

Tackling the Burden of Blindness in Ogun State, Nigeria: The Success of Private / Public Partnerships

**Tayo J. Bogunjoko^{1*}, Adekunle O. Hassan¹, Karinya Lewis¹, Toyin Akanbi¹,
Abimbola Ashaye¹, Ayo Akinye¹ and Halima Bogunjoko¹**

¹*Eye Foundation Centre for the Prevention of Blindness, Ilese/Ijebu-Imushin, Ogun state, Nigeria.*

Authors' contributions

This work was carried out in collaboration among all authors. Author TJB designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors AOH and Author KL managed the analyses of the study. Author TA managed the literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/OR/2019/v10i230103

Editor(s):

(1) Dr. Tatsuya Mimura, Department of Ophthalmology, Tokyo Women's Medical University Medical Center East, Japan.

Reviewers:

(1) Umezurike Benedict Chidozie, Government House Clinic, Umuahia, Nigeria.

(2) Adnan Aksoy, Sütçüimam University, Turkey.

(3) M. Engy Mostafa, Sohag University, Egypt.

Complete Peer review History: <http://www.sdiarticle3.com/review-history/49456>

Commentary

Received 16 March 2019

Accepted 31 May 2019

Published 04 June 2019

ABSTRACT

Primary Health Centres in Nigeria and particularly Ogun state have suffered serious neglect over the years. A private / public partnership together with private health /education partnership have strengthened government health systems, developing a sustainable model for delivery of eye services to the most indigent. Over the last four years, in Ogun state, screening for cataract alone has increased in fourfold and the number of cataracts surgeries performed, threefold. However, ongoing subsidising of surgeries may be needed until local health insurance schemes or other ways of financing eye care become reliable. Tackling health beliefs about eye care remain one of the main barriers to uptake of services.

Keywords: *Primary health centres; community ophthalmic nurses; Ogun State; ophthalmologist; community ophthalmic technician; friends of vision.*

*Corresponding author: E-mail: tayo.bolujoko@gmail.com;

1. INTRODUCTION

The Nigeria national blindness and visual impairment survey in 2008 showed that an estimated 4.25 million adults aged ≥ 40 years have moderate, severe visual impairment or blindness. Out of this, >1 million adults with blindness are seriously in urgent need of attention [1] and may benefit from sight restoring surgery such as cataract or sight preservation in the case of diabetic retinopathy or glaucoma. Other eye conditions which do not cause blindness but are also in need of care at the primary care level such as allergic eye disease, presbyopia and one in four Nigerians have at least one ocular morbidity [2].

Historically, Nigeria has made little inroads in tackling the burden of avoidable blindness mainly due the large population (estimated to be 190 million), insufficient eye care workers, primary health care challenges and donor driven interventions that have been unsustainable. [3] In the absence of accessible primary eye care Services, health seeking behaviour regarding eye is low and traditional healing remedies are often sought with blinding consequences.

Despite these challenges, this paper aims to describe an eye care model delivered consistently in Ogun state over the last four years, which involves government primary eye care strengthening together with private hospital care efforts, local non-governmental organisations (NGOs) and international non-governmental donor organisations (INGDOs).

2. BACKGROUND TO OGUN STATE EYE CARE SERVICES

Ogun state is one of the 36 states that make up Nigeria. It is located in the South west zone with between 4 and 5 million population. 45% of the population is in urban areas and 55% is rural. The estimated prevalence of blindness is 0.5% and so approximately 25,000 people are estimated to be blind from cataract. [4,5] see Fig. 1.

Ogun State Primary Health Care Development Board was founded in 2009 with the "major aim to develop a sustainable Primary Health Care system which is equitable, affordable and qualitative through the participation of Gateway State people in partnership with all levels of Government and Non-governmental Organizations" [6]. There are 1373 PHC facilities in Ogun state, 35% (474) are public owned [7]. Many of them have been dysfunctional until recently when the state government rehabilitated about 100 of them [8], with infrastructure, provision of workers and basic equipment. However Primary Eye Care (PEC) still remains low on the list of priorities.

