breast cancer diagnosis and clinical pathway development. At the start, many of the participants had no prior experience with online learning, so this proved to be a limitation in their comfort level as the course

became more demanding. Most participants provided positive feedback regarding their knowledge gain due to the blended learning course, showing that this approach is an appropriate intervention in the Nigerian setting.

It will be important to further deepen the online learning culture in Nigeria, as this is the way of the future. When designing course materials, the choice of colors for presentation slides could be critical to participants' engagement. Community involvement should be sought whenever health interventions are planned. The team also learned that sharing the proposed course curriculum with a sample of potential participants helped to keep the content relevant and to make the delivery engaging. Working with a select sample of potential participants would help address some of the challenges that were observed in this course, such as incremental use of technology in course delivery. The essence of multidisciplinary participation in inpatient care should be relentlessly stressed to ensure optimum uptake of this approach to the provision of health care. There should be ongoing advocacy for healthcare professionals to increase their uptake of screening services. Further research is needed on ways to promote the uptake of screening services by healthcare professionals, as they are often seen as agents of change in the community.

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# Appendix 1

**Table 1**

*Clinical Pathway Course Outline*

| Module | Topics | Aim |
|---|---|---|
| Welcome and Orientation<br><br>Duration: 1 week | Welcome<br>Overview of Google Classroom<br>How to complete assignments | Get to meet everyone<br>Become familiar with the learning environment<br>Become familiar with submitting assignments |
| Module 1<br>Introduction to Breast, Ultrasounds and Breast Cancer<br>Duration: 1 week | Breast anatomy/physiology<br>Overview of breast cancer: pathology<br>Introduction to ultrasound<br>Introduction to breast ultrasound | Understand Breast anatomy/physiology<br>Risk factors for the development of breast cancer<br>Gain an above-basic understanding of ultrasound and breast ultrasound techniques |
| Module 2<br>Early detection and diagnosis<br>Duration: 1 week | Breast self-exam<br>Clinical breast examination<br>Approach to breast biopsy<br>Role of nurses in breast biopsy<br>Introduction to mammography | Know how to perform and teach breast self-exam<br>Refresher on clinical breast examination<br>Understand how to perform a breast biopsy with and without ultrasound guidance<br>Understand the role of nurses |
| Module 3<br>Treatment and Follow up<br>Duration: 1 week | Introduction to chemotherapy administration<br>Introduction to radiation therapy<br>Essentials of breast cancer management<br>Radiation therapy in breast cancer management<br>Psycho-Oncology<br>Nursing care for breast cancer patients | Become familiar with chemotherapy<br>Understand how radiation therapy works<br>Understand different chemotherapy options for breast cancer<br>Understand radiation therapy used for breast cancer<br>Understand psychological issues with cancer care.<br>Understand nursing roles in breast cancer management |
| Module 4<br>Introduction to breast cancer guidelines, Clinical pathways and collaborative practice<br>Duration: 1 week | Overview of NCCN breast cancer guideline for Africa<br>Overview of clinical pathways<br>Introduction to collaborative practice and tumour Boards<br>Introduction to Patient Navigation | Become familiar with NCCN breast cancer guideline<br>Learn how to develop clinical pathways<br>Understand how to start tumor Boards<br>Understand the importance of patient navigation. |
| Workshops to be held in Aba,<br>Obong Ntak, and Benin<br><br>Duration: 2 days per location | **Day 1**<br>Recap of all the modules<br>Develop a local clinical pathway<br>Practice breast exam Practice breast ultrasound<br>Practice breast biopsy<br>Refresh knowledge on chemotherapy<br>**Day 2**<br>provide hands-on opportunity via community screening | Improve practical skills<br>Develop a local clinical pathway for each city<br>Ask questions about online modules<br>Provide course evaluation |

## ABOUT THE AUTHORS

Peace Itohan Egharevba is a Biochemist, Registered Nurse, and Registered Public Health Nurse. She volunteers for community health projects focusing on first aid, cancer awareness and infection prevention. She was a two-time sessional best student and the 2nd best graduating student (class of 2021) of the Department of Nursing Science, University of Benin, Benin City, Nigeria. In 2019, she was awarded a certificate of recognition by the University of Washington as a Site Coordinator/Clinical Facilitator for the Clinical Management of HIV course. Part of her interests are gynaecological cancers especially among women in low- and medium-income countries. She plans to follow a career path as a nurse educator, being keen on learner-focused interventions for identified educational challenges. Peace already assists in research on cancer care and control, with the research team at the Marjorie Bash College of Health Sciences and Technology, Aba, Nigeria. She also facilitates multidisciplinary continuing professional education programs for healthcare providers using the blended learning approach.

