

REPUBLIC OF KENYA



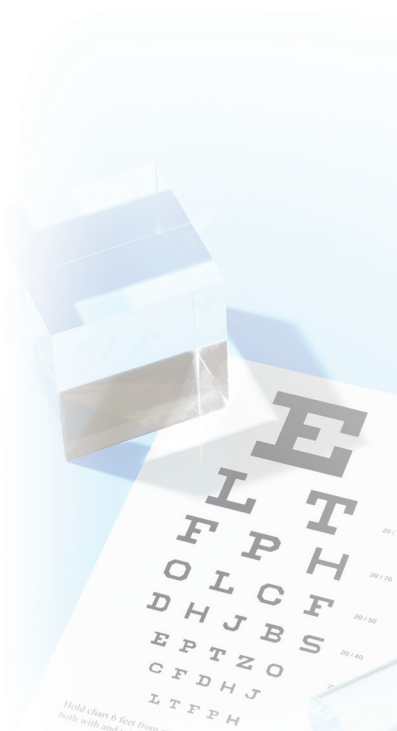
MINISTRY OF HEALTH



**NATIONAL EYE HEALTH
STRATEGIC PLAN
2020 - 2025**

National Eye Health Strategic Plan

2020-2025



FOREWORD

The National Strategic Plan for Eye Health 2020-2025, is the seventh in the documented history of Eye care in Kenya. In the last 20 years, under the watch of Vision 2020, the right to sight initiative, significant milestones have been achieved, some of which include tripling the capacity to deliver quality eye care and doubling the consumption of eye health services. Trachoma, a leading cause of preventable blindness is on the verge of elimination, following strong community engagement in interventions.

Evidence generated, quantifying the eye health needs of Kenyans. An estimated 15.5% of Kenyans are in need of quality eye care services, ranging from cataract surgery, diabetic retinopathy care, spectacle corrections and even basic ocular allergy treatment and care. This will be required to avoid the same populations translating to blindness, and its associated social impediments.

The plan was developed following extensive consultations with key players in eye health and the wider health sector. It was also strongly informed by evidence generated from recent studies, the lapsed Eye health and Blindness Prevention strategic Plan 2012-2018, the National Health Sector Strategic Plan 2018-2024, the National Health Policy 2014-2030, The WHO Global Action plan 2014-2019 and the World report on vision -2019. The strategy, being the first, since the implementation of devolution, also took into consideration the independent roles of National and County Governments and their joint functions.

This plan will serve as a guide for understanding the Eye health priority needs, how to deliver them, embracing the health system, people centered eye care approach, and eye care as an integral part of Universal Health Coverage. It further gives the appropriate tools for county governments to use in the development of County health plans and how the development partners engage in sharing resources for eye health at different levels of care. It will be a key tool in facilitating the budgetary allocation and the optimal utilization of resources for deliberate improvement of eye health services, not forgetting enabling the communities to take charge of their Eye health through primary Health /Eye care.

We recommend that this Strategic Plan be used by all the stakeholders in eye health as we pull together towards a nation where all Eye health needs are met.



SEN. MUTAHI KAGWE., EGH
CABINET SECRETARY .

PREFACE

This Eye health strategic plan presents the Ministry of Health's five year proposed strategies for eye care in Kenya. It sets the strategic direction for the National Eye Health Care System and presents information on the priorities, objectives and indicators that the Ministry has adopted especially with regard to the main eye diseases and conditions in the country and health system strengthening. The main diseases include: Cataract, Trachoma, Glaucoma, Childhood blindness, Refractive errors, Allergic eye diseases and Diabetic complications in the eyes.

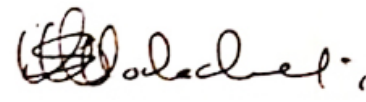
The strategic objectives in the plan are oriented to the WHO's six building blocks of Health Systems and Kenya Health Policy framework investment areas and Objectives In addition the strategic objectives are guided by the world report on vision launched in 2019. The Ministry of Health aims at strengthening partnerships and networking, coordination and joint monitoring with respect to various aspects of the Eye care delivery system.

The critical factors of success for this strategic plan will be built on: Governance structures both at National and county levels; Finances required to fund this strategy; Human resources to manage and offer quality services to patients; Effective delivery of eye health care services; Operational eye health information systems; Adequate and appropriate eye health products and technologies; Adequate and appropriate eye health infrastructure and use of evidence in decision making and service delivery and any other aspects of implementation. The mechanisms to assure quality in all aspects of implementing this plan are well in place and will act as a strong driver to the highest attainable standards of health for all Kenyans.

The Ministry of Health National Eye Health Working Group will be reconstituted to oversee and co ordinate the implementation of this Strategic plan. A detailed and joint Monitoring and Evaluation plan is in place with specific key performance indicators

The plan has been costed at about **Ksh. 5.7 billion** and the health financing strategy in this plan has outlined how this will be realized.

In order to deliver guaranteed quality, efficient and effective services, support systems will be sought from various Eye health stakeholders, including; the two levels of government, development partners and both local and international Non-Governmental Organizations.



Ms. SUSAN N. MOCHACHE., CBS
PRINCIPAL SECRETARY.

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ACKNOWLEDGEMENT

The development of the National Eye Health Strategic Plan 2020-2025 was a concerted effort of institutions and individuals under the leadership of the Ministry of Health. We would like to acknowledge the Cabinet Secretary Hon. Mutahi Kagwe, the Chief Administrative Secretaries Dr. Rashid Aman, and Dr. Mercy Mwangangi and the Principal Secretary, Ms Susan Mochache for their leadership and guidance throughout the process. We appreciate the technical support and inputs from WHO country office, all the Directorates and Departments of the Ministry of Health which was done in an integrated health system approach.

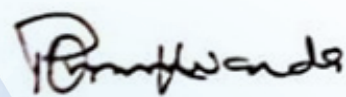
Special thanks go to the Department of Policy and Planning (Dr Hellen Kiarie and Dr Agnes Nakato) for the technical support they gave continuously guiding and aligning the process with the National Health Sector Strategic plan.. The Ophthalmic Services Unit Head, Dr Michael Gichangi with the support of Dr. Monicah Bitok conducted the coordination of the development process and this is well appreciated.

We are indebted and extend special message of gratitude to Christoffel-Blinden Mission eV (CBM) through Mr David Munyendo the Country Director, who funded and logistically supported this process. We recognize the commitment and contribution of the Members of the Inter-Agency Coordinating Committee for eye health, especially in facilitating and ensuring the right process is followed.

We also recognize the contribution of members of the various Eye Health Technical Committees and Working Groups for their specific contribution. We cannot forget the overall Strategic Plan technical working group TWG (Annexed), who took a lot of time to formulate all the gathered information into this coherent document. The responses and inputs from stakeholders in this policy document is greatly and equally appreciated.

Finally, we would like to recognize the Consultant Dr. Hazel Mumbo for facilitating the inception, participatory and all-inclusive development of this strategic plan.

As this is our jointly developed strategy for eye health, we recommend that all the players use it as a guide towards a Nation where all Eye health needs are met.



DR. PATRICK AMOTH
Ag. DIRECTR GENERAL FOR HEALTH.

**...WAS A
CONCERTED
EFFORT OF
INSTITUTIONS
& INDIVIDUALS
UNDER THE
LEADERSHIP OF
THE MINISTRY OF
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TABLE OF CONTENTS

FOREWORD	ii
PREFACE	iii
ACKNOWLEDGEMENT	iv
TABLES	1
FIGURES	
ABBREVIATIONS AND ACRONYMS	3
DEFINITION OF TERMS	4
1 BACKGROUND AND CONTEXT	5
1.1 Rationale and justification	5
1.2 Eye Care Health System	5
1.3 Process and methodology	7
2 SITUATION ANALYSIS	8
2.1 Country Context	8
2.2 General health care and referral system	10
2.2.1 General health care system	10
2.2.2 Referral System	11
2.3 Eye Health Sector Governance	11
2.3.1 Leadership structure	11
2.3.2 Referral System	13
2.3.3 Policy Framework for Eye Health	14
2.3.4 Public-Private Partnership (PPP) in Eye Health	14
2.3.5 Non-government Stakeholders	15
2.3.6 Disease specific policies and guidelines	15
2.4 Health Care Financing	15
2.5 Eye Health Service Delivery	17
2.5.1 Eye Conditions in Kenya	17
2.6 The COVID – 19 Pandemic	20
2.6.1 COVID -19 Pandemic and Persons with Visual Impairment(VI).	20
2.6.2 COVID -19 Pandemic and Delivery of Eye care	20
2.7 Eye Health Human Resources	21
2.7.1 Number and distribution of human resources for eye health (HReH)	21
2.7.2 Training of Human Resource for Eye Health(HReH)	23
2.7.3 Regulation of Health Workforce	24
2.8 Health Information Systems	25
2.9 Health Products and Technologies	25
2.10 Infrastructure	26
2.10.1 Status of basic equipment in eye units	26
2.10.2 Equipment maintenance	26
2.11 Research	27
3 SWOT ANALYSIS	28
4 THE EYE HEALTH CARE STRATEGY	30
4.1 Key strategic areas and objectives	30
4.2 Gap analysis and timeline of prioritized interventions	31
4.2.1 Eye Health Sector Governance	31
4.2.2 Eye Health Care Financing	33
4.2.3 Eye Health Service Delivery	34
• Continous quality improvement(CQI)	34
4.2.4 Eye Health Human Resource	36
4.2.5 Health Information Systems	37
4.2.6 Health Products and Technologies	39
4.2.7 Eye Health Infrastructure	41
4.2.8 Research	43
5 MONITORING, EVALUATION, REPORTING & LEARNING	45
5.1.1 Eye Health Sector Governance	45
5.1.2 Health Financing	47
5.1.3 Health Service Delivery	48
5.1.4 Human Resource for Health	50
5.1.5 Health Information Systems	51
5.1.6 Eye Health Products and Technology	52

ABBREVIATIONS AND ACRONYMS

5.1.7 Infrastructure	53
5.1.8 Research	54
6 COSTING	55
6.1 Budget for Eye Health Sector Governance	55
6.2 Budget for Eye Health Care Financing	55
6.3 Budget for Eye Health Service Delivery	56
6.4 Budget for Human Resources for Eye Health	57
6.5 Budget for Eye Health Information Systems	58
6.6 Budget for Health Products and Technologies	58
6.7 Budget for Eye Health Infrastructure	59
6.8 Budget for Eye Health Research	59
7 APPENDIXES	60
7.1 Appendix I: Status of specific policies and guidelines	60
7.2 Appendix II: Kenya Essential Medicine List 2019, Ophthalmology Preparations	61
<i>Appendix III: MINIMUM SET EYE MEDICINE IN A GENERAL HOSPITAL</i>	62
7.3 Appendix IV: Eye Unit Summary Reporting Tool	63
<i>Appendix VI; CONTINUOUS QUALITY IMPROVEMENT PROCESS INDICATORS</i>	65
7.4 Appendix VII: Eye Service Delivery Definitions	67
7.5 Appendix VIII: Minimum Required Resources	68
7.6 Appendix IX: Possible Facility Ownerships in Kenya	69
<i>Appendix X: Sample County Eye Health Annual Work Plan Template</i>	70
7.7 Appendix XII: National Eye Health Strategy 2020-2025-Technical Working Group	73
<i>Appendix XIII; List of the ICC- Eye Health Membership[National Eye health Working Group]</i>	74