Deseret Community Vision Institute (DCVI) is a branch of Eye Foundation Hospitals (a private institute) which was established in 2006 with the initial aim of reducing the blindness within the million population of Ogun East Senatorial District. Whilst the base in Ijebu Mushin acts as the main base with outpatient and surgery



Fig. 1. Map of Nigeria showing Ogun State

Source: Ogun state website

facilities, it also conducts outreaches and trainings for Mid-level Level Eye Care professionals; Ophthalmic Nurses, Community Ophthalmic Nurses, Community Ophthalmic technicians.

St Mary's Eye Hospital started as a General Hospital, built and funded by the Catholic Diocese of Ijebu-Ode; with the assistance from the Royal Netherlands Government in March 1978. Following an observed high demand for eye care services in Ijebu land, it was eventually converted to an Eye Hospital in 1988 and formally commissioned in 1990. [9,10]

The ratio for ophthalmologist for Ogun state is 5.5 per million populations, consequently, it exceeded the vision 2020 target of 4.0 in 2014 by 37.5%. For ophthalmic nurses, the ratio is 6.3 per million populations which are 63% of the target of 10. The ratio for optometrist in the state is the lowest with 3.8 per million populations, 19% of the target of 20 [4].

3. MODEL OF SERVICE DELIVERY

In Ogun state, eye care services are of the horizontal and vertical approaches combined (diagonal services).

For example, primary level public health activities such as vitamin A distribution, measles immunization, and ivermectin distribution, facial and environmental hygiene are carried out in government Primary Health Care Units by all government health care workers but especially nurses trained in community ophthalmology (CONs). Prevention and promotion of eye health are taken very seriously. Appropriate advice and health education are done on days that many patients and their parents come for immunization and follow-up. Teachings are repeated one per month on a 6-month rotation and are supported by posters and booklets. CONs and trained medical officers will treat minor ailments and refer those patients in need of secondary services. Due to their links with secondary care centres through their training and refresher courses, eye care workers and 'Friends of vision' (community volunteers) are comfortable referring to the base hospitals. Mass drug administration for onchocerciasis (distribution of Ivermectin) also occurs at primary health care level.

Despite putting trained staff at the PHC level it is well known that eye health seeking behavior is poor and so an active outreach programme by the 2 main secondary eye care centres (St

Mary's Eye Hospital Ago-Iwoye (SMEH) and DCVI Ilese-Ijebu-Imushin) has been developed. [5] The social marketing executive liaises with the CONs in the organization of the outreaches and community leaders are contacted. Friends of vision are also involved in identifying cases in the communities.

In general, outreach services have been associated with improved access, health outcomes, more efficient and guideline-consistent care, in particular when delivered as part of a multifaceted intervention that includes other services and education [11]. Outreach program are usually conducted for free. On outreach, patients are seen, examined and treated for minor eye ailments. Counselling is done for those that require surgeries and other procedures and referred to the base hospital in Ijebu-Imushin. Surgeries are offered at low cost or may be sponsored by INGOs like Christian Blind Mission (CBM), Hilton Cataract Initiative (HCI) or MTN foundation (MTN) [5]. See Fig. 2.

4. IMPACT

Whilst it has not been possible to capture all eye care episodes conducted at primary, secondary and tertiary levels, there has been a four-fold increase in the number of patients screened on outreach from 5905 to 23,970 from 2015 to 2018. This has resulted in a threefold increase in the number of cataracts operated from 574 to 1757 in the same time frame for one hospital (DCVI) as seen in Table 1 and Fig. 3

Key steps in establishing the success of primary eye care in Ogun State have included:

- Human resource development and ongoing training
- Private / state / NGO / Donor Partnership Collaboration & Health Financing
- Health Technology, Equipment and Supplies
- High volume and high quality surgeries
- Excellent links to Secondary and Tertiary Eye Care Services
- Community Endorsement

5. HUMAN RESOURCE DEVELOPMENT

The greatest area of human resources development for eye care has been in the mid-level eye care personals such as ophthalmic nurses and technicians which were identified as underserved by mid-level cadres.

5.1 Community Ophthalmic Nurses (CONs)

In 2010, 20 Community ophthalmic nurses, trained by Eye Foundation Centre in conjunction with the Ogun State College of Health & Technology (OSCOTECH), Ilese, (a public institution) were the pioneer ophthalmic personnel that have maned the PHCs in each of the 20 local government headquarters in the state. They continue to maintain their positions to date, with the exception of 2, who passed away. Successful retention appears to be the result of selecting those over 50 years for training who were active in their location and have therefore remained in the locality.

