

Editorial: The role of research in advancing quality eye care

The aim of this editorial is to highlight a few examples of research in the East African region that has made a positive contribution to the quality of eye care in the different fields of clinical and public eye health. Finally, it points out areas that still need exploration and hopefully provoke deep thought and action.

Research is defined as a systematic investigation. The prefix *re-* is an interesting one to consider. It often means to repeat or do again, for instance to review is to view again, to revitalize is to vitalize again and thus to research is to search again. Even when we think we know something from long experience, we should keep the wonder of inquiry alive by continuously checking whether what we know still holds true in the same way it did before. The famous philosopher, Socrates, advocated for this continuous sense of wonder and inquiry.

The unexamined life is not worth living - Socrates

We must keep investigating again and again in order for things to improve. Those who keep inquiring are more likely to improve than those who do not stop to ask questions. Auditing our work has been shown to improve outcomes¹.

Quality of care, like beauty, lies in the eyes of the beholder. We all have perceptions of what pleases us and when we receive a service that meets it, we say that it was high quality and vice versa. We need to have an agreed criteria for measuring and comparing quality². Health practitioners are often guilty of measuring quality from the provider perspective when what really matters is the perspective of the recipients of our services. We tend to measure clinical outcomes but not patient-centered outcomes. An eye hospital in Nairobi reported that asking patients for their feedback is very important for cataract services and that the interventions to improve that patients requested are not expensive³. Most patients were very satisfied with the clinical services but were unsatisfied with lack of provision of information brochures before surgery for a family member to read, pain management, long queuing time and lack of phone access to staff after surgery. This is an example of inquiry about the patients' perspectives. Beyond clinical outcomes, we should also include effectiveness, efficiency, equity, integration, people-centredness, safety and timeliness⁴. We in low- and middle-income countries do not often evaluate quality. In 2021 we conducted a global scoping review on how to improve the quality of cataract services for all⁵. Out of 143 studies, 65% were from high income countries. Most studies evaluated efficiency while integration and timeliness were the least studied domains. Timeliness is very important to patients, yet it is the least studied aspect of quality. The quality of eye care services offered is the end-product of a value-chain that begins in the training programs for eye health workers. Health care training

was built on a history of apprenticeship where the trainee lived with the teacher and observed daily the goings-on of diagnosis and treatment. This style still prevails today. Like everything, it has its strengths and weaknesses. Strengths in the respect and strong bonds created between the teacher and the trainee and lifelong mentorship that continued after formal training but weakness in knowing only what the teacher knew and not what others you were not exposed to knew. To know beyond what you saw, you had to read journals and that depended on whether others wrote. This has not changed much today. If we keep researching and sharing our experiences in writing and speech, others will get to know.

The era of evidence-based medicine saw a transformation in the way information was assimilated. A more formal systematic examination or critique of written material and its application in clinical care began. The term evidence-based raises a question. What was medicine based on before? The answer lies in the history of apprenticeship training. For years medicine was taught in a hierarchical authoritative and sometimes dogmatic fashion. The consultant knew everything. Trainees towed the line just to graduate. The anecdotes from single patient encounters written in case reports and case series dominated old medical literature before study designs like case-control studies, cohort studies, randomized controlled trials and systematic reviews emerged. The first clinical trial was done by James Lind in 1747 using citrus fruits for scurvy⁶ and it was not until 1948 when the first drug treatment randomized controlled trial was conducted testing streptomycin for pulmonary tuberculosis⁷. The ethical basis of a clinical trial is equipoise, the admission that we do not know. A healthy skepticism that continuously asks questions about the results of treatment would reveal this and help us conduct trials to test new methods or systematic reviews of existing trials. A recent trial in India demonstrated that square edge IOLs gave better visual outcomes and less risk of requiring YAG posterior capsulotomy than non-square edge IOLs⁸. Trials from low and middle income countries are not always received with open arms. When we conducted the first ever randomized controlled trial of 5FU for Ocular Surface Squamous Neoplasia (OSSN), a reviewer of the manuscript commented that there were numerous studies that showed the efficacy of 5FU so there was nothing new derived from our study. However, we had conducted a Cochrane systematic review which showed that this knowledge we claimed to have was actually based on numerous small case series and case reports^{9,10}. From the preceding examples, if the quality of care of cataract or OSSN is to improve, we must be willing to change and apply research results. This latter phase is now the realm of the rapidly emerging field of implementation research.

Beyond the clinical setting, our eyecare programs can also benefit from the use of research. For many years, trachoma programs required large sample sizes to map Trachomatous Trichiasis (TT) in populations ≥ 15 years old because the prevalence is generally low ($< 5\%$) in most endemic areas. A study by Jefitha *et al*¹¹ in Kenya found that examining those aged ≥ 40 years instead of the whole spectrum of ≥ 15 years yielded good results with a lower sample size. This example shows how improving the efficiency of survey methods can make it easier for national programs to obtain required data. Unfortunately, the indexing of this study in Pubmed lists the lead author as Jefitha K and not Karimurio J as would be expected making it difficult to find if one searched for studies using his surname.

At health system level there are examples of research studies locally that examined referral pathways and pointed out areas that need improvement. A study in Tanzania examined the delays in accessing emergency care for eye trauma and found that injury on weekends, using topical drops and visiting other health facilities before the center that could offer definitive treatment were major causes of delay¹². In Uganda, a study looking at patients with microbial keratitis found that visiting another facility before an eye hospital and use of traditional eye medicine increased delay¹³. In Kenya, a similar study of patients with OSSN found that females and those who visited more than one health facility before going to one that could offer surgery experienced significant delay¹⁴. To further address the referral system problem, Rono *et al*¹⁵ conducted a cluster randomized trial to test the use of a mobile phone based application called Portable Eye Examination Kit (PEEK) for vision screening in schools. Participants were connected to health facilities via reminders sent through a text message (SMS) to monitor attendance to the referral centers. This innovative approach increased attendance.