TABLES

Table 1: Distribution of the population by area of residence and gender	8
Table 2: Distribution of the population by area of residence and age	9
Table 3: Prevalence of Diabetes and Diabetic Retinopathy in Kenya	11
Table 4: Prevalence of Diabetes and Diabetic Retinopathy in Kenya	11

FIGURES

Figure 1: Population Density by County	6
Figure 2: Coordination and organization of health services in Kenya- Kenya Health Sector Referral Strategy	10
Figure 3: County Level Health leadership Structure	12
Figure 4: The overall referral chain	13
Figure 5 The Eye Health Workers Map: Distribution of Eye Health Workforce in Kenya (2017)	22
<i>Appendix XI; Figure 6: Mapping of Stakeholders in Eye Health</i>	

AMREF	Amref Health Africa
AWP	Annual Work Plan
BPFA	Beijing Declaration and Platform of Action
CSC	Cataract Surgical Coverage
CSR	Cataract Surgical Rates
CBM	Christoffel-Blinden Mission eV
CEDAW	Convention of the Elimination of all form of Discrimination Against Women
CHMT	County Health Management Team
CIDP	County Integrated Development Plan
COG	Council of Governors
CRC	Child Right Convention
DHIS	District Health Information System
EAC	East African Community
FHF	Fred Hollows Foundation
HRD	Human Resource Development
HReH	Human Resources for Eye Health
IAPB	International Agency for Prevention of Blindness (IAPB)
ICDP	International Conference on Population & Development
iHRIS	Integrated Human Resource Information System
IFMIS	Integrated Financial Management Information System
ICC,EH	Inter-Agency Coordination Committee of Eye Health
ICT	Information, Communication, Technology
KEDSS	Kenya Eye Diseases and Systems Survey
KHIS	Kenya Health Information System
KHP	Kenya Health Policy
KNH	Kenyatta National Hospital
KSB	Kenya Society for the Blind
KTEP	Kenya Trachoma Elimination Programme
LMIS	Logistics Management Information System
MDA	Mass Drug Administration
M&E	Monitoring and Evaluation
MFL	Master Facility List
MTRH	Moi Teaching and Referral Hospital
NEH	National Eye Health
WG	Working Group
NPBWG	National Prevention of Blindness Working Group
OSU	Ophthalmic Services Unit
OSUC	Ophthalmic Skills Upgrading Course
OEU	Operation Eyesight Universal
PEEK	Portable Eye Examination Kit
KHP	Kenya Health Policy
PHC	Primary Health Care
PPP	Public-Private Partnership
SSI	Sight Savers International
SBW	Sight By Wings
SOK	Salus Oculi Kenya
SDG	Sustainable Development Goals
TT	Trachomatous Trichiasis
WRV	World Report on Vision
WHO	World Health Organization

DEFINITION OF TERMS

Comprehensiveness: Includes all of these elements - Promotion of healthy eyes and behavior through raising awareness at all levels; Prevention of eye diseases; Curative interventions (medical, surgical, optical); Rehabilitation - access to rehabilitation services (Community Based Inclusive Development - CBID, low vision, inclusive education, livelihoods and social inclusion).

Inclusion: Ensuring eye health programmes are accessible and welcoming to all members of the community i.e. people from all disability groups, including vision impairment, and other marginalized and socially excluded people; and proactively ensuring that people with long term vision impairment access their right to wider opportunities in rehabilitation, health, education, livelihoods and social inclusion.

Integration: Means that the work done is fully part of national health systems and policies.

Mild visual Impairment: Presenting visual acuity worse than 6/12 but better than or equal to 6/18 in the better eye

Moderate visual Impairment: Presenting visual acuity worse than 6/18 but better than or equal to 6/60 in the better eye

Severe visual Impairment: Presenting visual acuity worse than 6/60 but better than or equal to 3/60 in the better eye

Blind: Presenting visual acuity worse than 3/60 or a corresponding visual field loss to less than 100 in the better eye.

Near vision impairment: Presenting near visual acuity worse than N6 or M.08 with existing correction.

Low vision: A person with low vision is one who has impairment of visual functioning even after treatment and/or standard refractive correction, and has a visual acuity of less than 6/18 to light perception, or a visual field of less than 10 degrees from the point of fixation, but who uses, or is potentially able to use, vision for planning and/or execution of a task.

Integrated people Centred Eye Care: Putting people and communities, not diseases, at the centre of health systems, and empowering people to take charge of their own health rather than being passive recipients of services

Cataract Surgical Rate: The number of cataract operations performed in one year, per million population.

Cataract Surgical Coverage: The proportion of people with bilateral cataract eligible for cataract surgery who have received surgery in one or both eyes (at 3/60 and 6/18)

Cataract Surgical Outcome Monitoring: The process of routine monitoring of cataract surgery outcome so as to improve quality of surgery. Involves pre-operative evaluation to determine indication for surgery, operative for complications and postoperative evaluation for post-operative complications and visual outcome

Integrated Health Services delivery: Is “the organization and management of health services so that people get the care they need, when they need it, in ways that are user-friendly, achieve the desired results and provide value for money.”

1 BACKGROUND AND CONTEXT

1.1 Rationale and justification

Globally, at least 2.2 billion people have vision impairment or blindness, of whom at least 1 billion have a vision impairment that could have been prevented or has yet to be addressed. The leading causes of vision impairment are uncorrected refractive errors, unaddressed presbyopia and cataracts, followed by glaucoma, corneal opacities, diabetic retinopathy and trachoma.¹

The majority of people with vision impairment are over the age of 50 years and with growing, aging population (due to increased life expectancy) along with behavioral and lifestyle changes and urbanization, there is an increasing risk that the number of people with eye conditions, vision impairment and blindness will dramatically increase in the coming decades.¹

The burden of eye conditions and vision impairment is not borne equally. It tends to be greater in low- and middle-income countries and the underserved populations, such as migrants, refugees, persons with disabilities, and in rural communities.

International Agency for Prevention of Blindness (IAPB) states that in Africa, there are 4.8 million blind and 16.6 million visually impaired persons. In addition, there are 100 million with near vision impairment yet, even with this huge burden, less than 1% of the global number of ophthalmologists practice in Africa. Only 13 countries in Africa meet the minimum requirement of one eye health professional to 55,000 people. WHO and the IAPB are working towards the harmonization of tasks and roles in human resources for health (HRH) within a global framework, and have worked closely together to develop the tasks and roles of the eye health team of professionals in line with global standards.

In the 146th WHO executive session board meeting, it was agreed that Eye care can contribute to achieving Sustainable Development Goal 3 (Ensure healthy lives and promote well-being for all at all ages) and its target 3.8 (Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all). Two indicators for eye care – effective coverage of refractive error (tracer indicator 19) and effective coverage of cataract surgery (tracer indicator 31) are being considered for inclusion in the universal health coverage index under the WHO Impact Framework for the Thirteenth General Programme of Work, 2019–2023, so as to monitor progress towards universal health coverage.

In the last 20 years, Kenya has seen the implementation of 3 comprehensive strategic plans for eye health and blindness prevention, 1997 to 2002, 2005 to 2010, and the 2012 to 2018 which has since lapsed; a detailed evaluation report of its implementation provided key achievements, challenges encountered, missed opportunities and recommendations that have been incorporated in this strategic plan for consideration in government’s pursuit of providing adequate and equitable eye healthcare that meets the needs and aspirations of Kenyans.

The National Eye Health Strategic Plan 2020-2025 is designed in accord with the devolved system of government. The strategic focus of the plan is largely informed by the findings and recommendations of the 2012-2018 Strategic Plan evaluation, the World Report on Vision 2019 recommendations and the Kenya Health Policy investment areas (The building Blocks).

1.2 Eye Care Health System

Eye care is provided as part of the national health system and can be found at all levels, but not to the same extent in all counties. At the community level (Level 1) eye health services include primary eye care through eye health promotion, the services include treatment of minor eye conditions, disease prevention and identification referral and follow up of those found to have eye problems or are blind. This is done through Community Health Volunteers (CHVs) who have had prior training in Primary Eye Care. These referrals are channeled through Community Health Extension Workers (CHEWs) that are the immediate supervisors of

¹2019, WHO World report on vision

these CHVs. At level 2 and 3 (Dispensaries and Health Centres), eye health services are provided by Primary Health Care Workers (PHCWs) trained in health disciplines such as Nursing and Clinical medicine. The services include treatment of minor eye conditions and appropriate referral of difficult cases to the next level of health care. Some of the PHCWs may have extra training in eye health such as the 3 months Ophthalmic Skills Up-grading Course (OSUC) in eye care, that improves their capacity.

At level 4 and 5 facilities (Sub-county, County referral hospitals and Regional hospitals), services are provided by eye specialists that include Ophthalmologists, Ophthalmic Clinical Officer / Cataract Surgeons, Ophthalmic Clinical Officers and Ophthalmic Nurses. Some counties have currently engaged the services of Optometrists as their scheme of service is being worked on with advocacy for absorption into the government health system. Some level 5 hospitals also have Sub-specialty Ophthalmologists. The services include; medical and surgical treatment of eye conditions, refractive services, low vision services, laser treatment and rehabilitative services. More technical cases are handled at level 5 than level 4 based on the level of Human Resources and available equipment. All level 5 and some level 4 hospitals are expected to provide teaching services to students on elective term and practical attachment. At level 6 (National Teaching and referral hospitals), services are provided by Sub-specialty Ophthalmologists, Ophthalmologists, OCO/Cataract Surgeons, Ophthalmic Clinical Officers and Ophthalmic Nurses. Some level 6 hospitals have engaged the services of Optometrists. Services at this level include conditions to facilitate preventive, promotive, follow up and rehabilitative services, early identification and referral

- **Eye care as part of Community Services (level 1)**

The National Strategic Plan for Eye Health and Blindness Prevention 2012 – 2018 aimed at integrating primary eye care into the existing health system by conducting primary eye care training for CHEWs, but so far this has only happened in counties that received external partners support or that were part of the national trachoma action plan.² In those cases, they provide health education (H/E) and promotion, outreach services and identify patients. There are efforts to include 2 eye indicators in the current community referral tool and train CHVs on basic eye conditions.

