Review Article

# Should Glaucoma Be Public Funded in Nigeria? Resource Allocation and Justice-based Arguments for Funding Glaucoma Treatment

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## Abstract

Healthcare resources are finite commodities, yet have to appease competing healthcare demands. Unless healthcare resources are fairly distributed, most indigent Nigerians, who have glaucoma, would continue to suffer visual impairment and a worsened social life. This work categorizes healthcare resource allocation and provides justice-based arguments for funding glaucoma treatment by Nigeria. The arguments considered approaches to justice, especially Hippocrates, Marx, Rawls, Aristotle, utilitarianism, egalitarianism, communitarianism, capability theory, well-being, and fair opportunity rule. Finally, justice-based healthcare rationing and two-tiered healthcare model are discussed. A proposal for general health insurance funded tier 1 of the two-tiered health care that provides universal cost-free basic health care for diseases of public health importance, including glaucoma, is made.

**Keywords:** Basic universal health care, health resource allocation, two-tier health care, public funding, justice in health care

## Background

Nigeria's allocation of resources toward funding glaucoma can be macro-, meso-, and microallocations. Glaucoma treatment is a healthcare need, because untreated glaucoma causes visual impairment, hampering the quality of life. Public-funded glaucoma meets Nigeria's social responsibility, reduces burden of blindness, and mitigates its adverse health, social, educational, and economic implications on the Individuals with glaucoma (IWG) and society. Justice approaches such as Hippocrates, Rawls, utilitarianism, egalitarianism, communitarianism, capability theory, well-being theory, and fair opportunity rule advocate healthcare system that would ensure Nigerians' access to glaucoma treatment preferably at no cost at point of delivery. This plausibly would enable the IWG to lead a normal life, achieving their life goals, which glaucoma blindness would have prevented.

A two-tiered healthcare model promises to realize glaucoma treatment in Nigeria at no cost at point of delivery. Although tier 1 provides basic universal glaucoma treatment, ensuring lifelong useful vision, tier 2 meets demands of any IWG, especially sophisticated care at the IWG's expense but not necessarily better in eventual visual outcome than what obtains in tier 1. The two-tiered model enables justice in meeting glaucoma treatment need with appeal to egalitarianism and utilitarianism. Notably, tier 1 provides universal basic health care for diseases of public health importance, including glaucoma and sustained by general health insurance coverage for all Nigerians. This would largely make campaign for public-funded glaucoma treatment not only easier but also impartial because some other diseases of public health importance have comparative treatment cost benefit over glaucoma. Notwithstanding its name, a disease interrupts normal life, making its treatment a need. Ethical-based treatment rationing would save cost without compromising the best possible visual preservation among the treated IWG.

The advocacy for public-funded glaucoma treatment is grounded on highlighted reasons in a sister paper under consideration, including observations that many IWG

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cannot afford glaucoma treatment, relationship between poor treatment compliance and IWG inability to afford treatment, and Nigeria's lack of effective and efficient universal health insurance coverage. Other reasons are lack of ready sponsors or funders for glaucoma, the preponderance of glaucoma in the working-age group, the inverse relationship between available Nigeria's healthcare resources and Nigeria's population distribution, the negative impact of glaucoma on the IWG's quality of life, and the eye health professionals' concern.

The existing Nigeria's National Health Insurance Scheme (NHIS) is inadequate, inefficient, and covers very small percentage of Nigeria's population that is insignificant. At present, the NHIS covers just an integral part of glaucoma treatment, especially only trabeculectomy and a few often nonavailable antiglaucoma drugs. The objectives of this paper were to present the justice-based reasoning, such as Hippocrates, Rawls, utilitarianism, egalitarianism, communitarianism, capability theory, well-being theory, and fair opportunity rule to advocate healthcare system that would ensure Nigerians' access to glaucoma treatment preferably at no cost at point of delivery. Further presented was a two-tiered healthcare model toward universal health care for the Nigerians, especially the IWG.

## Materials and methods

This is essentially a normative study. An ethical-based study presents justice-based arguments, including Hippocrates, Rawls, utilitarianism, egalitarianism, communitarianism, capability theory, well-being theory, and fair opportunity rule to advocate Nigeria-funded glaucoma treatment. Further, a two-tiered healthcare model toward universal health care for the Nigerians, especially the IWG, is proposed. The relevant literatures from the library of Keele University, Staffordshire, the United Kingdom, personal library, and online articles were reviewed and cited.

This paper is part of a large work which has been subdivided into parts. The rest articles under consideration for publication include background, justification, and the study overview; Arguments against funding glaucoma treatment and rebuttal; and Harms of glaucoma and Arguments for funding glaucoma treatment. This paper is divided into sections, including category of resource allocation, approaches to justice and arguments for Nigeria's funding glaucoma treatment (Hippocrates, Marx, Rawls and Aristotle, utilitarianism, egalitarianism, communitarianism, capability, well-being, and fair opportunity rule), collective social protection and fair opportunity arguments, two-tiered health care for glaucoma treatment, procedural strategies for setting priorities, rationing in glaucoma treatment, and universal healthcare insurance.

### Category of resource allocation

Resource allocation relating to health care (including glaucoma treatment) has been categorized, macro-, micro-, and, in-between the two, mesoallocation.[1] Macroallocation involves the budgetary distribution of national resources to different sectors of life for instance, health, defense, and education. Advanced economies, such as the United Kingdom and the United States, have huge health budgets compared with poor economies. For instance, in 2014/2015, the UK National Health Service (NHS) budgeted £113.3 billion[2] and the United States allocated 26% of its $3.9 trillion 2014 budget to health.[3]

Contrariwise, Nigeria, a resource-limited economy, allocated a paltry 5.6% of its N4.962 trillion (£16.6 billion) 2014 budget to health.[4] Interestingly and comparatively, the NHS (the United Kingdom's equivalent of Nigeria's NHIS) 2014 budget was almost seven times Nigeria's 2014 total national budget. Poor budgetary allocation to health is bane to healthcare development in Nigeria. Nigeria can accomplish improved healthcare delivery by increasing health budget through macroallocation.

