

ORIGINAL ARTICLE

Challenges to the Elimination of Cataract Blindness in Nigeria as Targeted by 'VISION 2020'

Michael C OKOSA¹
Lawrence O ONYEKWE¹
Cosmas C ANAJEKWU²
Chinwendu UZUKE³

¹ Department of
Ophthalmology
Nnamdi Azikiwe, University
Teaching Hospital Nnewi
NIGERIA

² Department of
Ophthalmology
St Charles Borromeo Hospital
Onitsha, NIGERIA

³ Department of Statistics
Nnamdi Azikiwe University
Awka, NIGERIA

Author for Correspondence

Michael Chuka OKOSA
Department of
Ophthalmology
Nnamdi Azikiwe
University Teaching
PMB 5025, Nnewi
Anambra State, NIGERIA

Phone: +234-803-714-4605
Email: chukamokosa@yahoo.com

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ABSTRACT

Background: VISION 2020 - The Right to Sight, is an initiative of World Health Organization in partnership with International Association for Prevention of Blindness (IAPB), articulated in 1999, and passed as a resolution in 2003 to eliminate the nine causes of avoidable blindness throughout the world by year 2020.

Objectives: To determine to what degree relevant manpower, infrastructure and modern technology is available for accomplishment of VISION 2020 goals as regards cataract blindness in Nigeria; the status of prevention of blindness activities in Nigeria as regards this, and challenges, if any, to the realization of the aim of this program.

Methodology: Questionnaire survey of ophthalmologists in Nigeria.

Results: There are enough ophthalmologists to achieve goals, but non-ophthalmic manpower for primary health centers is lacking. Equipments for modern cataract surgery is lacking as only 45.2% of practitioners have them for practice in their institutions. Institutional cataract surgery output is low; averaging 50-92 a year, per ophthalmologist. Community ophthalmology outreach is mainly NGO-driven, with minimal governmental and community sponsorships. The major challenges to achieving VISION 2020 include deficient government policy and funding (65.8%) and insufficient awareness of eye care measures by Nigerians (49.3%).

Conclusion: Tremendous challenges to the realization of VISION 2020 as regards cataract blindness exist in Nigeria. A strong political will and action by government are needed to overcome these challenges.

Keywords: Infrastructure, manpower, output, outreach

INTRODUCTION

VISION 2020 - 'The Right To Sight' is an initiative of World Health Organization (WHO) in partnership with International Association for Prevention of Blindness(IAPB), articulated in 1999, and passed as a resolution in 2003.¹ It aims at eliminating avoidable blindness from the world by year 2020. Avoidable blindness refers to blindness that are preventable or reversible using available resources.² Nine causes of avoidable blindness are targeted-cataract, refractive errors, trachoma, glaucoma, onchocerciasis, childhood blindness, low vision, diabetic retinopathy and age-related macular degeneration.²

Strategies for achieving this vision are: development and deployment of manpower, infrastructure, and medical technology so that modern methods of treatment are used. The specific treatment methods deployed in a community should be what is affordable to them.^{3,4} The effort advocated is a co-operative partnership between governments and non-governmental organizations.

As the target year 2020 approaches, evaluation of the status of the programme as it concerns cataract blindness from the perspective of ophthalmologists in Nigeria became necessary. The objectives of the study are to examine the current status of relevant manpower developments, degree of medical infrastructural development, level of ongoing activities aimed at the prevention of blindness as regards cataract blindness, and perception of Nigerian ophthalmologists about the major challenges facing the programme, with the aim of determining the achievability of goal of VISION 2020.

METHODOLOGY

Nigerian ophthalmologists who attended the Annual General Congress of the Ophthalmological Society of Nigeria (OSN) at Ile Ife in September 2008 were polled, by use of a self-administered, pre-tested, semi-structured questionnaire, which was distributed to every participant during one of

the scientific sessions and retrieved at the end of the session. Participants in the study were adults of sound mind, and participation was voluntary. Data entry was into SPSS 11 software with which it was analyzed.

RESULTS

Respondents were 73 practitioners representing 37 eye care centers: 19 secondary and 18 tertiary institutions. Among them, 68 (93%) claimed mastery of the concept of VISION 2020, and strategies for achieving the goals; 3 (4.1%) had hazy ideas and 2 (2.75%) had no knowledge of these. Concerning public health approach to disease control, 40 (54.9%) claimed a little knowledge; 25 (34.4%) claimed mastery, and 7 (9.7%) had only hazy ideas.