Research here should not mean only quantitative methods. We need to venture more into qualitative research and also collaborate with experts in other areas such as health economics, engineering and agriculture. One area that needs evaluation and implementation research is the way care delivery is organized for instance conducting outreach for cataract surgery. This is sometimes an emotive subject which makes it difficult to study or even discuss. For a long time now, ophthalmology in East Africa has run on an aid model giving free services. The motivations for donating towards or getting involved vary and are not always congruent to the needs of the actual providers or recipients of the service. There are issues of effectiveness, efficiency, cost, sustainability, and safety among others that need to be explored. There is a complex relationship that seems to have developed between poverty and eyecare here that has locked us in a poverty mentality. If someone else always pays the bill, the local governments have no incentive to budget and apply the taxes that citizens pay towards funding these

services. There is no dignity in begging, and no one begs their way out of poverty. The logistical constraints in our eye care services have remained the same for decades. The livelihoods of professionals in such a setting are adversely affected making it difficult to attract talent. What can we cross-learn from other specialties in health? There is a gaping lack of knowledge that needs to be filled.

Lastly, we should not shy away from conducting world-class research. We can teach the world as we also learn. Our hands are able, our heads can learn and create, but perhaps our hearts are challenged. If we don't know ourselves and believe in ourselves and the potential we have, then it becomes easy to subjugate ourselves to others. We allow ourselves to be referred to using names that we don't call ourselves. There is no third-world. God created one world. Even the term, low- and middle-income countries which I am guilty of using in this editorial implies a hierarchy based on income, yet we know that the abundance of money does not equate to a happy life or quality of life. The argument about whether research and clinical practice are separate is obsolete. It leads to division. Clinicians practice what research produces and research studies what clinicians do, and we should not forget that there are those who are good researchers and good clinicians as well.

Gichuhi S, Department of Ophthalmology, Faculty of Health Sciences, College of Health Sciences, University of Nairobi, P.O. Box 19676 Postal code 00202, Nairobi, Kenya. Email: sgichuhi@uonbi.ac.ke

REFERENCES

1. Yorston D, Gichuhi S, Wood M, Foster A. Does prospective monitoring improve cataract surgery outcomes in Africa? *The Br J Ophthalmol*. 2002; **86**(5): 543-547.
2. Donabedian A. The quality of care. How can it be assessed? *JAMA*. 1988; **260**(12): 1743-48.
3. Githeko AK, Gichuhi S. Improving cataract services by asking patients for their feedback. *Community Eye Health*. 2022; **35**(116): 4-5.
4. Institute of Medicine Committee on Quality of Health Care in A. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington (DC): National Academies Press (US). Copyright 2001 by the National Academy of Sciences. All rights reserved.; 2001.
5. Yoshizaki M, Ramke J, Furtado JM, *et al*. Interventions to improve the quality of cataract services: protocol for a global scoping review. *BMJ Open*. 2020; **10**(8): e036413.
6. Bartholomew M. James Lind's treatise of the scurvy (1753). *Postgraduate Med J*. 2002; **78**(925): 695-696.
7. Streptomycin treatment of pulmonary tuberculosis. *Br Med J*. 1948; **2**(4582): 769-782. Pub Med (nih.gov)

8. Joshi RS, Rasal AV. Posterior capsular opacification and Nd:YAG capsulotomy rates in patients implanted with square-edged and non-square-edged intraocular lenses in manual small-incision cataract surgery: A randomized controlled study. *Indian J Ophthalmol*. 2023; **71**(9): 3219-23.
9. Gichuhi S, Irlam JH. Interventions for squamous cell carcinoma of the conjunctiva in HIV-infected individuals. *Cochrane Database Systematic Reviews* (Online). 2013; **2**: CD005643.
10. Gichuhi S, Macharia E, Kabiru J, *et al*. Topical fluorouracil after surgery for ocular surface squamous neoplasia in Kenya: a randomised, double-blind, placebo-controlled trial. *The Lancet Global Health*. 2016; **4**(6): e378-e85.
11. Jefitha K, Hillary R, Le Mesurier R, Mwanthi M, Keeffe J. What is the appropriate age range of individuals to be included in a survey to estimate the prevalence of trachomatous trichiasis? *Br J Ophthalmol*. 2011; **95**(8): 1058-60.
12. Al-Attas AH, Williams CD, Pitchforth EL, O'Callaghan CO, Lewallen S. Understanding delay in accessing specialist emergency eye care in a developing country: eye trauma in Tanzania. *Ophthalmic Epidemiol*. 2010; **17**(2): 103-112.
13. Arunga S, Kintoki GM, Gichuhi S, *et al*. Delay along the care seeking journey of patients with microbial keratitis in Uganda. *Ophthalmic Epidemiol*. 2019; **26**(5): 311-320.
14. Gichuhi S, Kabiru J, M'Bongo Zindamoyen A, *et al*. Delay along the care-seeking journey of patients with ocular surface squamous neoplasia in Kenya. *BMC Health Services Res*. 2017; **17**(1): 485.
15. Rono H, Bastawrous A, Macleod D, *et al*. Effectiveness of an mHealth system on access to eye health services in Kenya: a cluster-randomised controlled trial. *The Lancet Digital Health*. 2021; **3**(7): e414-e24.