- **Eye care as part of Primary Care Services (level 2 and 3)**

Some of the facilities have nurses trained in basic ophthalmic skills who can manage simple eye conditions and identify those who need referral and encouragement to be seen/ reviewed at an established eye clinic/centre.

- **Eye care as part of County Referral Health Services (level 4 and 5)**

In most areas, Ophthalmic nurses (ONs) in sub-county hospitals are the first level of eye care provision. Over the past few years, the National Eye Care Programme has been working towards having at least one ON for every sub-county hospital. ONs are expected to run an outpatient service for eye conditions, providing primary eye care and referring complex or surgical patients to the ophthalmologist at the county referral hospital. Some hospitals at this level also employ ophthalmic clinical officers and an ophthalmologist and are well enough equipped to perform cataract surgeries. All county referral hospitals have an eye unit, though with different capacities. Most can offer refractions, emergency eye care services, cataract surgery services (including outreach to other hospitals) and some provide sub-specialties such as diabetic retinopathy and pediatric services. There are also some specialized eye hospitals run by faith-based organizations that offer the whole range of tertiary eye care services and training.

- **Eye care as part of National Referral Services (level 6)**

Two of the six national hospitals offer specialized eye care services, the Kenyatta National Hospital based in Nairobi and the Moi Teaching Referral Hospital based in Uasin Gishu. They offer all services of the lower levels in addition to sub-specialty services including vitreo-retinal surgery, squint surgery, oculoplastic, corneal transplant, laser treatments etc. They provide national level

training for under and post-graduate students and are both supported by highly specialized faith based and private institutions distributed throughout the country, some of which serve patients from all over the East African region.

1.3 Process and methodology

The National Eye Health Strategic Plan was developed through a participatory process aimed at incorporating diverse input and views from the stakeholders to design inclusive, integrated and comprehensive eye health interventions. Both qualitative and quantitative methods were embraced to deliver the strategic plan that included:

- Desk review for relevant National and Global Health Frameworks, evaluations, strategic plans, policies, guidelines, National Morbidity data sets among others.
- Key Informant Interviews (KII) as appropriately felt Stakeholders and Validation form; the data gathered was consolidated and analyzed and formatted as the strategic plan.

²Report of the evaluation of the National Strategic Plan for Eye Health and Blindness Prevention 2012 – 2018”, Ophthalmic Services Unit, Ministry of Health, Republic of Kenya, International Development Institute

2 SITUATION ANALYSIS

2.1 Country Context

Kenya covers an area of approximately 582,650 KM2 and lies astride the equator on the eastern coast of Africa. Much of the country, especially in the north and east, is arid or semi-arid. From the Indian Ocean the land rises gradually through dry bush to the fine arable land of the highlands. In the low-lying districts, particularly along the coast, the climate is tropical, hot and humid. On the Plateau and in the highlands the climate is more temperate.

Kenya has made significant political, structural and economic reforms that have largely driven sustained economic growth, social development and political gains over the past decade. However, it's key development challenges still include poverty, inequality, climate change and the vulnerability of the economy to internal and external shocks.³ With a human development index (HDI) of 0.59 Kenya ranks 142, at the lower end of countries with a medium HDI.⁴

Following the 2013 general elections and based on the Constitution of 2010, Kenya established a decentralized two-tier system of government comprising of the National Government and blueprint that was developed by the government to foster economic development and provide a solution to the various socio-economic problems facing Kenyans.

The 2019 Kenya Population and Housing Census was the 8th to be conducted in Kenya. 47 County Governments, with sovereign power exercised at both levels. ⁵The counties are further divided into 334 sub-counties with 11 special areas.⁶

Universal Health Coverage has been identified as one of The Big Four Agenda, an economic Kenya has a population of 47.6 million with a growth rate of 2.2%. The majority (68.8%) live in rural areas. For the first time in history, the categories "Male", "Female" and "Inter Sex" were used as seen in Table 1 below.

Table 1: Distribution of the population by area of residence and gender

	Rural	Urban	Total
Male	16,195,923	7,352,137	23,548,060
Female	16,535,832	7,478,880	24,014,712
Intersex	841	683	1,524
Total	32,732,596	14,831,017	47,564,296
%	68.8%	31.2%	100.0%

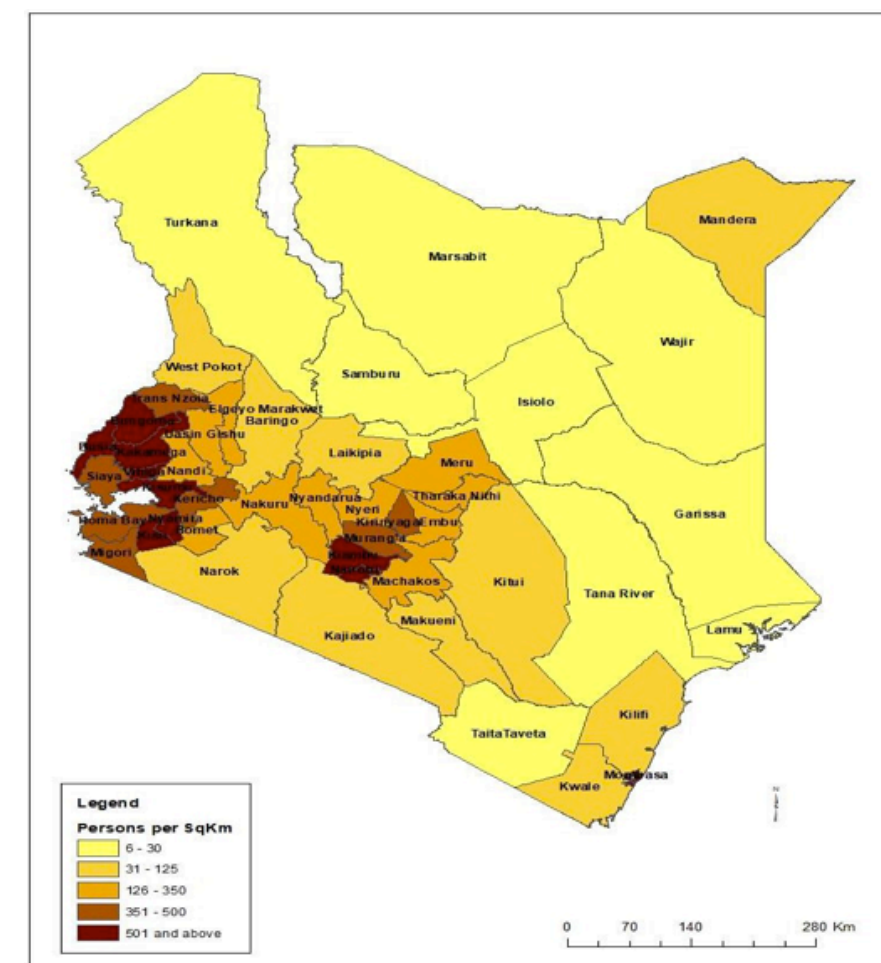
Source: 2019 KPHS Volume III

The average population density accounts for 82 persons per Km2 ranging from 6,247 in Nairobi City to only six in Marsabit. Generally, the counties in the western part of the country are much more densely populated than the north-eastern areas (figure 1).⁷ Half of the population (50.1%) is below the age of 20 years, with rural areas having a slightly larger share of this age group when compared to urban areas (53.7% and 42.2% respectively – Table 2)

Table 2: Distribution of the population by area of residence and age

Age group	Rural		Urban		Total	
	Number	%	Number	%	Number	%
4 and below	4,168,990	12.7%	1,824,277	12.3%	5,993,267	12.6%
5 to 19	13,403,696	40.9%	4,430,876	29.9%	17,834,572	37.5%
20 to 49	11,115,176	34.0%	7,453,375	50.3%	18,568,551	39.0%
50 and over	4,044,393	12.4%	1,122,826	7.6%	5,167,219	10.9%
not stated	341	<0.01%	346	<0.01%	687	<0.01%
Total	32,732,596	100%	14,831,700	100%	47,564,296	100%
%	68.8%		31.2%		100.0%	

Source: 2019 KPHS Volume III



Source: 2019 KPHC Volume I, Kenya National Bureau of Statistics

³World Bank (Development Report 2019)

⁴<http://hdr.undp.org/en/composite/HDI>

⁵Council of Governors, Strategic Plan 2017-2022, Kenya

⁶VOLUME 1 KPHC 2019, Kenya National Bureau of Statistics

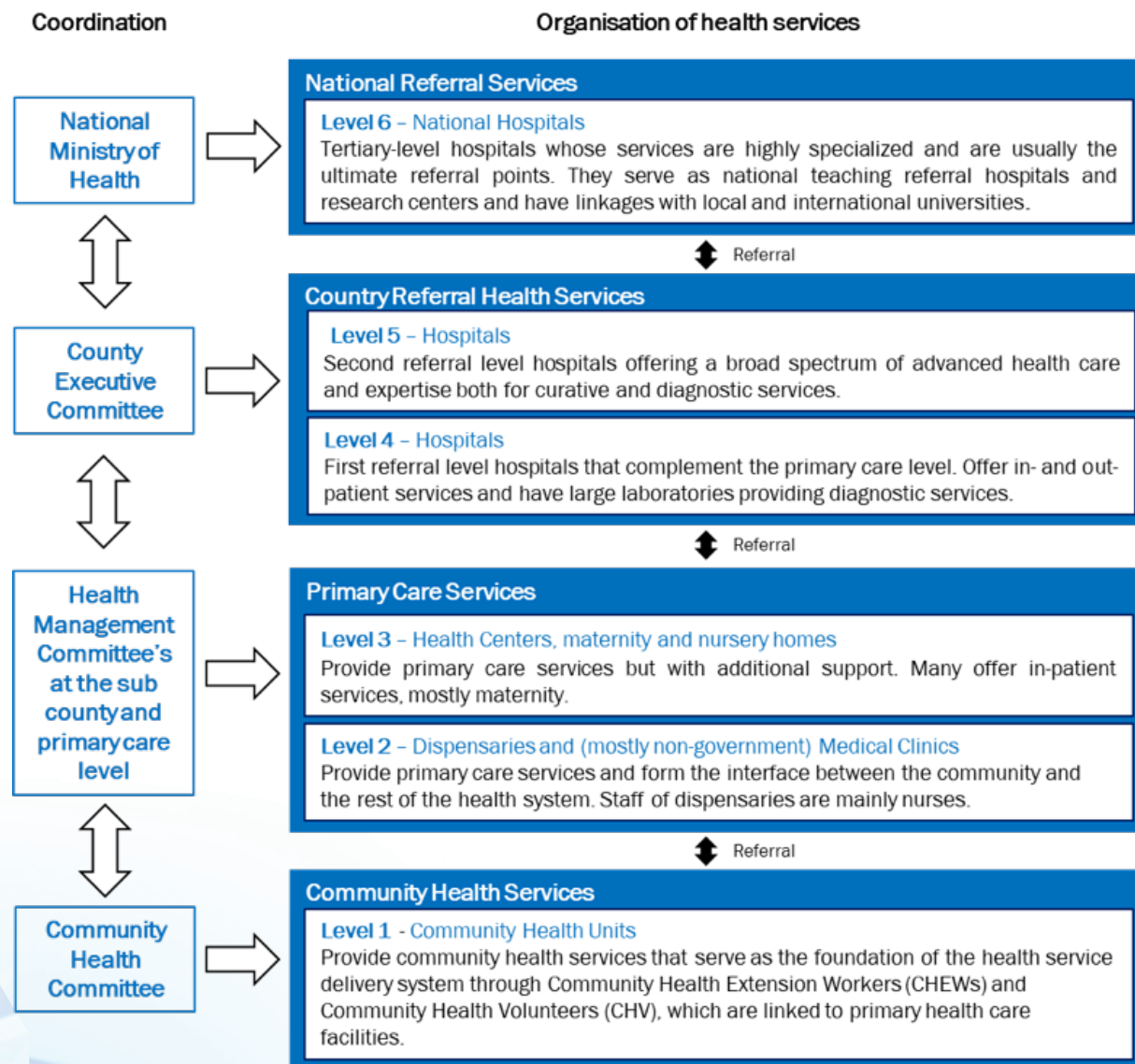
⁷2019 KPHC Volume I and II, Kenya National Bureau of Statistics