About 6 months ago, 2 local government nurses in each of the 20 local governments, an additional 40 nurses, received a 3 days training programme in PEC which was sponsored by CBM.

CONs are trained to man the PHCs to screen for eye diseases and refer and also treat minor eye diseases. At the end of their one year training

the CONs are given equipment like visual acuity charts, ophthalmoscope, and trial lens box to be able to function at the PHC eye clinics. The CONs undergo regular refresher courses. They also train some of the COTs who do attachment with them.

5.2 Community Ophthalmic Technicians (COTs)

Community ophthalmic technicians undertake training with OSCOTECH in conjunction with Eye Foundation. The admission requirements for National Diploma (ND) programmes are a minimum of five (5) 'O' Level credits passes in English Language, Mathematics, Chemistry, Physics and Biology from WAEC or NECO in not more than 2 sittings. It is a 2 years programme [12].

They are trained in base hospital duties such as registration, taking of measurements, doing investigations, servicing and repairing instruments, nursing care on admission and camp activities etc [12].

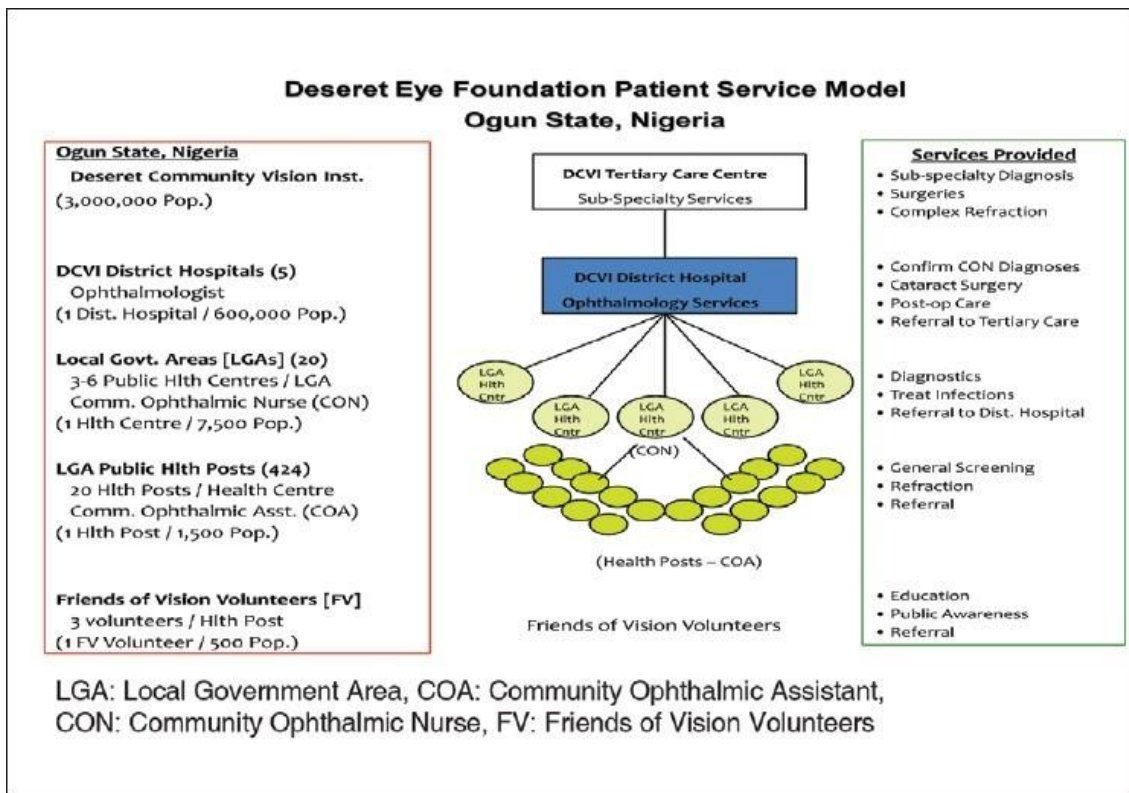


Fig. 2. Patient service model for DCVI, an eye foundation centre in Ogun State [17]

Table 1. Outreach services and cataract services of eye foundation centre 2015 - 2018 (cataract)