Of the 73 respondents, 64 (87.3%) believed that eye care outreach services based on a strong presence of primary eye care in the communities is necessary to achieve this goal. Out of the 73 ophthalmologists, 65 had participated in eye care outreach programmes between 2005 to 2008 period.

Skill for extra-capsular cataract extraction (ECCE) and small incision sutureless cataract surgery (SISCS) is possessed by 65 (72%) out of the 73 polled.

Medical infrastructural development as demonstrated by Availability of equipments for ECCE and SISCS by ophthalmologist in Nigerian: is displayed below: 'M' for microscope; 'U' for ultrasound machine for biometry; and 'C' for complete set of cataract micro-surgical set.

INSTRUMENT/ EQUIPMENT	AVAILABLE OPHTHALMOLOGISTS
(1) M+U+C	33 (45.2%)
(2) MICROSCOPE ONLY	21 (28.8%)
(3) CATARACT SET ONLY	6 (8.1%)
(4) NONE OF THE THREE	8 (11%)
(5) M+C	4 (5.5%)
(6) M+U	1 (1.4%)
Total	73 (100%)

Other results are illustrated in Tables 1-4 and Figures 1 and 2.

Table 1. Ophthalmologists' perception and interactions with other cadre of community eye care workers in Nigeria

Activities of community eye care workers	Ophthalmologists' awareness or participation in activity	Ophthalmologists lack of awareness or participation in activity
Knowledge of the different cadre	21 (28.8%)	50 (68.5%)
Awareness of their activities and role	18 (24.7%)	52 (71.2%)
Knowledge of their training institutions	15 (20.5%)	56 (76.7%)
Awareness of their curriculum	4 (5.5%)	67 (91.8%)
Participate in their training	10 (13.7%)	61 (83.6%)
Supervise their work	8 (11.0%)	63 (86.3%)
Get referrals from them	10 (13.7%)	61 (83.6%)

Some respondents gave more than one response
Percentage is based on number of respondents to the questionnaire-73

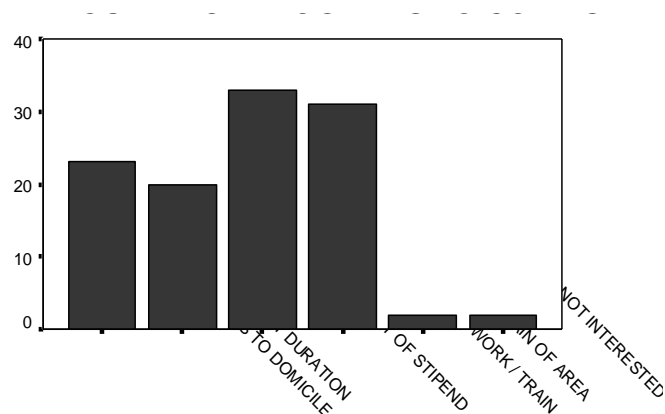
Table 2. Cataract surgery output for 3 months: of June-July-August 2008 by ophthalmologists in Nigeria is depicted below

Group	Number of Cataract Surgeries	Done
A	Above 30	16 (21.9%)
B	21-30	9 (12.3%)
C	11-20	12 (16.4%)
D	6-10	14 (19.2%)
E	1-5	13 (17.8%)
F	None	9 (12.3%)

Table 3. Readiness to participate in future outreach program by Nigerian ophthalmologists

Gender	Yes	No	Undecided	Total
Female	14 (19.2%)	22 (30.2%)	4 (5.4%)	40 (54.8%)
Male	10 (13.7%)	18 (24.6%)	5 (6.9%)	33 (45.2%)
Total	24 (32.9%)	40 (54.8%)	9 (12.3%)	73 (100%)

Figure 1. Showing incentive for future participation in community eye care outreach indicated by Nigerian ophthalmologists



Some practitioners indicated more than one incentive to future participation

Figure 2. Blindness prevention activities: depiction of sponsorship for community eye outreach/surgery program for years 2005-2008 in Nigeria among 64 respondents who have been involved in outreach activities. One practitioner did not indicate a sponsor