2.2 General health care and referral system

2.2.1 General health care system

The Kenyan health system defines six levels of hierarchy in four tiers of services which includes government as well as private, faith-based and NGO health facilities (figure 2).

Figure 2: Coordination and organization of health services in Kenya- Kenya Health Sector Referral Strategy



There are currently 12,394 health facility in Kenya, of which 47.2% are public while the others are private (41.5%) or belong to Faith-based organizations (8.4%) or non-government organizations (3.0%). Curative eye health services are available in all County Referral Hospital, with targeted outreach planned, within the catchment. There is deliberate effort to engage and integrate the CHVs in community eye health.

2.2.2 Referral System

The Kenya Health Sector Referral Strategy(2014-2018) classifies different movements to draw a full picture of referral services expected of the health services, movement of clients, expertise movement, specimen movement, and client parameters movement.

The overall referral chain links the facilities on all levels in the following way:

- Community services (level 1) facilitate linkage with primary care services.
- Primary care services (levels 2 and 3) manage referrals from communities and facilitate referrals to the nearest county referral facility.
- County referral services (levels 4 and 5) form the county referral system, with specific services shared among the existing county referral facilities to form an effective network of comprehensive referral services. Referrals are received from the following sources:
 - Primary care facilities within the county referral area of responsibility
 - Other county referral facilities in the county (horizontal referral)
 - Community units that are linked to the county referral facility and for which the county referral facility provides primary care services
- National referral services (level 6) operate with a defined level of autonomy.

Table 3: Health facilities in Kenya by KEPH level and ownership

	KEPH level	MOH	Private Practice	Faith Based Organization	NGO	Total	% tage
Primary Care Services	Level 2+3	5,471	4,791	926	359	11,547	93.2%
	Level 2	4,414	3,969	722	297	9,402	75.9%
	Level 3	1,057	822	204	62	2,145	17.3%
County Referral Health Services	Level 4+5	368	350	109	12	839	6.8%
	Level 4	355	346	106	12	819	6.6%
	Level 5	13	4	3	0	20	0.2%
National Referral Services	Level 6	6	1	0	0	7	0.1%
Total		5,845	5,142	1,035	371	12,393	100%
%tage		47.2%	41.5%	8.4%	3.0%	100%	

Source: "Kenya Health Sector Referral Strategy 2014 – 2018, Ministry of Health

2.3 Eye Health Sector Governance

2.3.1 Leadership structure

Kenya operates a devolved system of governance with specific functions having been assigned between national and county governments as defined by the constitution. The National Ministry of Health provides leadership in policy development, management of national referral facilities, and capacity development. The devolved functions of the County Health Services are county health facilities and pharmacies, ambulance services, promotion of primary health care, licensing and control of undertakings that sell food to the public and veterinary services (excluding regulation of the profession). The two levels of Governments are distinct and inter-dependent and should conduct their mutual relations based on consultation and cooperation.

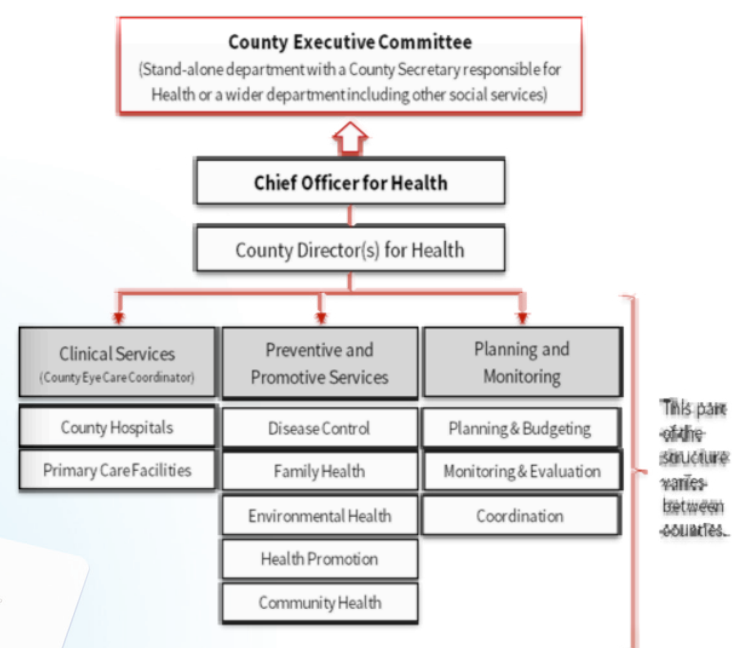
At the national level, Ophthalmic Services Unit (OSU) oversees the provision of public eye health service and the coordinating all the eye health players in Kenya, which is a delegated function of the Ministry of Health. The MOH roles and functions under this Strategy therefore include

- Coordination and management of eye services;
- Facilitation training, deployment, distribution of Human resources for eye health.
- Provision of strategic direction on eye health and blindness prevention;
- Quality assurance of eye-care services;
- Coordination of all partner activities in eye- care delivery;
- Eye health data collection and information management including sharing.

The Inter-agency Coordination Committee for Eye Health (ICC-EH) brings together all the eye stakeholders, including, training institutions. The ICC-EH provide oversight of eye care in Kenya and facilitate the implementation of the eye-health policy in partnership with the OSU and Working groups. This committee will transit to **National Eye Health Working Group**, moving forward, in line with the National Health Sector Strategy.

At the county level, the County Executive Committee (CEC) has the overall political and policy responsibility for health service delivery as per the constitution, including eye care. Working under and with the CEC is the chief officer of Health (COH), and County Director /s for Health (CDOH), who will provide the overall technical guidance for Health. The specific department under the CDOH vary from county to county (figure 4). A County Eye Care focal person / eye care coordinator is identified by the county to support the CDH with technical eye care decisions and activities. The responsibility for implementing the County Health Strategic Plan and the Operational Plans lies with the County Health Management Team (CHMT) through the County Integrated Development Plan (CIDP), which informs the budget allocation of the county. County Health Stakeholders (including community Health committees) fora facilitate the coordination and collaboration with non-government stakeholders involved in health care.

Figure 3: County Level Health leadership Structure



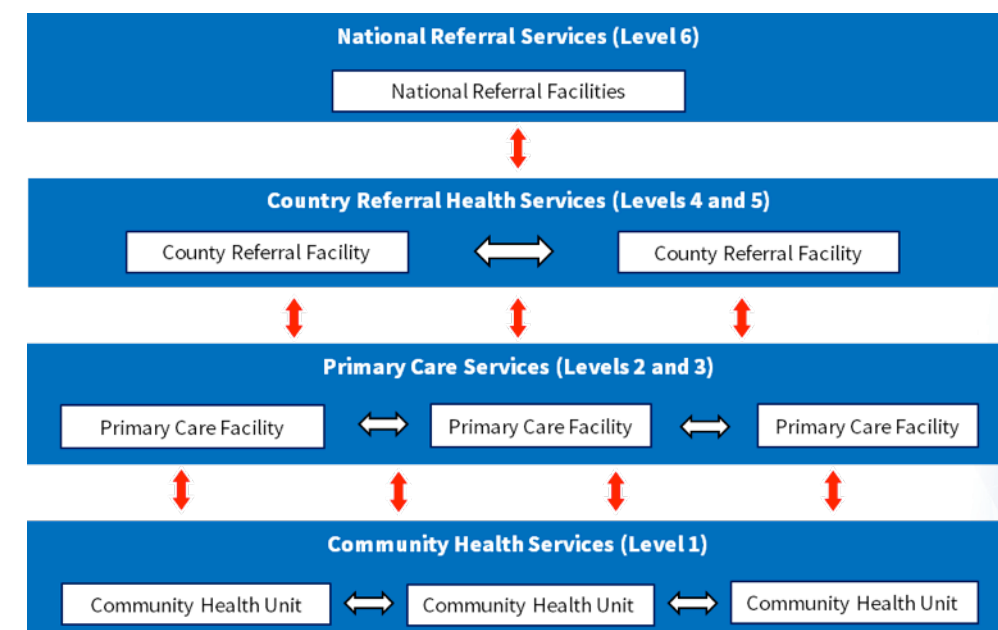
2.3.2 Referral System

The Kenya Health Sector Referral Strategy (2014– 2018) classifies different movements to draw a full picture of referral services expected of the health services, movement of clients, expertise movement, specimen movement, and client parameters movement. The overall referral chain links the facilities on all levels in the following way:

- Community services (level 1) facilitate linkage with primary care services.
- Primary care services (levels 2 and 3) manage referrals from communities and facilitate referrals to the nearest county referral facility.
- County referral services (levels 4 and 5) form the county referral system, with specific services shared among the existing county referral facilities to form an effective network of comprehensive referral services. All county referral hospitals in Kenya have eye units though with different capacities. Most are able to offer emergency eye care services, cataract surgery services and some, glaucoma surgery and diabetic retinopathy services such as laser. Referrals are received from the following sources:
 - Primary care facilities within the county referral area of responsibility
 - Other county referral facilities in the county (horizontal referral)
 - Referrals from neighboring counties (especially to a more equipped or more accessible neighboring county hospital)
 - Community units that are linked to the county referral facility and for which the county referral facility provides primary care services

National referral services (level 6) operate with a defined level of autonomy. In Kenya only two National hospitals(Kenyatta National Hospital and Moi Teaching and Referral Hospital) offer specialized eye care services. To support these, there are several Faith Based and privately owned facilities that offer specialized services including corneal transplant and refractive surgeries such as LASIK.