A mesoallocation is the sharing of budgetary allocation among the divisions of a given sector, for instance, the distribution of health budget to various health divisions, such as public health, women health, children health, and eye health. A situation in which Nigerian state is willing to fund glaucoma treatment would mean that additional resources (for glaucoma care) would be deployed to eye health at mesoallocation stage of resource distribution. Mesoallocation also includes decisions on allocation, at health authority level, for competing medical and other healthcare claims and decisions within a hospital on how to allocate between competing specialties and firms.

A microallocation is rationing of resources within a given subsector in view of finite resources and competing demands. Rationing refers to the "discretionary allocation of scarce resources, with deprivation generally distributed unevenly across society."[5] It can be allocation between two IWG or diseases for instance, funding glaucoma treatment in an IWG at its early stage (high benefit) rather than an IWG at its late stage (doubtful benefit) or funding glaucoma treatment instead of cataract. Rationing aims at judicious use of resources. Although complex and taxing, resource allocation decision to health care is based on moral assessments of how competing claims can be fairly resolved, especially based on justice.[6]

Many criteria have been suggested for selecting a beneficiary, such as an IWG for microallocation for instance; Rescher (1969, cited in Kushe and Singer[6] 2006, p. 402) suggests five distinct primary criteria, including relative likelihood of success of treatment, life expectancy (of the IWG), family role (of the IWG), potential contribution to society, and past services rendered (by IWG). Rescher's criteria have their own merits and demerits; although likelihood of success would be useful to take decision in situation of scarce resource, not all cases would merit unambiguous categorization; a life expectancy criterion may necessarily discriminate against the elderly; thus, the criteria are not necessarily objective. This is so as a 15-year-old boy, who needs antibiotic to treat

bruises on his leg, which would cause no death, would be preferentially treated, because of his long life expectancy, instead of using the same antibiotic to cure a 75-year-old man (short life expectancy) of a life-threatening pneumonia. A reasonable decision should have been to use the only available antibiotic to save the elderly man.

Moreover, there are diverse opinions on criteria for microallocation; some hold that plausible length and quality of life gained ought to be the deciding moral consideration in allocating scarce resources, whereas other would prefer that the scarce lifesaving resource should be allocated based on account of past and/or potential future contribution to society.[6] Harris prefers that age is not used to decide resource allocation, especially in the individuals below age 70 years unlike Veatch, all other things being equal, who argues that based on egalitarian justice, age should be considered in healthcare allocation (Harris; Veatch cited in Kushe and Singer[6] 2006, p. 403). Harris position appears more reasonable than Veatch; however, there should not be discrimination in resource allocation even above age 70 years because (many) old people have earned their health care through their contributions to economy during their working years.

Furthermore, Gillon[1] observes that healthcare rationing may be based on a number of criteria such as welfare maximization (the least in age expected to live longer and maximize returns), medical need (the most sick need the health care most), merit (the kindest person becomes the beneficiary), partiality (the favorite becomes the beneficiary), fairness (lottery – devoid of favoritism), social worth (the privilege versus the less privilege), and efficiency/efficacy (probability of medical success).

A careful analysis of Gillon's[1] list of criteria for allocating healthcare resources would reveal that partiality is an obvious injustice and the medical need should be a better criterion for microallocation. Medical need correlates with the Marxist criterion for justice – "to each according to his need." However, medical needs are also as varied as there are patients. Medical needs may include prolongation of life, elimination of disease and attainment of health, and improved quality of life, in the sense of both reduction of suffering and enhancement of flourishing. These medical needs are not necessarily the same in worth of impact on life; however, each patient has to be fairly treated, thus the need for justice in resource allocation.

Nonetheless, a medical need should have impact on health – a state of complete physical, mental, and social well-being, and not just the absence of infirmity. Medical need is a necessary criterion for just distribution of medical resources.[7] Like in previously cited example, the medical need for antibiotic in the 75-year-old man who would die without antibiotic treatment for pneumonia far outweighed that of the 15-year-old boy who would survive without antibiotic treatment for his leg bruises. Glaucoma treatment is a need because untreated glaucoma markedly reduces quality of life (QOL) which is detrimental to the IWG and society. Glaucoma treatment is a fundamental need making it obligatory as without it, the IWG are significantly harmed due to interrupted capacity to flourish (an Aristotelian approach). Glaucoma treatment meets the criterion for need because, without treatment, there can be harm of blindness. The principle of need holds that the essential social resources, including health care, should be distributed according to need. Need implies that without it, that person will suffer a harm, or at least be detrimentally affected.[8]

Glaucoma treatment is a necessity and not just a desire.[9] Culyer[10] observes that healthcare need exists if there is capacity for an intervention to enhance health benefits, which is derived by comparing the IWG situation with and without treatment. Glaucoma treatment satisfies Culyer's criterion for healthcare need, because the IWG's condition would plausibly be worse without treatment.

Regrettably, many Nigerian IWG cannot afford or access glaucoma treatment with consequential impaired vision – a necessary unhealthy state even when an IWG is physically and mentally stable. The Nigerian IWG would largely benefit from glaucoma treatment; however, it would be impossible through open-market health care, because IWG would not afford it, causing blindness and adverse effect on society. In the United Kingdom, the need for health care is addressed by the State and funded by means of taxation.[9] Glaucoma treatment is a need and Nigeria should emulate the United Kingdom and other nations where health is accorded the deserved priority.