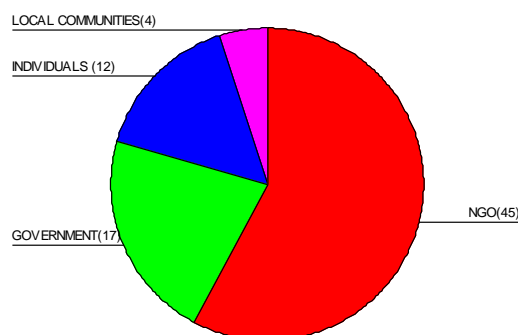


Table 4. Perceived challenges to achieving goals of vision 2020 in Nigeria

Challenges	Ophthalmologists who consider this a problem	Ophthalmologists who do not consider this a problem
Deficient governmental policy and funding	48 (65.8%)	23 (31.5%)
Inadequate organization and co-ordination	32 (43.8%)	39 (53.4%)
Insufficient ophthalmologists	15 (20.5%)	56 (76.7%)
Preference for non-orthodox treatments	19 (26.0%)	52 (71.2%)
Insufficient awareness of eye care measures	36 (49.3%)	35 (47.9%)

Some respondents indicated more than one of the above; 6 declared all to be important factors.

DISCUSSION

Manpower Development

Most Nigerian ophthalmologists are skilled for ECCE and SISCS. Formal training programmes for these procedures in Nigeria started about 1997, at National Eye Centre Kaduna. Prior to that time, intra-capsular cataract extraction (ICCE) was the routine surgery offered for cataract blindness in Nigeria's. With 72% ophthalmologists, skilled in these procedures just one decade after formal training started is significant development of ophthalmic manpower measured with Likert scale test with critical value at 2.

Furthermore an estimated 300 Nigerian ophthalmologists practicing in the country meets the WHO minimum recommendation of one ophthalmologist to 500 000 people.^{5,6} This ratio is better than estimated African ratio of 1:1 000 000 though it is less than proportions described in industrialized countries of France, Canada and Australia.^{7,8,9,10}

Manpower development with regards to cadres of community eye care workers could not be evaluated because significant numbers of ophthalmologists are not aware of their presence, training and health care activities (Table 1). Indeed, Mann-Whitney test at $p < 0.05$, demonstrates that ophthalmologists' interaction with community eye care workers is considerably poor. For this situation to exist it can be deduced that these cadres of practitioners were not being developed or utilized in Nigeria, contrasting situation existing in Zambia, Mali and Kenya.¹¹

VISION 2020 programme design is such that activities for the prevention of blindness is embedded in eye care structure consisting of a pyramid of primary health centre and workers in the villages, manned by community eye care workers as the base. Activities and referrals are envisaged to go up and down this pyramid.^{12, 13,14} Inadequacy of this critical part of health care structure in Nigeria is inimical to the success of the programme and other eye care activities.

Medical and Social Infrastructural Development

Secondary and tertiary institutions lack requisite equipments to treat cataract.^{15,16} Less than half of ophthalmologists (45.2%) have access to the triad of requisite instruments - operating microscope, ultrasound and complete set of surgical instruments. At $p < 0.05$, paired t-test, it is demonstrable that no significant medical infra-structural development is present. Indeed 37.3% of the ophthalmologists have had to use their personal drugs or equipment for care of patients in government hospitals in the 6 months preceding this study. This situation of having trained manpower without essential tools for work threatens attainment of Vision 2020 goals.

Inadequacies extend to social infrastructure-electricity, public water supply and good roads. Most modern eye care requires electricity and clean water supply; these are deficient. Rural areas with high burden of avoidable blindness often are inaccessible for

eye care outreach activities to be taken to them and for inhabitants of such areas to access health centers situated in urban areas.

Prevention of Blindness Activities

Cataract surgery, the most cost-effective health intervention in terms of cost per disability-adjusted life-years (DALY).¹⁸ has a low output in Nigeria.