Figure 4: The overall referral chain



Source: "Kenya Health Sector Referral Strategy 2014 – 2018, Ministry of Health
 Source: "Kenya Health Sector Strategic and Investment Plan (KHSSP) July 2013 – June 2017", Ministry of Medical Services and Ministry of Public Health & Sanitation, Nairobi, Kenya

2.3.3 Policy Framework for Eye Health

Kenya Health Policy 2014 -2030 is the primary policy document providing long-term direction for health in the country. The policy outlines the intent of the country towards attaining the overall health aspirations of the people of Kenya through supporting provision of equitable, affordable, and quality health and related services at the highest attainable standards. It forms the foundation for medium-term strategic plans at the national and county level, which are implemented and monitored through annual work plans based on available government and donor funding. Counties under these policies are autonomous, decentralized management units that can plan and raise resources for defined services.⁸

A flagship project for the Kenya Vision 2030 policy is the implementation of a community health strategy, aimed at promoting preventive health interventions as opposed to curative care. Under the strategy, increased attention will be given to improving the nation's health infrastructure, particularly in rural and severely deprived areas and communities and to involving local communities in the management of health services.^{9,10} The Community Health Unit of the Ministry of Health has been all inclusive with eye health personnel actively taking part in the community health volunteers trainings.

Eye health receives government support at the national level and National Strategy for eye Health are annexed to the national health sector strategic plan. The Ophthalmic Services Unit at the Ministry of Health develops annual operating plans and budgets based on the National Strategy for eye Health. These identify the activities covered by health ministry funding and the activities for which external support is required.¹¹ However, the previous National Eye-Health and Blindness Prevention Strategic Plan (2012-2018) lacked accurate up to date data to support authoritative evaluation report, especially on specific targeted indicators of successful implementation.

At the county level, the Ophthalmic Services Unit advocates for inclusion of eye care plans in county health sector and annual work plans and development of creative approaches to mobilize resources for eye health. These include promoting multi-sectoral collaboration and involving other relevant ministries and programmes, such as water and sanitation, community development, education, and the National Health Insurance Fund (NHIF).¹² Most of the county health plans that were developed during the first five years of devolution did not have eye health components and therefore the previous National Strategic Plan for Eye Health and Blindness Prevention 2012 – 2018 was not taken into consideration at all in designing the county health sector plans.¹³

2.3.4 Public-Private Partnership (PPP) in Eye Health

According to the 2015/16 National Health accounts, Health Care is financed by Government (40%) Households (31%), and private sector and Donors (29%). The public-private partnership (PPP) in health care is an approach to address the public health problems through joint ventures of public and private organizations. It is strongly based on the mutually agreed roles and principles and is complimentary.

The Health Sector Partnership Framework 2018-2030 has laid out the partnership coordination mechanism and modes of engagement. For eye health, PPP has been applied for service delivery, infrastructure development and training, mainly through the bodies like Health NGO Network

and Kenya Healthcare Federation and Christian Health Association of Kenya. One stakeholder in the private sector keen on moving forward PPP is the Kenya Healthcare Federation. KHF is dedicated to engaging the government and all relevant stakeholders in achieving quality healthcare by maximizing the contribution of the private sector. The Federation works with care providers, hospitals, pharmaceutical manufacturers and insurers to promote strategic public-private partnerships toward achieving national access to quality healthcare.

2.3.5 Non-government Stakeholders

Eye care in Kenya receives additional support from international and local NGOs, Private and Faith Based organizations although it is not enough. Some of these include Christoffel-Blinden Mission (CBM), Operation Eyesight Universal (OEU), SightSavers, Fred Hollows Foundation (FHF), AMREF Health Africa, LIONS, Sight By Wings, COECSA, PEEK Vision, Kenya Society of the Blind, Salus Oculi Kenya, Visions Springs, and Rotarians among others. Equally there has been good support and collaboration from the private sector.

2.3.6 Disease specific policies and guidelines

Various disease specific policies and guidelines have been developed and more are under development or review, as outlined in appendix 1.

2.4 Health Care Financing

In Kenya, 12.7% of the population do not seek health care when they are ill mainly because of the high cost of services (21%) while 6.2% of households are at risk of impoverishment as a consequence of expenditure¹⁴. Although NHIF realized an increase in membership from 2.6 million in 2012/2013 to 6.8 million in 2016/17, currently only 19.1% of Kenyans have a form of insurance. There is need to enroll more Kenyans under NHIF so as to prevent catastrophic expenditures while seeking health care. The marginalized, vulnerable and underserved groups also need to be taken into consideration.

Some of the products available under the National Health Insurance Fund (NHIF):

- The Edu-Afya scheme in NHIF is for secondary school students under the age of 18. It covers general eye treatment, but not spectacles and low vision aids.
- The standard scheme under the NHIF is for persons in formal employment and over the age of 18, which also covers their school going children and students up to 24 years. It includes general eye treatment and surgeries, but not spectacles and low vision aids.

The main health financing objective in Kenya is to assure resource adequacy for implementation of health systems focusing on 3 key elements:

1. **Resource mobilization:** How do we raise the money needed for the service?
2. **Pooling:** How do we pool the resources mobilized while balancing the different risk categories in the population?
3. **Purchasing of services:** How do we pay for the services or how do we pay the providers?

Priority population Sub groups and Financing options.

1. **School going children and teenage students** who may be having refractive errors (short sight or long sightedness). These are frequently identified by teachers and parents who refer them to health facilities due to the schooling needs.

⁸Kenya Health Policy 2014 – 2030”, Ministry of Health, Nairobi, Kenya, July 2014

⁹Kenya Health Policy 2014 – 2030”, Ministry of Health, Nairobi, Kenya, July 2014

¹⁰Strategy for Community Health 2014-2019, Transforming health: Accelerating the attainment of health goals”, Ministry of Health, Community Health Unit, Kenya

¹¹Evidence for national universal eye health plans”, J. Ramke et al, Bull World Health Organ 2018;96:695-704

¹²Kenya Eye Health System Assessment”, Ministry of Health, Republic of Kenya, November 2017.

¹³Report of the evaluation of the National Strategic Plan for Eye Health and Blindness Prevention 2012 – 2018”, Ophthalmic Services Unit, Ministry of Health, Republic of Kenya, International Development Institute – Africa (IDIA), Nairobi, Kenya, April 2018

¹⁴David Njuguna and Papela Wanjala- A Case for Increasing Public Investments in Health Raising Public Commitments to Kenya's Health Sector, MoH-Policy Brief,, PUBLISHED BY THE HEALTH SECTOR MONITORING AND EVALUATION UNIT - MINISTRY OF HEALTH, KENYA

Financing options;

- i. Edu-Afya scheme in NHIF: This is a scheme at NHIF that covers all secondary school students but does not cover glasses. It is important to lobby to include provision of glasses in this package and to expand the cover to include all school going children.
 - ii. NHIF coverage under their parents: This population group is usually listed as beneficiaries in their parents NHIF cover. This cover should include provision of glasses.
 - iii. A combination of the above is possible, with strategies to reduce moral hazard
2. **Persons over 60 years:** The prevalence of most eye diseases tend to increase with age e.g. cataract and diabetic retinopathy complications and other degenerative diseases. Including this cohort in the cover will reduce dependency on others and enable them to be economically productive.

Financing options;

- i. For those on pension, commit a proportion of their pension to NHIF premiums
 - ii. Commit a proportion of the cash transfers for the elderly to pay for the NHIF premiums
 - iii. For the non-poor informal sector population in this age group, mechanism to be created that creates awareness and encourages them to contribute premiums to NHIF
 - iv. The government could expand the Health Insurance Subsidies Program (HISP) to cover the poor and vulnerable.
3. **The marginalized, vulnerable and underserved communities**

Financing options

- Special funding and programs for the marginalized, vulnerable and underserved communities need to be developed and implemented to ensure equitable access to eye care services.

4. **Persons Aged 45 years and above** will need basic reading glasses for their productivity to be optimal.

Financing options

- i. Those in formal employment are covered by NHIF
- ii. Those in the informal sector to be encouraged to register and pay premiums to NHIF. Public awareness efforts and incentives are required.

Pooling

- Despite existing challenges, NHIF remains a great vehicle to use in pooling resources towards financing (eye Health) healthcare in Kenya
- To avoid fragmentation of pools within NHIF there is a drive to consolidate the many pools to enhance risk cross-subsidization amongst the many population groups in the country.

Purchasing of services

- Capitation: To ensure regular eye care and check-ups, the current capitation model for outpatient services by NHIF will be accessible for all, and especially those requiring spectacles. This will ensure access to basic eye care services and minimize out of pocket expenditure.
- Case-based or bundled payments: This is an established package paid for an intervention such as cataract/other surgeries, diabetic care, etc.

2.5 Eye Health Service Delivery

2.5.1 Eye Conditions in Kenya

There is no timely and accurate data on eye conditions in Kenya due to challenges within the health information system. This is because the indicators in eye health are not integrated into the community based tools, and not coded, making it difficult to enter them onto the Kenya Health Information System. We need a National eye diseases/conditions and systems survey to get a near accurate situation of the burden of eye diseases. This has been planned for in this strategy.

Over 80% blindness in Kenya is due to curable and preventable causes¹⁵. With increasing burden of NCDs diabetes is now an emerging cause of blindness.

Eye conditions that can cause vision impairment and blindness are, with good reason, the main focus of prevention and intervention strategies. On the other hand, many eye conditions do not cause visual impairment, yet they are the leading reasons for presentation to eye care services and can lead to personal and financial hardships in addition to absence from school or work. Such conditions include conjunctivitis, lid abnormalities, pterygium and dry eye syndrome. Also worthy of mention, is that certain conditions that do not typically cause vision impairment, may do so, if left untreated. This emphasizes the importance of early identification of eye conditions at Community and Primary Level.

Cataract

In Kenya, the estimated cataract surgical rate (CSR) in 2019 was 800¹⁶. This is low compared to WHO recommended CSR target of 3000 by 2020. Cataract Surgical Coverage (CSC) is also used to measure delivery of cataract services and is more accurate measure of access to services, and an indicator for monitoring progress towards Universal Health Coverage. RAAB/RACSS surveys done in Kenya between 2004 and 2011 reported CSC as tabulated below.

	Year	CSC	eCSC
Nakuru	2004	85%	50%
Kericho	2007	86%	56%
Embu	2007	72%	xxx
Kwale	2011	75%	57%
Adjusted mean score	(2011)	80%	53%
Estimated mean score	(2020)	85%	69%
Targeted mean score	(2025)	95%	80%

eCSC; Effective Cataract Surgical Coverage; An indicator measuring coverage and quality of cataract surgery combined.