Dr. Kelechi Eguzo is a General Practitioner in Oncology and research scientist. He is affiliated with the Nigerian Christian Hospital and Marjorie Bash Foundation. Since 2015, Dr. Eguzo has led several ASCO training courses on cancer control in Nigeria. His research focuses on capacity building for local health professionals, development of local clinical pathways and patient navigation systems, as well as medical education. Dr. Eguzo seeks to improve cancer control in Nigeria, especially by establishing Marjorie Bash Cancer Center in Aba. Through his work on cancer control, Kelechi has earned awards from the American Society of Clinical Oncology (ASCO), Union for International Cancer Control and Cancer Research UK (CRUK). He is also interested in maternal health, antimicrobial stewardship, and child health.

Enyichukwu Moses Anya is a graduate nurse with special interest in administration and research. Born and raised in Abia State, Enyichukwu graduated from the prestigious University of Benin, where he also served as the President of the local chapter of the Nigerian Universities Nursing Students' Association (NUNSA). He is a certified trainer and currently works with Eclat, the medical arm of Interswitch (a Financial Technology company) and has trained many health workers both in Nigeria and beyond in the use of Electronic Medical Records. In addition, he is in the team that champions and ensures effective running of the Edo State Telemedicine Hub. He is a multiple award winner from several organizations including the nursing bodies in Nigeria and internationally. He enjoys football and hopes to expand his influence in the field of nursing practice beyond Nigeria.

Dr. Nuhu Tumba is a clinical oncologist and assistant professor at Bingham University Teaching Hospital, Jos – Nigeria. His clinical duties include training medical students and residents in radiology while providing care to cancer patients. He is interested in improving access to cancer treatment and the professional development of physicians. He has collaborated with different local and international organizations, including the American Society of Clinical Oncology and Marjorie Bash Foundation. Dr. Tumba has published several peer-reviewed articles in oncology.

Dr Kingsley Nnah is a Surgical Resident at the Nnamdi Azikiwe University Teaching Hospital Nnewi Anambra State Nigeria, with interest in General Surgery/Surgical Oncology. Before joining residency, Dr Nnah, worked with Nigerian Christian Hospital, Aba Abia State Nigeria, with exposures to surgical oncology and still provides part time surgical consultations.His research interest is on medical education, oncology, and antimicrobial stewardship. Dr. Nnah has published several peer-reviewed articles, and has collaborated with different local and international organizations to implement professional development programs. He is a member of the Governing Council of Marjorie Bash College of Health Sciences and Technology, Aba – Nigeria.

Dr. Chukwuemeka Oluoha is an accomplished public health physician and health systems expert, who works with the Department of Public Health, Abia State University. He served as the immediate-past Executive Secretary of Abia State Primary Health Care Development Agency. Dr. Oluoha is highly involved in health promotion and primary care. He also plays a central role in various multidisciplinary research projects. Dr. Oluoha is an experienced and widely recognized health system 'Change Manager', whose expertise has been sought by various development partners, including the World Health Organization. In addition to his work on public health, Dr. Oluoha is a leader in the Isuikwuato Community in Abia State – Nigeria.

Mbaraonye

Precious Chimzaram Mbaraonye is nurse educator with special interest in family planning, infectious diseases and cancer control. She is presently an instructor in the Community Health Extension Workers program at Marjorie Bash College of Health Sciences and Technology, Aba – Nigeria. She is also involved with the Abia Cancer Control Group where she coordinates community cancer screening outreach programs. She has researched into the prevalence of Teen pregnancies and the management of its complications; Use of Medical equipment in local health institutions as well as antimicrobial stewardship. She is also interested in the blended learning approach to continuing professional development.