Nonetheless, healthcare resources are finite and cannot satisfy all healthcare needs and wants, thus underscoring ethically defensible way of allocating resources. Unlike diseases that could be reversed following treatment, glaucoma treatment should not be based on ability to pay especially in Nigeria where most IWG cannot afford treatment. Most developed countries have adopted public policies – guided by social welfare and justice considerations – that provide some basic level of health care to the poor and other vulnerable groups, who would otherwise die or suffer great harm because they cannot afford to pay for private healthcare insurance or care. This would imply that the developed nations have long realized that the market-orientated way of allocating healthcare resources is inadequate.[6] It is reasonable to believe that open-market health care has failed to achieve desire health care for the people, especially the minority poor in advanced nations and it can rarely be helpful in Nigeria where majority is poor.

## Approaches to justice and arguments for Nigeria's funding glaucoma treatment

Nigeria grapples with healthcare inequalities, including inadequate healthcare resources, access to health care, and diseases peculiarities. Many IWG are not getting treatment mainly due to inability to afford treatment. Because of increasing healthcare cost, the available NHIS is limited in

operation and inefficiently serving only a minority group. There is concern about what justice requires of societies and global community on healthcare provisions. The challenge of inequalities and cost are truly concern of justice in health policy and healthcare institutions. The inequalities and cost threaten access to, and proper distribution of, health care. For instance, cataract afflicts more Nigerians and its treatment is very cost-effective than glaucoma. These inequalities create support for cataract even when glaucoma causes irreversible blindness making it worse than cataract. Also the inequalities between human immunodeficiency virus (HIV) and glaucoma attract funding to HIV; HIV infection elicits instant fear of death and sympathy unlike glaucoma. The need for justice in healthcare resource distribution cannot be overemphasized.

Currently, most of Nigeria's IWG are at the mercy of the market forces, leaving many of them not receiving treatment and, consequently, suffer costly irreversible blindness. Remarkably, those who get treated for glaucoma are the selected few IWG who are aware of their glaucoma status and can afford treatment as well as the privilege few that enrolled for NHIS. It is doubtful if there is justice in a situation where many IWG actually need healthcare service, but only a few get it. Undoubtedly, a fair healthcare policy that makes healthcare provision for the IWG would reduce the burden of blindness in Nigeria.

It is important to examine the approaches to justice in relation to the Nigeria's funding glaucoma treatment toward reducing avoidable burden of glaucoma blindness among Nigerians. The term justice implies fairness, equitable, and appropriate treatment in light of what is due or owed to persons.[8] Distributive justice means fair, equitable, and appropriate distribution of benefits and burdens determined by norms that structure the terms of social cooperation.[11]

## Hippocrates, Marx, Rawls, and Aristotle

Hippocratic duty holds that prioritizing the common good over the individual is morally wrong. This is not necessarily correct in situations where individual's good would affect the common good. For instance, an individual may enjoy smoking but many societies banned smoking in public places because it does not serve common good. However, Hippocratic duty may advocate treatment for an IWG. The original Hippocratic oath, though has been revised, expects a doctor to make the care of his/her patient his/her first concern. Thus, the care for an IWG should be the concern of healthcare professionals, so as to prevent avoidable blindness. By advocating, mobilizing, and lobbying for resources toward glaucoma treatment, the health professional is doing good (beneficence) and preventing harm (nonmaleficence) of glaucoma blindness to her patient.

To Marx, justice demands that each should be given according to need and taken from according to ability. The health need of an IWG is glaucoma treatment, same as that of an individual with cataract is cataract extraction, and a hypertensive should have adequate dose of antihypertensive medication. Glaucoma should not be considered a less harmful disease to cataract or hypertension because each is harmful to its victim by interfering with the individual's ability to remain healthy.

Rawls's theory of justice holds that a rational person, who makes a decision behind a veil of ignorance, unaware of plausible beneficiary, will look after the least well-off.[9] Incidentally, poor citizens in the society bear disproportionately bad social indices, especially disease burden. It is for public good should the societal poor get treatment support that plausibly enables flourishing life that would improve economy. Many Nigerian IWGs are indigents and would benefit from treatment funding.

Similarly, Aristotle exhorts that equals should be treated equally, unequals unequally in proportion to the relevant inequality. This would imply that glaucoma like other diseases should be accorded same treatment status or better, as its effects are grave, if left untreated. Virtually, all accounts of justice in health care hold that delivery programs and services design to assist persons of a certain class; for instance, the indigent should be made available to all members of that class. It is unjust to deny given benefits to some when others in the same class receive such benefits. Like HIV, hypertension, or cataract, glaucoma is a disease of public health importance in Nigeria and should equally enjoy funding support like others.

## Utilitarianism

Glaucoma treatment would plausibly maximize social utility by preventing blindness among the IWG, thus making them retain their quality life, being productive, and useful to society. A functional vision enables individual to participate in business transactions, free association, and freedom to move around to access available resources. A normal vision enables individual to have healthy interaction with the society and to lead a flourishing life, though, some blind people lead flourishing lives but blindness in a society with poor social welfare and healthcare supports could seriously impede quality of life. Theories of distributive justice link the morally relevant properties of persons to morally justifiable distributions of benefits and burdens.

Glaucoma treatment appeals to the principles of distributive justice from a utilitarian perspective, because it has potential to maximize utility or welfare.