With the increasing prevalence of cataract and number of cataract surgeries, there is need to promote high-quality surgery with a good visual outcome (visual acuity of 6/18 or better) from the current 65% to 70% by 2023 through routine cataract surgical outcome monitoring (Appendix V)¹⁷, and eCSC of 80% by 2025.

Trachoma

In 2013, twelve counties were identified where blinding trachoma was a public health problem, putting over 7.3 million people at risk of infection and even blindness: Turkana, West Pokot, Baringo, Narok, Samburu, Kajiado, Laikipia, Marsabit, Isiolo and parts of Meru, Kitui and Embu. Trichiasis

¹⁵National Eye Health Strategic Plan 2012-2018

¹⁶Cataract surgical rate (CSR), refers to the number of cataract operations per million population per year.

¹⁷MOH, ophthalmic Services Unit data

(blinding trachoma) was found in 41,501 people across all the endemic counties. The WHO SAFE¹⁸ strategy was integrated into primary healthcare in all targeted communities. All sub-counties where blinding trachoma was a public health problem had been identified and all components of the SAFE strategy were rolled out using an outreach approach. It is anticipated that the remaining trachomatous trichiasis backlog will be cleared by end of 2021 and that the last antibiotic treatments will be done in 2022 unless subsequent surveys inform the need for further treatments. Relevant impact and surveillance surveys will continue to be undertaken to inform further interventions.

Over the years, trachoma control and elimination efforts have been coordinated at the Ophthalmic Services Unit. In the spirit of implementing the national Breaking Transmission Strategy (2019-2023) however, the coordination shifted to the NTD secretariat in 2019. The strategy aims at eliminating four Preventive Chemotherapy (PCT) Neglected Tropical Diseases by 2022. These four disease are; Trachoma, Lymphatic Filariasis, Soil Transmitted Helminthiasis and Schistosomiasis. The NTD secretariat is housed at the Division of Vector-borne and Neglected Tropical Diseases. The Ophthalmic Services unit will henceforth provide technical support partly in the coordination and the implementation of Surveys, Antibiotics distributions and Trachomatous Trichiasis surgery. Additionally, the ophthalmic Services Unit and the eye health structures will support the transition planning and write up of the elimination dossier.

Diabetic Retinopathy(DR)

The country is experiencing a rise in diabetes owing to demographic, nutritional and social changes such as urbanization. The Kenya National STEPwise survey on non-communicable diseases 2015 found the prevalence of diabetes to be 2% for the age group between 18-69 years¹⁹ and over 50% of cases are undiagnosed²⁰. The Table 6 below illustrates the prevalence of diabetes and diabetic retinopathy in Kenya.

Table 3: Prevalence of Diabetes and Diabetic Retinopathy in Kenya

DIABETES AND DIABETIC RETINOPATHY SITUATION ANALYSIS IN KENYA	
Population at risk	
Total Population	48M
Population to be covered (consider age above 20years)	24,000,000
Diabetes Mellitus (DM)	
Prevalence of DM (Number DM/100pop) (>18yrs)	1.9% (Kenya Stepwise Survey)
Number of People with Diabetes	456,000
Diabetic Retinopathy	
Prevalence of DM with Diabetic Retinopathy	35.9%
Number of People with Diabetic Retinopathy	115,368
Vision Threatening Diabetic Retinopathy (VTDR)	
Proportion of Diabetics with VTDR	10%
Number of people with Vision Threatening DR	42,000

Source: Wanjiku Mathenge et al (2014) Population-Based Survey of Older People in Nakuru, Kenya

The prevalence of Diabetic Retinopathy varies from county to county, and is highest in the diabetic belt, with prevalence as high as 41% reported in Embu Provincial Hospital^{21,22}. In a hospital based Diabetic Retinopathy study carried out across 5 counties, the DR prevalence was 32.2% in Thika, 20.5% in Busia, 20.2% in Kilifi, 24.5% in Baringo and 29.5% in Migori. The average prevalence of DR in the five counties was established to be 25.4%²³. Another study carried out in Trans Nzoia established the prevalence of DR to be 16.3%²⁴. Most of the diabetic retinopathy prevalence studies reported are hospital based. In one community based study done in Nakuru, one of the counties located in the diabetic belt, showed a prevalence of 35.9%²⁵.

Annual Routine screening of all diabetic patients for Diabetic Retinopathy is very important for early detection and treatment, and ultimately better visual outcomes. **Clinical Practice Guidelines for Diabetic retinopathy in Kenya have been developed** to provide guidance on the process.

Glaucoma

In Kenya it is estimated to affect 2% of patients attending eye clinics and accounts for 6% of blindness in the country. A population-based study in Nakuru found the prevalence of glaucoma to be 4.3% in people aged 50 years and above²⁶.

Childhood blindness

The main causes of childhood blindness include, congenital cataract, retinopathy of prematurity corneal diseases (including those associated with nutritional deficiencies), congenital glaucoma, trauma, cortical blindness, tumors like Retinoblastoma and hereditary retinal diseases²⁷. With the persistently high poverty level and lack of access to pediatric eye care services, childhood blindness is expected to increase.

Retinopathy of prematurity(RoP)

An eye disease that can happen in premature and low birth weight babies, is one of the leading causes of blindness in children. As neonatal services continue to improve, more premature and low birth weight babies are surviving, therefore the babies at risk of ROP is on the rise.

The Ministry of Health - Ophthalmic Services Unit in conjunction with the ROP working group developed guidelines on screening and management of ROP in 2018 and started an ROP screening program to help prevent loss of vision among the premature babies. The program has been rolled out in 5 counties, with a target to gradually roll it out to all level 5 hospitals by 2025.

Refractive error and Low vision

In Kenya magnitude and pattern of refractive errors is hampered by lack of data from locally done population based studies. It is estimated that there are about 840,000 people with low vision from different causes²⁸. Almost 60 % of persons with visual impairment are due to refractive errors (short sight or long sight). The magnitude and impact of uncorrected refractive error is much more felt in children, which may be associated with lost education opportunities, while in adults there's exclusion from productive working life, all with far reaching negative economic impacts. Low vision services are only accessible to a small portion of the population.

²¹(Njambi L. "Prevalence of diabetic retinopathy and barriers to uptake of diabetic retinopathy screening at Embu Provincial General Hospital, Central Kenya)

²²East African Journal of Ophthalmology. 2012; 16 (1):5-11.)

²³Assessment of The Magnitude and Capacity of County Referral Hospitals in Kenya to Manage Diabetic Retinopathy Jefitha Karimurio et al (2019)

²⁴Assessment of the magnitude, risk factors and capacity to manage diabetic retinopathy (DR) at Kitale Level 5 Hospital by Prof. Jefitha Karimurio et al (2018)

²⁵Wanjiku Mathenge et al (2014) Population-Based Survey of Older People in Nakuru, Kenya

²⁶Bastawrous A, et al (2018) Glaucoma Features in an East African Population A 6-Year Cohort Study of Older Adults in Nakuru, Kenya. J Glaucoma. 2018;27(5):455-63)

²⁷National Eye Health Strategy 2012-2018

²⁸National Eye Health Strategy 2012-2018

¹⁸SAFE stands for Surgery to correct trachomatous trichiasis, Antibiotics for C. trachomatis infection, Facial cleanliness to reduce transmission Environmental improvement

¹⁹(Ministry of Health Kenya. Kenya STEP wise survey for non-communicable diseases risk factors 2015 report. Nairobi: GOK; 2015)

²⁰(International Diabetes Federation. IDF Diabetes Atlas. 2015).

Low vision; The WHO working definition: a person who has impairment of visual functioning even after treatment and standard refractive correction and has a Visual Acuity of less than 6/18 to light perception or a Visual Field of less than 10 degrees from the point of fixation, but who uses, or is potentially able to use Vision for the planning and/or execution of a task.

Functional vision assessment is done to understand the visual ability of a person with low vision in order to provide him or her with the appropriate tools, training and facilitate their use of residual vision to its maximum potential.

Clinical low vision assessment is done in order to understand how far the Visual functions of a person with low vision have been affected eg Visual Acuity far and Near, fixation, binocular vision, colour vision etc.

Allergic conjunctivitis

According to the Ministry of Health District Health Information Systems data, Allergic conjunctivitis is the leading cause of presentation to eye care services globally and accounts for 27% of all outpatient visits in the eye clinics across the country. Standard, evidence based(Kenyan) and Simplified *Ocular Clinical Grading and Guide 2016, of the Ministry of Health* will be used to assure quality of care for patients with Ocular allergy.

2.6 The COVID – 19 Pandemic

2.6.1 COVID -19 Pandemic and Persons with Visual Impairment(VI).

Persons with visual Impairment are impacted significantly by COVID-19. Visual disability may be at greater risk of contracting COVID-19 because of challenges associated with implementing basic hygiene measures, such as handwashing, enacting social distancing and the need to touch things to obtain information about the environment or for physical support. Accessing health care services including public health information are other challenges. A pre-existing health condition underlying the Visual impairment like diabetes may pose a much greater risk of developing severe COVID-19 disease if infected.

Additional considerations and precautions will be needed for people with visual Impairment/ disability during the COVID-19 outbreak, including:

- Ensure public health information and communication is accessible, in voice and Braille
- Undertake targeted measures for people with VI and their support networks
- Undertake targeted measures for essential services for persons with VI in the community
- Increase attention given to people with VI living in potentially higher risk high-risk settings of developing the disease
- Ensure that surfaces where persons with VI are likely to touch are decontaminated regularly.

2.6.2 COVID -19 Pandemic and Delivery of Eye care

With the announcement of COVID 19 containment measures in Kenya, most eye units restricted eye care services to emergencies only. Some eye units in government facilities were converted to COVID-19 isolation wards further worsening access to eye care services. This is likely to lead to reversal of the gains made in eye health over time. While the focus during the pandemic is to maintain the delivery of essential eye care services, it is important that patients requiring non-urgent care, chronic eye conditions services and eye care programs are not left behind.

Innovative measure like tele ophthalmology and other technological advances not only to practice effective triage and facilitate coordination between care providers, but also to ensure that patients needing non-urgent appointments remain engaged and informed, adhere to their prescribed treatment strategies and preventive actions, and continue in their care-seeking behaviors as we emerge from the pandemic need to be adopted²⁹.

Provision of eye care services poses a great risk of contracting the disease because close proximity used to examine patients and the necessity to place hands on the patients’ face and eyelids. A great proportion of patients seeking eye services are elderly and have and are thus at increased risk of acquiring and developing severe COVID –19.

The following are recommended measures to reduce the risk of transmission which will be entrenched in the delivery of services in this strategy.;

- Patient triage and isolation as per the general MOH guidelines.
- Direct and manage client/patient flow, while ensuring elderly patients and those with comorbidities are attended to promptly.
- Appropriate PPES should be availed, slit lamp shields using available materials should be installed.
- Hand washing & Sanitization points should be provided throughout the eye unit/service delivery point.

