

20th International Conference on Breast Pathology and Cancer Diagnosis

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Building pathology capacity in sub-saharan Africa to improve breast cancer diagnosis and treatment: Training laboratory technicians in high-quality manual immunohistochemistry

Background/Objective

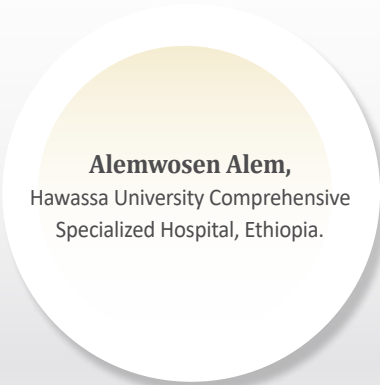
Breast cancer mortality worldwide is highest in sub-Saharan Africa where an estimated one third of deaths over the next decade are preventable with improved diagnosis and treatment. To address the need for increased pathology capacity and a skilled workforce, we developed an educational program aimed at training pathology technicians in high-quality manual immunohistochemistry (IHC).

Methods

We mobilized faculty consisting of pathologists, an immunologist, a breast surgeon, laboratory technicians and a non-profit from Australia, Ethiopia, Germany, Kenya, South Africa, and USA. We conducted a baseline assessment across 11 countries about the available space, equipment, and human resources using five-point Likert-scale questionnaires and free text. We launched a webinar (covering IHC theory, methods and troubleshooting); conducted knowledge assessments (pre and 35 days post-webinar using paired t-test); and invited participants to join an interactive digital mentorship platform (DMP) for posting discussions, sharing protocols, and networking. At six months, a pathologist presented the experience of implementing manual IHC in Hawassa, Ethiopia. Over 6 months, we tracked activity on the DMP, the number of times presentation recordings were viewed, and participant surveys on progress.

Results

A total of 263 participants from 11 countries attended the webinar. 95 participants from 9 countries responded to a survey; 62 histotechnicians, 11 pathologists, 4 pathology residents, 1 resident, and 17 “other” professionals. The majority (53.7%) reported their institutions do not perform IHC. Most institutions with IHC perform it manually. The most common assay was for breast cancer biomarkers: estrogen receptor (100%); progesterone (92.5%); and Her2neu (87.5%). The most common treatments frequently or always available for breast cancer were surgery (64.2%), chemotherapy (45.3%), endocrine therapy (34.8%), radiation (15%), and Her2neu directed therapy (< 14%). After the webinar, the mean knowledge assessment scores increased by 17.4% (from 41.8% pre to 59.2% post, $p < 0.0001$). Self-reported confidence in topics increased by 11.3% (mean 3.36 pre-webinar to 3.74 post, $p = 0.1$). 64 participants joined the DMP. Over six months, recordings were accessed 412 times. After the Hawassa pathologist’s presentation, membership in the DMP increased from 64 to 172 and the recording was viewed 33 times in 30 days. Six months into our education program, 113 participants from 9 countries responded to surveys on progress. Of the 56 respondents who do not perform IHC, 64.3% ($n = 36$) had begun discussions about starting it. Among 85 respondents, 43.5% reported moderate or significant positive practice changes such as improved antigen retrieval techniques, protocol development, and training others on optimization of preanalytical variables.



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Conclusions

Our education intervention 1) reached hundreds of participants and provided a baseline assessment of pathology capacity in institutions in nine sub-Saharan African countries; 2) created a novel mechanism to enable collaboration, resource sharing, and assessing progress with this cohort; and 3) improved practices and the preparation of slides for the majority performing manual IHC. Sustained engagement is needed for further building pathology capacity and tracking long-term impact on breast cancer treatment regionally.

Biography

Alemwosen Teklehaymanot Alem, M.D., Assistant Professor of Anatomic Pathology, Department of Pathology, College of Medicine and Health Sciences, Hawassa University, Ethiopia.

As Head of the Pathology Department at Hawassa University, Dr. Alem oversees pathology services for patient referrals, teaches students, and advises postgraduate students on their research projects. Dr. Alem has several published articles on local & international journals and three research projects on breast cancer under peer review. Over the last two years, Dr. Alem has been leading a program training his staff to provide immunohistochemistry (IHC) services at Hawassa University Comprehensive Specialised Hospital. As of 2022, Dr. Alem's team has commenced implementing IHC for breast cancer in the pathology lab and will be able to provide differentiated cancer diagnostic services for patients in southern Ethiopia and the Oromia region.

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