Glaucoma treatment would produce the maximal balance of positive value over disvalue (positive utilitarianism) – or the least possible disvalue (negative utilitarianism), if only undesirable results can be achieved. By slowing down the rate of progression of glaucoma, it enhances lifelong useful vision in the IWG. This is a positive value as compared to blindness (disvalue) that would occur should there be no treatment. Also by blocking the plausible negative, impact of blindness, including economic and social dependence on family and society, is a value over disvalue that makes

glaucoma treatment, overall, in keeping with utilitarian principles.

Nigeria's funding glaucoma would have appeal to utilitarian theory. The utilitarian enjoins society to act to maximize welfare for the greatest number, at the least cost. Mill[12] holds that justice is the most significant and rigorous forms of obligation set by the principle of utility. It is instructive; glaucoma treatment has cost–benefit as the IWG would enjoy useful vision for productive purposes. Being able to work would translate to capacity to support self, family, and society by being able to pay tax. All these would necessarily be impossible in a blind individual in Nigeria and instead such IWG do depend on family and/or society. Overall, there is economic benefit in glaucoma treatment.

## Egalitarianism

Egalitarianism is another important approach to justice that would be relevant to Nigeria's funding glaucoma treatment. In an egalitarian society, an individual is viewed as equal to the other in certain respects. Here, egalitarianism principally is not about equal sharing of all social benefits to all persons but rather identifies basic equalities while permitting some inequalities.[8] The glaucoma can be equated with other diseases such as malaria and HIV for public funding as all plausibly can prevent their victims from achieving their life goals or make their life worth less without treatment. The inherent natural history of glaucoma is distinct from that of malaria or HIV or cataract. These are necessarily inequalities among these diseases yet the IWG can equally enjoy the social benefit of public support for treatment just like any other diseases being supported by society.

Justice is about a judgment of equal respect for persons and fairness to help us establish principles of justice. The IWG would earn equal public respect as individual with malaria or HIV if and only if there is support for glaucoma treatment just like it is done for HIV. Rawls[13] submits that impartiality should satisfy two fundamental principles, including first, permitting an individual the maximum amount of basic freedom compatible with a similar measure of freedom for others; second, social inequalities must satisfy two conditions: one, inequalities in social primary goods may be allowed, but only if they benefit everyone (the difference principle), and two, social offices and positions be open to all under circumstances of fair equality of opportunity – "a fair opportunity rule." Although Rawls considers justice in nations and social institutions, Daniels[14] argues for a just healthcare system-based primarily on these principles, with a special emphasis on what Rawls called "fair equity of opportunity." Daniels observes that healthcare needs are special and that fair opportunity is central to any acceptable theory of justice.

Nigeria's healthcare allocation that adversely affects glaucoma treatment, thus, should be revised, as far as possible, to allow each IWG to achieve a fair share of the normal range of opportunities present in Nigeria. The society has duty to remove any obstacle to fair equality of opportunity, including activities toward correcting disadvantages.[14]

Glaucoma remains and should be viewed as undeserved restrictions on the IWG's opportunities to realize basic goals. The glaucoma treatment is needed to achieve, maintain, or restore adequate levels of functioning so that the IWG can realize basic life goals. Nigeria healthcare system should be designed to meet these needs to prevent loss of visual functions that would reduce the range of opportunity open to the IWG. The allocation of healthcare resources, then, should be structured to ensure justice through fair equality of opportunity.[14,15] Their social indices notwithstanding the IWG should have equal access like individuals with other diseases to basic health care.

## Communitarianism

On its own, the communitarian theories of justice prefer common good over individual interests and have little regards for theories based on individual rights and contracts. It rather sees society as being built around the general welfare, to common purposes, and to education in citizenship. The social groupings and agreements toward common good have appeal to communitarian theories.[16] Taylor[17] challenges the concept of human good making individuals' rights priority over communal decision-making as if individuals are separate entity existing independently of communities. Even the type of autonomy suggested by individualism, Taylor[17] argues, cannot be developed in the absence of the family and other community structures and interests. Communitarians regard principles of justice as pluralistic, deriving from as many different conceptions of the good as there are diverse moral communities. What is owed to individuals and groups depends on these community-derived standards.[18]

A communitarian policy should support a public funding of glaucoma treatment rather than individual being exposed to market forces that would not assist many indigent IWG. The outcome of the treatment would be for the common good. The healthcare allocation policy should be one in the common interest rather than in individual's interest. Callahan[19] holds that there should be public policy from a shared consensus about the good of society rather than on the basis of individual rights. Glaucoma treatment should be a concern of a good society. It is beneficial if Nigeria notices and tackles the harms of untreated glaucoma through public-funded glaucoma treatment.

## Capability

Uniquely, capability theory of justice advances 10 core capabilities that correlate with a worthwhile life, underscoring reasonableness of Nigeria funding of glaucoma treatment because vision is important to the 10 core capabilities. The capability is a state of proper functioning and well-being which are of basic moral

significance. This theory was pioneered by Sen[20] and developed by Nussbaum[21] who uses the theory to address "social justice" and the "frontiers of justice" – the latter including justice for the disabled, the globally poor, and nonhuman animals. The capability theory holds that a minimal level of social justice requires "the availability to all citizens of 10 core capabilities," as follows.[21,22]

The first core capability concerns itself with life and entails ability to live a normal life, achieving a fulfilling life and a life worth living. Glaucoma treatment would plausibly enhance a normal life in the IWG because blindness adversely affects normal life. The life becomes subnormal following a compromised visual function and affecting IWG's quality life. A glaucoma blind is plausibly not leading a worthwhile life because life dreams are disrupted. Blindness predisposes an IWG to morbidities which are risks to shortened life span. Moreover, the second core capability is bodily health, including good health, nutrition, and shelter which are basic needs in life for normal individual. Glaucoma has capacity to interfere with the IWG's ability to live through impaired vision – a state of unwellness. It predisposes to poor nutrition as the blind IWG is unable to cope with means of livelihood consequentially, inability to afford a balanced diet. Equally, due to the same economic loss, the IWG would be unable to afford house rent. Glaucoma treatment necessarily saves the IWG the troubles associated with untreated glaucoma.