2.7 Eye Health Human Resources

2.7.1 Number and distribution of human resources for eye health (HReH)

The eye care team includes ophthalmologists, optometrists and allied ophthalmic personnel. The human resources currently active in Kenya are not adequate to meet the need, as outlined in table 4. The uneven distribution of eye health workers adds to the problem. The majority work within urban and non-arid areas. Over 58% of ophthalmologists are based in the capital city of Nairobi and its surrounding area and only 55% work in the public sector³⁰. Mid-level eye care workers are mainly based at the peripheral health facilities and are involved in eye care disease prevention and control. With a growing population and increased awareness of eye care services, the limited HReH will be further strained as the number of eye health workers trained and employed are not adequate to meet the expanding gap.

Table 4: Existing versus required eye care workforce in Kenya

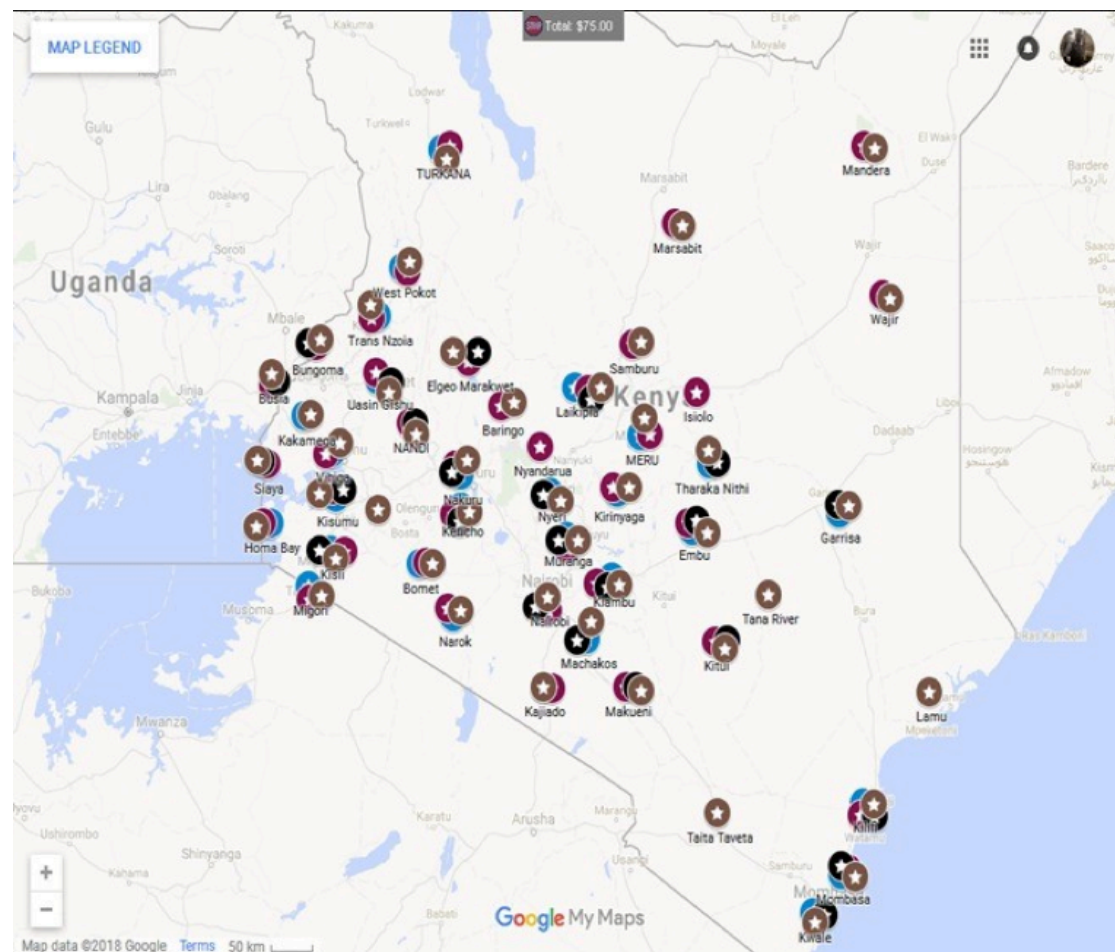
HReH cadre	HReH ratio	HReH required1)	Existing HReH	HReH gap
Ophthalmic Clinical Officers(Clinicians) *	1: 100,000	476	40	436
Optometry Technologist	1: 100,000	476	400	266
Optometrists	1: 250,000	190		
Ophthalmic Clinical Officers-(Cataract Surgeons).	1:125,000	190	176	14
Ophthalmologists	1:250,000	190	145	45
Low Vision Officers			25	
Opticians			45	
Equipment Maintenance Officer	1:10,000,000	5	2	3

Note:Includes HReH in all facilities (public, private, faith based and NGO)
 1) Based on a total population of 47,564,296 (2019 census)
 2)* Ophthalmic Clinical Officers* are trained on clinical Ophthalmology and do not do cataract surgery

²⁹Comm Eye Health Vol. 33 No. 109 2020 pp 10. Published online 01 June 2020. Eye care during the COVID-19 public health emergency: a WHO perspective. Silvio Mariotti, Stuart Keel, Alarcos Cieza)

³⁰MOH, OSU- data collected from ECSAT

Figure 5 The Eye Health Workers Map: Distribution of Eye Health Workforce in Kenya (2017)³¹



The map above, illustrates the uneven distribution of eye health workforce in the country, with most of them located in Nairobi and surrounding counties with a shift to the western area.

Based on the MoH policy for continuous recruitment and deployment of HReH, health workers in the public sector are employed by the county service board and those working for the national government are employed by the public service commission. All positions for all cadres are advertised and the health workers are employed according to the requirements of the county or the national level. However, there are policy gaps to guide health workers management and no clear scope of practice for the different cadres. Another problem is that the cadres of optometry technologist, optometrists and opticians are not acknowledged as part of the public health system. Respective positions can only be found in the non-public sector.

2.7.2 Training of Human Resource for Eye Health(HReH)

The main public training institutes for eye health care workers are the University of Nairobi (UoN), the Kenya Medical Training College (KMTc), the Jomo Kenyatta University of Agriculture and Technology (JKUAT), the Masinde Muliro University of Science and Technology (MMUST). The University of Nairobi (UoN), Department of Ophthalmology, School of Medicine is the only institution in Kenya offering a Master of Medicine in Ophthalmology program with the capacity to graduate 12 ophthalmologist annually(6 local and 6 International-(ratio 1;1)), after 3 years of training However, in the last years the capacity has not been fully utilized due to multisystem issues including lack of scholarships, identified candidates failing to secure release from the counties and poorly developed field attachment sites. Through partnerships, especially with the intergovernmental institutions and development partners we plan to enhance the capacity of training programmes for eye health workforce using diferent approaches.. It is also proposed that the University of Nairobi increase the number of intakes for the local to foreign Ophthalmologists (ratio 2;1 from 1;1)

The Kenya Medical Training College is the main training institution for the midlevel cadres, with more than 70 constituent colleges and campuses outside Nairobi. It partners with faith based and private training institutions and is one of the largest medical training institution in East and Central Africa and even beyond. – drawing students from Uganda, Tanzania, Burundi, Rwanda, Sudan and Nigeria. While Ophthalmology and Optometry training within KMTc is only offered at the Nairobi Main Campus (Table 5), efforts to open up trainings in other campuses are part of near future plans.

In the year 2015, JKUAT initiated a four-year Bachelor’s degree training programme in Ophthalmology for registered Clinical officers specializing in Ophthalmology (Comprehensive Ophthalmology and Cataract Surgery). This was advised by the need to meet the need of specialized eye health workers and at the same time open the career progression/ path among the cadre of clinical officers. This was supported by the Ministry of Health and the Clinical Officer’s council, as the regulatory body. The table below shows the progress so far.

Year	2016	2017	2018	2019
No. Admitted	29	23	26	19
Transition	(20)72% Graduated in 2019	All on course with 100% transition		

While the entry Criteria is registered Clinical Officers, either with Diploma, Higher Diploma, or Bachelor’s degree, those who had Higher Diploma in Ophthalmology and Cataract Surgery were waived 1 year. This first Class comprised of 29 among who 9 had HND in Ophthalmology and Cataract Surgery, and were already in the Eye health workforce observatory while 20 had Diploma in Clinical Medicine and Surgery. Curriculum review is now due after completion of full cycle. MMUST is situated in Kakamega County, and trains optometrists Moi University/ Moi Teaching and referral Hospital also have the intention to start MMed in Ophthalmology or equivalent fellowship (Competency based and Collegiate training models).Students are accredited by the respective regulation body as outlined in table 5.

³¹The Eye Health Workers Map: Distribution of Eye Health Workforce in Kenya (2017)

Table 5: Human Resource for Eye Health and their training³²

Cadre	Training Institute and Duration	Average Graduates/Year	Regulation Body
Ophthalmologists	UoN, 3years, MMed (Ophthalmology)	6	Medical Practitioners and Dentist Council
Ophthalmic Clinical Officers/ Cataract Surgeons	KMTC, 2 years, •HND (Ophthalmology / Cataract Surgery / Low Vision), •JKUAT,4years, Bachelors Degree (Comprehensive Ophthalmology and cataract surgery)	12	Clinical Officers Council
Ophthalmic Nurses	KMTC, 1 year, HND-Ophthalmic nursing	19	Nursing Council of Kenya
Optometrists	MMUST, 5 years, BOptomety	26	Oversight by KHPOA, mainly in private practice, and few Government hospitals.
Optometry Technology	KMTC, 3 years Diploma in Optometry	21	

Source: OSU 2021 UoN = University of Nairobi, MMed = Masters in Medicine, KMTC = Kenya Medical Training College, HND = Higher National Diploma, MMUST = Masinde Muliro University of Science and Technology, KHPOA = Kenya Health Professionals Oversight Authority, JKUAT; Jomo Kenyatta University of Agriculture and Technology.

2.7.3 Regulation of Health Workforce

The Kenya Human Resource Advisory Council

Different regulation in counties make it difficult for students leaving medical school to find internships, for healthcare professionals to move from one county to another or even from one government level to another. It is against this background that the Kenya Human Resource Advisory Council was created through an act of parliament with the main mandate of reviewing policy and establish uniform norms and standards, as well as address the uneven distribution of the health workforce.

The Kenya Health Professionals Oversight Authority (KHPOA)

Kenya Health Oversight Authority is a corporate body established through an Act of Parliament to coordinate all the regulatory bodies in the health sector. Its main roles are to ensure necessary standards for all health professionals are not compromised by regulatory bodies, to maintain a register of all health professionals at national and county level, and to conduct joint inspection of health facilities.

2.8 Health Information Systems

The national government is the custodian of the Health information systems (HIS) while the implementation within counties is under the responsibility of the county government.