Cataract surgery rate (CSR) of 107-194, disclosed from present study, is low (*Table 2*). It is lower than VISION 2020 CSR target of 3,000.¹⁹ It is lower than aggregated African rate of 300; to W. Pacific (670); E. Mediterranean (1000); E. Asia (2400); and Europe (2400).²⁰ This rate is achieved by estimated 300 Nigerian ophthalmologists doing an average per practitioner of 4-8 cataract surgeries per month. This low rate compares with findings in South American countries where CSR was found to correlate with national per capita income.²¹ Economic reasons have been found to be the most important barrier in cataract surgery uptake in Ghana and even in free cataract surgeries offered in eye camps.^{12,22,23}

CSR as an evaluation tool bundles together potential and actual blindness elimination achieved.²¹ A useful and specific estimate for tertiary prevention of blindness due to cataract-that is actual blindness reversed by cataract surgery, we suggest, may be Cataract Backlog Elimination Ratio (CBER) - a ratio relating actual yearly cataract blindness eliminated by cataract surgery to cataract backlog, thus relating magnitude of the problem to current effort. This would be better for appraisal of how long at current effort cataract blindness backlog would be eliminated in a community. This would be useful in setting targets, and thus for planning.

Thus, 300 ophthalmologists in Nigeria currently doing about 15,000-27,300 cataract surgeries a year (*Table 2*) to eliminate blindness in 486 000 adults of above 40years old, who are bilaterally blind from cataract²⁴ gives a CBER of 1: 18-32. This indicates that it

will take 18-32 years to clear this cataract backlog at the current output. Much higher output is necessary to take care of current need and new occurring cases in Nigeria's projected population of about 200 million by year 2020.²⁵

Insufficiency of Access to Modern Eye Care

A major constraint to cataract surgery coverage and uptake is mal-distribution of eye care facilities and eye care providers as against eye diseases. It is reported that only 30% of people in Africa have access to modern eye care due to factors including mal-distribution of care providers.¹¹ For example, none of the 73 ophthalmologists in this study practices in a rural area. Thus 86.3% of ophthalmologists for above reasons consider that despite perceived adequate numbers of ophthalmologists in Nigeria, that city-based eye care are inadequate to eradicate avoidable blindness.

Other identified constraints to accessing modern eye care lack of awareness of where to obtain help, preference for non-orthodox modes of treatment, illiteracy, poverty, ignorance and lack of marketing methods by eye health centers. These agree with observations by other investigators.^{11,22,23,26,27}

A major cause of skewed distribution of ophthalmic manpower is simply that tertiary and secondary health facilities that offer jobs do not exist in rural environments; social infrastructural deficits and security issues like armed robbery and kidnap for ransom.

Security considerations is probably a factor why significant majority of Nigerian ophthalmologists (chi-squared test at $p < 0.05$) in present study are disinclined to participation in future community outreach activities (*Table 3*), and gender is not a significant factor ($p < 0.05$ chi-squared test) in willingness to participate. They would consider taking part if such programs are close to where they live, and such that they can commute to from their homes (*Figure 1*). The implication of above results is decrease of eye care for rural populace and a challenge to goals of VISION 2020.

Governmental and NGO Participation

Respondents consider Nigerian governments do not show sufficient interest in VISION 2020 accomplishments (Table 4), because of its poor participation on rural eye care outreach programs as illustrated by Figure 2, lack of commitment, lack of funding and co-ordination of prevention of cataract blindness activities; inadequate development and co-ordination of health manpower cadres for accomplishment of goals. Mann-Whitney test at $p < 0.05$, suggests however that these particular difficulties however are not sufficient to jeopardize achieving the program's aim.

Non-governmental organizations however appear to be the main drivers of eye care programs in Nigeria (Figure 2). Donor agencies were sole sponsors in 54.6% of outreaches, and joint sponsors in a further 15.7%, while government solely sponsored 14.1%, and were joint sponsors in 16.6%. Such a major health care activity of a large country like Nigeria if dependent mainly on donor agencies may not be sustainable.

CONCLUSION

Virtually none of the necessary activities and conditions needed to actualize VISION 2020 goal concerning cataract blindness exists in Nigeria, except for availability of ophthalmologist. Community primary eye care personnel and infrastructures are not developed. Primary health structure that would act as a framework for delivery of services is absent. The citizen-related challenges are much. Government should be more active in evolving and enforcing policy, setting structure, funding and coordinating the programme. These challenges must be overcome for Nigeria to accomplish goals of VISION2020.

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DISCLOSURES:

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