In addition, the third capability borders on bodily integrity by having capacity to move around freely, self-protection against violence, enjoy sex, and free to procreate. Although glaucoma blind can procreate regrettably, has lost sight to move around without a guide. Equally, the power to secure self against violence is also compromised. A glaucoma treatment that prevents visual deterioration to blindness would preserve bodily integrity of the IWG. Fourth, there is capacity of senses, imagination, and thought. An individual should be able to use these capacities in an informed and human way aided by an adequate and diverse education and in a context of freedom of expression. Notably, the IWG have intact senses (but impaired or lost vision), imagination, and thought. However, a person with glaucoma-related visual impairment is limited in the use of these endowments. Of course, further education is more taxing and requires additional support that would be unavailable to many IWG. Nigeria's funding could prevent these possible difficulties.

Fifth, there is capacity of emotions. This requires being able to have emotional attachments to things and people so that one can love, grieve, and feel gratitude without having one's emotional development blunted by fear, anxiety, and the like. Glaucoma blind can be emotionally affected, for example, by depression and regret. This would be so because glaucomatous blindness is irreversible, and there is no hope for visual recovery. The unmet life goals requiring normal vision would be regretted, and many IWG may experience frequent depressions. Many who have lived independent life would find it difficult to transit to dependency while still active, especially having to depend on relations. This plausibly predisposes to depression, suicide, or death. The sixth is the capacity of practical reason. This has to do with conception of the good and being able to critically reflect on planning one's life. Health is a complete state of physical, mental, and social well-being and not merely the absence of infirmity. The IWG, though, otherwise well, are unhealthy in the real sense of health. Life would be seen differently to a visually impaired and such life would be second-rated, because life ambitions are limited to what are achievable with impaired vision.

The seventh is the capacity of affiliation. This requires capacity for meaningfully association with others, with self-respect and without undue humiliation. Transition from sighted to blindness is a challenge that the IWG would find difficult to cope with as it tells on the IWG's entire life, worse still if such IWG had enjoyed active life. There would be unplanned restriction in social interaction for instance, being unable to drive a car to work or unable to attend social events like party, meetings because life becomes awkward and clumsy. It is not unusual for some glaucoma blinds to suffer stigmatization. For instance, a blind is stigmatized as a "sinner" because of erroneous cultural belief that blindness is a punishment for the sin committed or a blind may be stigmatized as unfit for marriage by prospective partner for fear of blindness being communicable or transmissible. The peers would no longer be able to keep company of the IWG. For instance, a blind IWG would necessarily not keen in joining his/her peers to visit a popular tourist site, because the event is largely sightseeing.

The eighth is the capacity for other species which entails being able to live with concern for animals, plants, and nature generally. A glaucoma blind would be unable to appreciate the beautiful natural environment, including landforms, plants, and animals diversities. However, some may find useful pet animals to keep them company or as guide though, most Nigerians do not keep pet animals.

The ninth is capacity to play and entails being able to play and enjoy recreational activities. Certainly, sports and recreational activities depend largely on normal vision. The glaucoma blind obviously would necessarily be unfit to participate in most sporting or recreational activities. A blind IWG would only be able to do limited or restricted sporting or recreation if any at all. The 10th is the capacity to have control over one's environment. This would require being able to participate as an active citizen in political choices pertaining to one's life and property. Certainly, this would be compromised in blind individuals.

Interestingly, each of the 10 capacities is basic to human dignity below which life would have little meaning in the real sense of it. The human natural capabilities should be developed to achieve the humanly possible goals that

would make life meaningful, including education, vocational skills, wealth creation, and health care.[8] Undoubtedly, a disabling state precipitated by disease such as glaucoma would be a limiting factor toward developing or executing the human's capabilities.

It is reasoned by Nussbaum[21] that the 10 capabilities are essential to flourishing and must be socially sustained and protected – they are minimum requirements of justice. Justice demands that society should not obstruct the individual's development of their core capabilities but rather, the society should provide enabling environment to accomplish them. This is done through the provision of resources for decent living, including health care. The purpose is to encourage individuals achieve their set goal while living their own life. A treatment of glaucoma would plausibly enable the IWG to achieve their set goal and live their chosen life. The justice entails restrain from being a stumbling block to a person's flourishing and genuine support for person's attempt to flourish.[23]

## Well-being

Another important theory of justice is well-being theory. The well-being is a product of the capacity theory through development of abilities and opportunities. The well-being theory concerns itself with social justice. Powers and Faden[24] hold that "social justice is concerned with human well-being." They argue that a theory of social justice should be concerned with six core dimensions of well-being: health, personal security, reasoning, respect, attachment, and self-determination. It is a list of essential core dimensions of well-being, rather than a list of core capabilities. Being healthy, being secure, and being respected are desirable states of being, not merely capabilities or functioning. An IWG is not in a state of well-being if there is associated compromised quality of life caused by impaired vision or outright blindness. An IWG is denied justice should the society fail to provide healthcare support that plausibly would prevent/delay visual loss and its associated negative life impact.

Justice would enable individuals to acquire adequate dimensions of health, personal security, reasoning, respect, attachment, and self-determination toward achieving well-being. Although each of these six dimensions on its own enables justice, it also collaborates with others to enhance justice. The justice of health policy in societies and in the global order can be judged by how well these dimensions are implemented.