Year	Patients screened	Cataract advised	%	Target	Actual	%
2015	5905	1018	17	1000	574	57
2016	7670	1334	17	1500	729	49
2017	14392	1496	10	2500	752	30
2018	23972	3161	13	2000	1757	88

Performance: Visual outcomes (2014 – 2018)

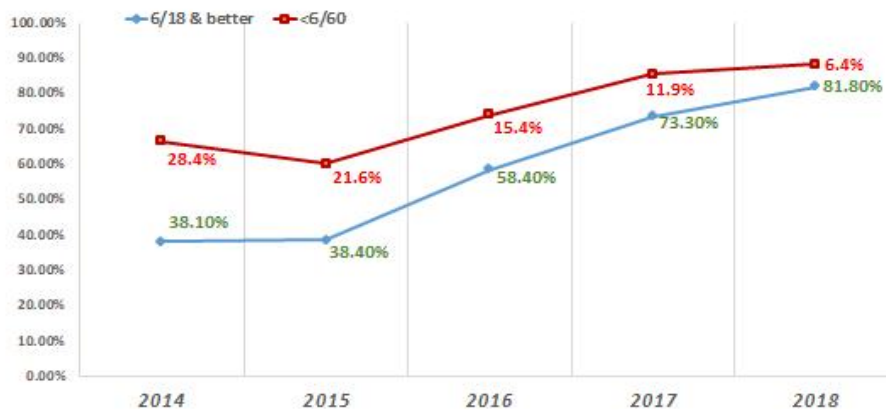


Fig. 3. Visual outcomes 2014 - 2018

Source: DCVI

5.3 Friends of Vision (FOV)

These are like the friend of the eye (Nyateiros) in the Gambia. [12] They are lay personnel such as school teachers, artisans, retired health workers or community members who are willing to undertake and assist in eye care activities. Fifty of them have been trained to date. Their main role is increase general awareness of eye disease and initiate referral. See Fig. 1.

6. MEDICAL OFFICERS

Workshops had been organized for government medical officers in primary eye care facilities to be able to recognize and treat minor eye problems and do fundoscopy to be able to refer patients with diabetic retinopathy.

7. OPHTHALMOLOGISTS

Both DCVI and St Mary's have consultant ophthalmologists who are well trained surgically

and have residents who assist with seeing patients and conducting outreaches and are involved in refresher training of mid-level cadres twice a year. They also receive referrals from the primary levels [5,13].

8. MULTISECTORAL COLLABORATION & HEALTH FINANCING

PEC in Ogun state is essentially private / NGO sector driven with government playing a supporting role. DCVI has also partnered with the OSCOTECH to train COTs and CONs. This is a mutually beneficial partnership as DCVI has additional staff to support its activities and trainees benefit from the practical work experience. There has continued to be collaboration in the area of outreach services between the government PHCs, Eye Foundation Centre (DCVI) and St Mary Catholic Eye Hospital. INGOs including CBM and private social enterprises like Hilton Cataract Initiative, Lions, Rotary and MTN sponsor glasses, drugs

for outreach and consumables and equipment for cataract surgery as well as trainings.

This type of collaboration works well as sponsorship tends to reach those most in need through the outreach programme rather than those already able to access services. Working in conjunction with local providers also means that sponsored surgeries do not undermine the work of the local eye care providers.

There continues to be partnership for mass drug administration for onchocerciasis (distribution of Ivermectin), this is under state ministry of health in the neglected tropical diseases programme). Additionally, there has been collaboration between eye health and other health departments such as environmental services, health promotion, nutrition, and social science which have facilitated more effective use of resources. Multi-sectoral collaboration, with an emphasis on prevention is currently addressing other eye conditions such as diabetes and many causes of childhood blindness especially under the school health services.

Presently, patients pay stipends for the services rendered in PHCs. For outreaches, the screening is free. Payments are made for eye drops and tablets in the camps at subsidized prices. Presbyopic glasses are also paid for. However, glasses and drugs are sometimes given free to the populace when the outreach is sponsored. The PHCs in the state operate drug revolving funds whereby patients pay a token. The tokens paid are for the system to be sustainable.

Ogun state recently submitted a bill to the state house of assembly to establish health insurance scheme known as Araya Community Based Health Insurance Scheme [14]. It is not yet clear the extent to which eye health will be involved.