Justice would be done to IWG when Nigeria funds glaucoma, enabling IWG to be in a state of well-being. Powers and Faden[24] see the major problem of justice as reducing inequality in international health, especially reducing the role that poverty plays in causing and perpetuating poor health. The level of inequality can be reduced by the state through the provision of quality but affordable education and employment opportunity. Then, the major concern would be the right to health, not the right to health care.

It should be noted that the success of health as the first among the six dimensions of well-being would rely on the other five. They are essentially interdependent. The absence of any of the other conditions can be seriously destructive to health. Moreover, the moral justification for health policies depends as much on the other five dimensions of well-being as it does on health.[24]

Public-funded glaucoma treatment would enable justice in access to health care as many IWG would not simply do, because they could not afford treatment. A public healthcare system that provides the basic glaucoma treatment would save many Nigerians from losing their vision. A basic treatment can concurrently exist with superior care for those who wish and can afford it but without necessarily being superior in final visual outcome compared with basic care. However, there should be equal access, free choice, social efficiency, and well-being for all.

## Fair-opportunity rule

On a different note but equally rational argument on justice, glaucoma can be described as disadvantageous property that the IWG never choose or wanted. It is more of biological lottery, which the IWG have no control over. Equally, people have no control over the color of their skin; they just find themselves as Whites or Blacks.

"Fair-opportunity rule" holds that the social benefits, glaucoma treatment for instance, should not be given or denied individuals on the basis of undeserved advantageous or disadvantageous properties, respectively, when acquisitions of such properties are beyond their control. There is no moral basis to discriminate between persons in social allocation in properties distributed by the lotteries of social and biological life if people do not have a fair chance to acquire or overcome those properties.[8]

Glaucoma is transmitted either genetically or sporadically, implying that the IWG have no control over how they get glaucoma. By fair-opportunity rule, Nigeria cannot discriminate but provide effective treatment for glaucoma like any other disease being favored for treatment. It would be unjust for a society to provide basic education to normal children and deny comparable education to the disabled children notwithstanding its higher cost. Such argument is true in health care and the fair-opportunity rule requires that the IWG receive health care that would ameliorate the unfortunate effects of life's lottery. This enables the IWG to maintain a suitable level of function and to have a fair opportunity in life. As Nigerian IWG are not responsible for their glaucoma, the fair-opportunity rule demands that they receive help to reduce or overcome the unfortunate effects of life's lottery of health.

In Nigeria, the primary economic barrier to healthcare access is inadequate insurance or funding for care. The available NHIS, though inadequate, service only privilege minority and majority either pay out of pocket for health or remain

untreated. There is a need for a social consensus with all Nigerians having equitable access to health care, including insurance coverage. However, the specific role of government, methods of financing insurance and health care, and the meaning of equitable access have to be well defined. This would be so in a country where many are either not gainfully employed or are poorly remunerated. It is unclear whether such a fragile consensus can generate a secondary consensus about how to implement a system of equitable access. Should this workout well, glaucoma treatment would then be piggy backed on the goodwill of a functional general public funding of healthcare services. This is doable and requires no rocket science ingenuity as similar healthcare issues appear in many nations.

## Collective social protection and fair opportunity arguments

Basically, two principal arguments, including collective social protection and fair opportunity, support a moral right to government-funded health care.[8] The collective social protection argument attempts to compare health needs to other needs that government has traditionally protected. It is argued that threats to health are relevantly similar to other threats such as crime, fire, or pollution. It is a fact that collective actions and resources are deployed to resist such threats, and equally many collective schemes are used to protect health across the society, especially public health and environmental protection. It is rational to expect, as a matter of coherence, collective action of critical healthcare assistance in response to threats to health.

The argument goes, by analogy of coherence, that the Nigerian society has an obligation of providing the service of security, and considering essential, also has similar obligation toward another essential service such as health care. Similarly, like the Nigerian society considers HIV essential for treatment, equally glaucoma should be essentially treated, as both afflict Nigerians and their treatments are equally essential health needs. Nonetheless, the argument is not oblivious of antagonists tinkering with a notion that government responsibilities are neither obligatory nor essential. However, argument from other comparable government services generates a public obligation to provide some level of goods and services to protect health.

In addition, it is arguable that Nigerians have right to health care, considering the fact that they have the right to expect a decent return on their investments into health care. Nigerians have invested so much into the healthcare professionals' education, biomedical research, and healthcare system as a whole. Nigerian public institutions, including health institutions, are established and sustained by public funds. It is expected that the society will reciprocate the contributions of Nigerians to health care. These contributions would range from cash (through taxation or proceeds from the sales of common patrimony of natural resources – crude oil, etc.) to kind (use of their skills), leading to a share of the burden of investment into healthcare system.[8]

It is not out of place for Nigerian IWG to expect from the individuals' and collective taxed investments, a protection for their health, including glaucoma treatment. This should go beyond occasional government organized free or subsidized health care but one that is always available, accessible, and affordable but preferably at no cost at delivery. This is a practical way to encourage treatment compliance among the IWG, especially those who would become blind from glaucoma due to their inability to afford treatment.

Nevertheless, it appears a difficult task expecting a direct individual return on all collective investments. Of course, some investments in health care are only for the purpose of discovering treatments, not for the provision of treatments once discovered. Also, not all investments eventually yield positive outcome and the liability should be shared. Even if Nigeria funds drug research and regulates the drug industry, this activity does not justify the expectation that Nigeria would subsidize or reimburse individuals' drug purchases. However, it is not all citizens who invest into health care by way of their contribution that would eventually need or make healthcare demands. For instance, just a little fraction of Nigeria's population has glaucoma. The investment should be seen as a social pool where only the needy of health care – the IWG – draws from and not necessarily every citizen that make such investment. The argument on a moral right to healthcare secures only a right to a decent return on society's investment, not necessarily a full return.

In the same vein, the fair opportunity argument aligns with the collective social protection argument and its lesson is drawn from the fair-opportunity rule. It evaluates the justice of social institution based on its ability to mitigate lack of opportunity premised on unpredictable misfortune beyond an IWG's control. The IWG, like the victims of other regrettable misfortunes, have no control over it, have greater healthcare need that is, the glaucoma treatment, and without it, their lives would be worthless than when they are treated. It would be justified if Nigerian social institution of health funds glaucoma treatment. Daniels[14] holds that as long as health conditions or disabilities create profound disadvantages and diminish the IWG' ability to function properly, justice requires that societal healthcare resources be expended to mitigate such effects and to enable the IWG a fair chance to express their inherent abilities.

On a different note, a comprehensive health care is desirable for all Nigerians. However, in reality, it may not be feasible, due to finite resources, especially considering the fact that health is just one among many aspects of life that require attention. Of course, neglecting such other nonhealth sectors would not only be an injustice to them but also would necessarily affect the health care because health is a complex entity that depends largely on other sectors. For instance, education, agriculture, and even security would affect health if they are neglected. Nonetheless, justice

demands that health care should be available and accessible to all. A more meaningful right of access to health care includes the right to obtain specified goods and services to which every entitled person has an equal claim. This essentially leads to basic healthcare services to all. The right to a decent minimum of healthcare, therefore, presents a more attractive goal, and probably the only goal that can be achieved.[25,26]

The basic healthcare services to all would be a practical egalitarian goal with universal accessibility to health care among Nigerians. A comprehensive glaucoma care for the IWG at no cost is a tall order and plausibly would necessarily mean shutting down Nigeria's economy and even borrow to supplement any short fall in the glaucoma treatment budget. The implication is as bad as a conclusion that Nigeria cannot afford glaucoma treatment. Nonetheless, glaucoma treatment is a need and its public funding is a worthwhile venture. Rather, Nigeria can afford to treat glaucoma with IWG still achieving the desire goal of lifelong useful vision if basic treatment for glaucoma is adopted like for any other disease of public health importance.

## Two-tiered health care for glaucoma treatment

As a way to meeting egalitarian healthcare delivery with all citizens fairly treated, a standard conception of two-tiered system of health care has been reported.[8] Tier 1 would necessarily be free of charge at delivery, universal, and limited to essential treatment for glaucoma. Tier 2 expectedly would take care of other glaucoma treatment demands. Specifically, it concerns itself with voluntary private coverage for other IWG's needs and desires. Tier 2 would include better services, especially in term of luxury and optional state of the art glaucoma care, but at the IWG's expense either through private health insurance or direct payment.

The two-tier health care can be likened to a work place that provides a plate of cheap balanced diet at lunch time to each of its employees at no cost. Concurrently, any employee would be provided with a different balanced diet of her choice but at her own expense. The work place free plate of balanced diet is similar to tier 1 health care because it contains basic nutrients for human growth and development. Like in tier 2, the employee's choice plate may in addition be served in an expensive plate and eaten in a reserved section of the work place's canteen. The difference in the two plates of food notwithstanding each employee would have eaten a balanced diet that is adequate to function optimally. Similarly, public-funded tier 1 health care allows the IWG access to basic glaucoma treatment necessary to preserve lifelong useful vision.

Tier 1 would meet basic health needs through universal access to basic health services. Glaucoma treatment would be amply qualified as basic health need as it eventually makes life worth less if untreated. The beauty of tier 1 is that it takes care of all basic healthcare needs, a universal care. Moreover, the model provides health care to all citizens and enables the public to meet its obligations rather than avoid a social responsibility.

The two-tiered healthcare provision boasts of a decent minimum care and offers a possible compromise among various theories of justice. This is so as it incorporates some moral premises that most theories emphasize. It promises basic health care for all through equal access, whereas concurrently allowing unequal additional purchases by choice, thereby mixing private and public forms of distribution. It should appeal to an egalitarian as it has dual merits: an opportunity to use an equal access principle and incorporates fair opportunity in the distribution system. Equally, it should be a utilitarian delight as it would minimize public dissatisfaction, maximize social utility, and permit allocation decisions based on cost-effectiveness analysis.

Similarly, the proponents of a capabilities theory or a well-being theory can see the likelihood of increases in the capability of many to afford better quality care and achieve better states of health. Notably, a healthcare system that finds pockets of support from each of these accounts could also turn out to be the fairest approach to democratic reform of the system.[27,28]

The decent minimum treatment holds multiple beneficial effects to the IWG and Nigeria. In the first instance, it would save the IWG plausible worries that are associated with deteriorating vision with which they cannot help themselves. It would ensure the IWG are able to lead worthwhile life. This would translate to gains for Nigeria as the IWG would be productive and be responsible to society rather than becoming dependants. The economic loss to society would be huge should glaucoma blind (persons who are blind due to glaucoma) be rehabilitated at the society's expense. Although rehabilitating glaucoma blinds would not restore lost vision but can make life more meaningful than without it.

Rehabilitating glaucoma blinds can be very expensive, and though not directly saving life, but somehow is comparable to rescue principle which asserts that it is intolerable for a society to allow people to die who could have been saved by spending more money on health care. Just as it would have saved unnecessary challenges, preventing poliomyelitis in children, by providing immunization rather than spending huge amount on rehabilitation that would not restore lost function later in life so also, is treatment of glaucoma before it becomes advanced.