9. HEALTH TECHNOLOGY, EQUIPMENT AND SUPPLIES

The PHCs have basic equipment to carry out the day to day duties like VA charts, ophthalmoscopes, trial lens box and frames. These were received by the CONs on completion of training and they take personal responsibility for them. They operate a 'drug revolving scheme' for basic drugs for conjunctivitis, ophthalmia neonatorum, allergies etc. They also have immunization days for

children including measles, drugs for vitamin A and ivermectin for onchocerciasis.

Both SMCEH and DCVI offer 2 differential pricing options whereby patients can choose whether to be seen in the public (low cost clinic) or in the private sector (higher cost). The private sector is technology and customer care driven with higher prices for premium technology and patient convenience. The public sector is able to keep costs down by high volume and minimal wastage. However, the organization remains committed to the same quality cataract surgery outcomes in both services [13,15].

10. QUALITY OUTCOMES

To counteract negative health seeking behavior, positive experiences such as effective services and high quality surgeries has been an important part of winning the hearts and minds of the population. As the number of people who have had successful cataract surgery and those whose visual impairment have been corrected with glasses increases, so does the confidence of others in their community to follow suit and take up services. This is reflected in the increase in patients voluntarily accessing secondary eye facilities as in Table 1 and Fig. 3.

11. REFERRAL PATHWAYS

Co-operation of the organizations at the higher levels together with the familiarity acquired through training in the referral institutions helps to ensure that patients are appropriately referred and in a timely manner. The distance to the main secondary centres have been a challenge but Eye Foundation hospital Group have set up smaller centres in Abeokuta, Ikorodu, Sagamu and Ijebu-Ode to improve access and reduce patient's travel [15].

12. COMMUNITY PARTICIPATION

It is a standard practice to consult with the community before outreach services are conducted. This has continued to make collaboration much more effective. When an outreach in a community carries members of the community along more people turn out for screening and more hidden eye problems are detected. Friends of Vision are very important in mobilizing the community and time is taken by the community liaison officer to identify key leaders in the community who are willing to support the programme.

13. CHALLENGES

There have been many challenges in the implementation of PHC and PEC in Ogun state mainly on the part of government. Key initiatives about PEC in PHC have been driven by the perseverance of local private sector and supporting NGOs. However, with the promise of 1% for Primary Health Care agreed in the budget for 2018 and government support for funding health insurance at the front line, the authors are optimistic that government will play a larger role in Primary Eye Care in the future [16].

Another challenge is local populations' beliefs about eyes and their health seeking behavior. Often there is low uptake of eye care services despite accessible facilities. Many people are afraid of surgery in their eyes and prefer to visit chemist shops and herbalists before coming to the trained health care workers and may come when it is too late. People don't see the need for surgery if one of the eyes is still seeing enough to meet their basic needs.

Distance to some secondary and tertiary centres has been a significant impediment to uptake of services and consideration of whether more local eye shops or outreach posts where patients can be seen for follow up post-surgery are needed.

There is also problem of developing affordable pricing especially for the poor. It is only when there is free cataract surgery when there is substantial amount of people that agree to do cataract surgery. Ongoing substantial subsidies for consumables will be required to be needed to support the programme for some time unless the proposed health insurance scheme is successful. However, it is encouraging that large corporates like MTN are willing to support these efforts and not just traditional eye based NGOs. It must not be forgotten that despite 'free surgery' the patient still bears the indirect costs of transport fees (for surgery and post-op reviews), food for the patient and carer on admission. By a 2-tier pricing systems organization such as DCVI are able to recover costs from the private to pay for the public [17].

Working with community groups can be challenging. Some demand for favors like financial incentives, free drugs and free glasses which are not agreed to and in some cases, this means that the outreach in those areas is not advisable despite the obvious need.

Increasing the detection and referral of patients with possible glaucoma and diabetic retinopathy is the next challenge that requires a similar proactive approach to that taken for cataract. Retinal screening for diabetes remains a challenge at the PEC level but potential investment in mobile phone technology to capture images at PHC level and send them to base hospital for review, may offer a potential solution. Prevention of blindness from glaucoma requires active and early case finding and management, a change in health care provider and patient negative beliefs, improved surgical outcomes and use of laser interventions much earlier in the treatment algorithms. Once again a whole system strengthening approach is required to tackle glaucoma.