Rather than Nigeria embarking on rescue principle through belated rehabilitation of glaucoma blinds, if such is even ever contemplated, expending huge resource on glaucoma that its harmful effect is controllable, it would be "prudent insurance" to embark on glaucoma treatment to control its blinding effect. This would eliminate undue use of rescue principle which Dworkin[29] has rightly criticized. He argues that

rescue principle grows out of an "insulation model" that gives a special treatment to health care compared to all other goods. It is unlike ideal market which entails a fair distribution of wealth and income as envisioned by Dworkin. Although it may be difficult to implement Dworkin's as a good model for determination of what justice requires in the way of a decent minimum.

## Procedural strategies for setting priorities

Meanwhile, there are some target goals that are consistent with justice and national health policies that would assist glaucoma treatment among Nigerians. First, there should be unrestricted access to a decent minimum of health care through some form of universal insurance coverage that ensures the right to health care. This would enhance glaucoma treatment compliance in the IWG, especially the indigents who constitute the majority of Nigeria population.

Second, there should be acceptable incentives for health professionals and consumer – IWG. Effort should be made to contain and maintain cost, so as to keep expenditures within control. This is necessary as any unplanned rationing at the tier 1 would compromise the goal of providing a decent minimum. Third, there should be a carefully planned fair system of rationing that does not violate the decent minimum standard. Lastly, the system should be amenable to periodic upward review, which is devoid of radical interference with basic institutions that finance and deliver health care.[8]

## Rationing in glaucoma treatment

Glaucoma is a complex eye disease, so also its treatment. The truth is that the cost of managing an IWG can never be fixed and can be as much as new advances in glaucoma treatment can accommodate. Nonetheless, there is a basic minimum of treatment, which, should be viewed as necessary, that the society can and should accommodate without compromising the IWG's visual function based on existing standard practice in Nigeria. The key issue in glaucoma is a treatment that is effective, sustainable, and lifelong. This will require some rationing at tier 1 to accommodate finite resource and without compromising visual function. Here rationing would essentially satisfy a utilitarian strategy that emphasizes maximal benefit to the IWG and society, and an egalitarian strategy that emphasizes the equal worth of persons and fair opportunity. A good start would be a tier 1 that can accommodate bimonthly two antiglaucoma drugs for each IWG. The drugs can be separated or combined. A combined two-drug regime would ensure compliance, less harmful to QOL,[30] and reduce cost. It is not impossible to negotiate the price of antiglaucoma drugs with pharmaceutical companies or set up Nigeria-owned drug plants to reduce the cost of antiglaucoma drugs. Moreover, few selected IWG who demand special care though not necessarily superior to basic treatment in term of the overall visual function outcome would receive tier 2 care but at their own expense.

Rationing in managing glaucoma would essentially be in terms of health personnel, investigation, drugs, IWG, and health facility. The IWG should be sorted out for treatment (triage). A comprehensive investigation is desirable in cases of suspicious glaucoma to arrive at correct diagnosis. Except whenever indicated, high-tech investigations should be sparingly used or be used on demand at tier 2. Those already blind by glaucoma should not be considered for drug treatment except there is associated pain. Personnel should be rationed with skilled personnel attending to all the IWG and highly skilled attending to difficult and tier 2 cases.

## Universal healthcare insurance

The current majorly open market health care where Nigerians purchase health care out of pocket or use NHIS would not enhance lifelong useful vision among mostly indigent IWG because many would not afford payment or access NHIS. Health charges have been deterring poor Nigerians from accessing glaucoma care and plausibly worsen their visual outcome. Moreover, free market necessarily exposes the IWG to choices that would not maximize health benefit as they would attempt to get cheaper but inadequate treatment.

On another note, glaucoma causes irreversible blindness and would necessarily either be unattractive to private insurance or attracts prohibitive premium, putting glaucoma in a class of such diseases that always have to be a state-funded safety net to cover the treatment of risks which private insurance companies choose to exclude from their policies.[5] Furthermore, Nigeria provided general health insurance for its citizens would insulate the IWG from the real costs of care and would encourage glaucoma treatment compliance than they would in a straightforward open market model. Besides, it would plausibly optimize use of healthcare resources and improve experience of healthcare professionals. Finally, there would be gain in administrative cost saved by state-run systems compared with multiple private insurers. A Nigeria-driven general-health insurance coverage would also ensure justice in meeting glaucoma healthcare needs, its sustainability, and would promote (quality) and maximize (quantity) well-being among Nigerians. Glaucoma treatment is worth funding by Nigeria.

## Conclusion

Justice in healthcare resource allocation would aid Nigeria's funding glaucoma treatment. Allocating resources for glaucoma treatment can be at macro-, meso- and microlevels. Glaucoma treatment is a healthcare need, because untreated glaucoma impairs vision, disrupting a normal life. Many IWG are indigents, require public-funded treatment to reduce blindness burden in Nigeria. Justice-based approaches, such as Hippocrates, Marx, Rawls, Aristotle, utilitarian, egalitarian, communitarian, capability, well-being, and fair opportunity rule, demand health care that would ensure glaucoma treatment for

Nigerians at no cost at point of delivery. This is necessary to preserve vision and a flourishing life in the IWG.

The two-tiered healthcare system holds promise in realizing glaucoma treatment in Nigeria at no cost at point of delivery. Whereas a tier 1 would necessarily provide basic universal glaucoma treatment ensuring lifelong useful vision, tier 2 meets demands of any IWG, especially sophisticated care at the IWG's expense, but not necessarily better in eventual visual outcome than what obtains in tier 1. The two-tiered model would enhance justice in meeting glaucoma treatment need with egalitarianism and utilitarianism at their best.

Tier 1 provides cost-free basic universal health care for diseases of public health importance, including glaucoma and sustained by general health insurance coverage for all Nigerians. An ethical-based treatment rationing would save cost without compromising the best possible visual preservation among the IWG.

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## Conflicts of interest

There are no conflicts of interest.

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