14. CONCLUSION

Whilst the authors acknowledge that many elements of the model of service delivery above has been described before, the highlight is that private health care providers in collaboration with others can play an important role on the delivery of primary eye care services from the community up to the tertiary level. In addition, the sponsorship by large corporates in Nigeria, unrelated to healthcare can be an important potential source of income to drive down the costs of care to the patient and healthy collaborations as demonstrated above should be fostered. It is important to recognize that the burden of avoidable blindness in Nigeria is finally being tackled with tangible results. However it continues to require concerted collaborative efforts at the state level and health systems strengthening at each level of care.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Rabi MM, Kyari F, Ezelum C, Elhassan E, Sanda S, Murthy GV, et al. Review of the publications of the Nigeria national blindness survey: Methodology, prevalence, causes of blindness and visual impairment and outcome of cataract surgery. *Ann Afr Med.* 2012;11:125-30.
2. Aghaji AE, Gilbert C, Ihebuzor N, et al. Strengths, challenges and opportunities of implementing primary eye care in Nigeria.

- BMJ Glob Health; 2018; 3:e000846. Doi:10.1136/Bmjgh-2018-000846
3. Muhammad N, Adamu MD, Caleb M, Maishanu NM, Jabo AM, Rabi MM. Changing patterns of cataract services in NorthWest Nigeria: 2005–2016. PLoS ONE 12(8); 2017. Available: <https://doi.org/10.1371/journal.pone.0183421>
 4. Bogunjoko TJ, Hassan AO, Akanbi TB, Ashaye AS, Akinye AA. Analysis of Human Resources for Eye Health in Ogun State of Nigeria: Progress towards Vision 2020. Br J Med Med Res. 2017;1910:1-9:BJMMR.31702.
 5. Bogunjoko TJ, Hassan AO, BGK Ajayi, Oderinlo O, Okonkwo O, et al. Impact of cataract surgical services in Ogun State, Nigeria. J Eye Cataract Surg. 2017;3:16.
 6. Ogun state primary health care board. ogunstate.gov.ng/ogphcdb
 7. List of Coded Health Facilities in Ogun State. Available: <http://www.library.procurementmonitor.org/backend/files/List%20of%20Coded%20Health%20Facilities%20in%20Ogun%20State.pdf>
 8. Ogun to Rehabilitate 57 Primary Health Care Centres. Channels Television; 2017.
 9. St Mary's catholic eye hospital website. Available: https://stmaryscatholiceyehospital.com.ng/about_us.php
 10. Available: www.icoph.org/.../woc_the_nigerian_initiative,_hong_kong_june_26,_2008.ppt
 11. R n e du Toit, corresponding author 1 Hannah B Faal, 2 Daniel Etya'ale, 3 Boateng Wiafe, 4 Ingrid Mason, 5 Ronnie Graham, 6 Simon Bush, 7 Wanjiku Mathenge, 8, 9 and Paul Courtright 1. Evidence for integrating eye health into primary health care in Africa: a health systems strengthening approach. BMC Health Serv Res. 2013;13:102.
 12. Bogunjoko TJ, Hassan AO, Okonkwo O, Akanbi T, Ulaikere M, Akinye A, et al. Impact of middle level eye care personnel on the delivery of eye care services in South-western Nigeria. Int J Community Med Public Health. 2018;5:871-9.
 13. Bogunjoko TJ, Hassan AO, BGK Ajayi, Oderinlo O, Okonkwo O. Impact of Cataract Surgical Services in Ogun State, Nigeria. J Eye Cataract Surg. 2017;2:16. DOI:10.4172/2471-8300.100016
 14. Araya Community Based Health Insurance Scheme - Ogun State Primary Healthcare Board. Available: www.slideshare.net/ArayaOgun
 15. Eye Foundation Hospital website. Eyefoundationhospital.com
 16. Nigeria budget. Available: <https://www.vanguardngr.com/2018/04/2018-budget-fg-targets-inclusion-of-1-crf-for-basic-healthcare/>
 17. Qureshi BM, Mansur R, Al-Rajhi A, Lansingh V, Eckert K, Hassan K, Ravilla T, Muhit M, et al. Best practice eye care models. Indian J Ophthalmol. 2012;60(5): 351–357. DOI: 10.4103/0301-4738.100526

  2019 Bogunjoko et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://www.sdiarticle3.com/review-history/49456>