Kenya uses an open source health management data platform called the Kenya Health Information System (KHIS) which is also used by multiple organizations, including the European Union (EU), and several other governments worldwide.

The District Health Information System (DHIS) is a modified version of the Kenya Health Information System. Since DHIS2's release in 2006, NGOs and national governments in 60 countries have deployed DHIS2 for health-related projects, including patient health monitoring, improving disease surveillance and pinpointing outbreaks, and speeding up health data access. This has improved data collection both at county and national level but still requires a lot of improvement in terms of data management and timely use for decision making.

For Human Resource Management of the health workforce biodata and trainings, the Ministry of Health is using Integrated Human Resource Information System (iHRIS manage and Train) while payroll is managed by the Government Human Resource Information System. The Integrated Financial Management Information System (IFMIS) is used for public procurement. MOH has developed a tool with eye indicators (eye morbidities) for use in facilities offering eye care services. (Appendix 2).

Many hospitals have adopted hospital information and records system making data management easier. Although a few eye units have integrated the eye information to the broader hospital information system, a good number have stand-alone systems that cannot be integrated to the hospital information systems due to lack of compatibility. Challenges with low reporting rates and accuracy of data is a major setback, as well as limited capacity to analyze and utilize the information gathered both at the national and county level.

2.9 Health Products and Technologies

Equitable access to medical products and technologies that are of assured quality, safety, efficacy and cost effective is important for a well-functioning health system. To achieve these objectives, it is important to have national policies, standards, guidelines and regulations that support policy; adopt reliable manufacturing practices when they exist in-country and quality assessment of priority products and support for rational use of medicines, commodities and equipment, through guidelines and strategies to assure adherence, reduce resistance, maximize patient safety and improve health workforce training.

Access to Essential Medicines is a core component of the right to health, and a requisite to the attainment of national health goals. The Kenya National Essential Medicines List (EML) defines the priority focus for investment in medicines by the public health sector, towards ensuring the provision of equitable healthcare to the population in line with defined sector policies, strategies, norms and standards. The Kenya Essential Medicines List (KEML) is a key tool that should effectively be used to promote access to essential medicines, and through their correct selection, procurement, and use to achieve maximum therapeutic benefit and optimize patient outcomes as desired under Universal Health Coverage (UHC). The KEML has 42 ophthalmic preparations for use at various levels of care. The Medical consumables and equipment for both the national and county government are procured through Kenya Medical Supplies Authority (KEMSA) and Mission for Essential Drugs and Supplies (MEDS) which is a Faith Based, not-for-profit organization based in Nairobi, Kenya. While the EML has included Ophthalmic Eye Preparations and medicine (appendix 1), not all the products in the list are stocked in KEMSA, thus hampering access to the essential eye medicines especially for those counties whose sole supplier is KEMSA. The Kenya Society for the Blind (KSB) set up the National Eye Drop Production Unit (NEPU) to improve on the availability of eye medicines in public and mission hospitals. NEPU is currently at 35% production and cannot meet the demand. It is important to upgrade the Eye Production Unit to improve access and availability of affordable Eye Drops/ medicines in both public and mission facilities. Non-Pharmaceutical Consumables including Intra-ocular Lenses of varying powers (+19D to +23D), 9/0 and 10/0 Sutures, Methyl Cellulose Gel and Specific Micro Surgery

Knives; Keratome, Crescent and Paracentric Knives (in a set) are all stocked by KEMSA in varying quantities, guided by the demand. The key driver to consumption of the non-pharmaceutical products is cataract Surgery. Refractive errors, presbyopia and low vision remains poorly funded and poorly regulated in Kenya. These services are largely provided by the private sector where many patients cannot access or afford. Provision of affordable and accessible low vision devices, good quality and low cost spectacle frames, lenses and presbyopic correction is important in addressing these services.

2.10 Infrastructure

The Kenya Service Availability Readiness Assessment Mapping (SARAM) was done in 2013 as part of government preparedness for health care delivery in the devolved /county governments. This was to provide an understanding of the capacity for service provision across counties, with the objectives of generating reliable information on service delivery, availability and functionality of basic inputs and the capacity of the counties to provide basic health interventions³³.

In 2017 eye Health system assessment was undertaken to further analyse in finer details the health systems capacity to deliver eye care services in Kenya, focusing on the different investments areas identified by the Ministry of health, and in this case the health infrastructure investment areas. The assessment recommended feasible plans for eye care service delivery. The information so generated feeds into the development of the comprehensive Health Infrastructure Policy³⁴.

2.10.1 Status of basic equipment in eye units

As stated in the previous Strategic Plan for Eye Health and Blindness prevention 2012-2018, the following are the basic equipment required for an eye unit to function: operating microscopes (2), slit lamps with applanation tonometer (2), biometry set(keratometer and an ocular ultrasound scan (with A +/- B scan probes)(1), Yag laser (1), Argon laser for five regional centres (1), visual field analysers (1), ophthalmoscopes and retinoscopes (6), refraction box (3), Cataract Sets (6 every two years), indirect ophthalmoscope set (1), +78 and +90 D lenses (2 each) and Low vision (devices magnifiers, telescopes).³⁵

A review team visited 10 public eye clinics in 8 counties in 2018 found out that none of the facilities was adequately equipped as per the minimum standard set by the strategic plan. Direct Ophthalmoscopes set and slit Lamps were the equipment that were adequate in majority of the health facilities. 80% of the facilities had cataract sets, but most were not complete. 90% of the facilities lacked Argon Laser, 80% lacked YagLaser and Biometry set and 70% of the facilities lacked +90D lenses & Visual Fields Analyzers. Overall, most of the referral units were equipped to only provide very basic eye care services with minimum standard equipment lacking. Some of the equipment available within the facilities were also not in good working condition due to lack of maintenance while others needed replacement altogether.³⁶

2.10.2 Equipment maintenance

A functional programme on preventive maintenance was put in place by the national government but its level of implementation has scaled down due to financial constraints (sustainability of the program remains the biggest issue). A stock of spare parts was also said to be available, but it was not being used since there was no system to guide their use and replacement. There was also no system to determine how to charge the clients.³⁷

Generally, it is the responsibility of the respective government at the national or county level to ensure that the equipment is maintained. However, with only two (2) Equipment Maintenance Officers available for the entire country, this is not realistic. We therefore need to train 10 more and cater for attrition in future planning.

2.11 Research

Currently there is a general lack of coordinated mechanisms for eye health research that is occasioned by the un-availability of a national research committee or national eye health research resource centre as had been envisaged in the previous strategy. There is therefore no focused eye health research agenda to guide operational and academic eye health research. There is also a lot of eye health data from user facilities in the counties that is never analysed to inform best/ preferred practices. A lot of baseline, impact and surveillance surveys have also been undertaken under the Kenya Trachoma Elimination Programme (KTEP) but this work has not been published. Additionally, several TT surgery audits and Cataract Surgical Outcome Monitoring (CSOM) have been undertaken but the findings have not been published. One of the limitations to publishing is the lack of skills in writing manuscripts targeted for peer reviewed journals (ETR Report, 2018).

Despite appearing as a major agenda in the previous strategy, the Kenya Eye Diseases and Systems Survey (KEDSS) has not been undertaken to provide eye health prevalence data to guide planning. There is a general under-funding of eye health research. Though Ophthalmic Services Unit has worked with the local universities in research, there has been minimal collaborative effort with Kenya medical Research Institute(KEMRI), our premier research institution in the region and as such not made use of the capacity available. The Kenya National Ophthalmic Workers Conference is held once annually to bring together all eye health workers and stakeholders to share information on policies, guidelines, experiences and research findings. The main challenge however has been under-representation of Ophthalmologists in this forum, even though they are looked upon to provide leadership in eye health, especially technically. (ETR Report, 2018). These research issues still remain areas of priority, and will be advanced further in this strategy.

³³MoH: Service Availability and Readiness Assessment Mapping 2013

³⁴MoH: Kenya Health Sector and Investment Plan 2014-2018. 2015.

³⁵Report of the evaluation of the National Strategic Plan for Eye Health and Blindness Prevention 2012 – 2018”, Ophthalmic Services Unit, Ministry of Health, Republic of Kenya, International Development Institute – Africa (IDIA), Nairobi, Kenya, April 2018

³⁶Report of the evaluation of the National Strategic Plan for Eye Health and Blindness Prevention 2012 – 2018”, Ophthalmic Services Unit, Ministry of Health, Republic of Kenya, International Development Institute – Africa (IDIA), Nairobi, Kenya, April 2018

³⁷Report of the evaluation of the National Strategic Plan for Eye Health and Blindness Prevention 2012 – 2018”, Ophthalmic Services Unit, Ministry of Health, Republic of Kenya, International Development Institute – Africa (IDIA), Nairobi, Kenya, April 2018

3 SWOT ANALYSIS

STRENGTHS	WEAKNESSES
<p>Disease prevention and control</p> <ul style="list-style-type: none"> Existing community health strategy Existing best practice guidelines. <p>Human Resource and Training</p> <ul style="list-style-type: none"> Skilled eye health workforce Accredited training institutions (HReH) Infrastructure, medicine, consumables and equipment Some Basic Equipment to provide eye health services Medical supplies by KEMSA <p>Financing</p> <ul style="list-style-type: none"> NHIF funds a number of eye health conditions Support from Development Partners Monitoring, Evaluation and Governance We have systems in place within the Ministry Committed Leadership at the Ministry of Health Existence of good partners at National and Community level Existence of global/and National guidelines Joint Inter-Agency Coordination Committee of eye health 	<p>Disease prevention and control</p> <ul style="list-style-type: none"> Insufficient appreciation on the magnitude of blindness in the community Weak referral systems Weak engagement of community members/ participation Low-prioritization of eye health condition by government Weak voice and visibility of eye health at decision making level leading to low prioritization and resourcing Retrogressive cultural beliefs and practices around eye health <p>Human Resource and Training</p> <ul style="list-style-type: none"> Shortage of eye health workforce Skewed distribution of health workforce Limited training Capacity <p>Infrastructure, medicine, consumables and equipment</p> <ul style="list-style-type: none"> Inadequate infrastructure to deliver quality services Inadequate consumables and equipment. Inadequate low vision devices, spectacles and presbyopic correction Inadequate servicing of ophthalmic equipment leading to breakdowns <p>Financing</p> <ul style="list-style-type: none"> Inadequate funding and budget allocation by the government Overreliance on partner funds Underutilized value for money invested in eye health by the providers e.g. maldistribution of workforce Inadequate capital investments by government Monitoring, Evaluation and Governance Duplication of activities by partners because of inadequate coordination especially at county level Poor data collection and use(data management) in decision making Poor documentation Weak policies and guidelines Weak synergy among development partners in eye health Inadequate research Insufficient information on causes of blindness among CHVs

OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> Integration of eye care in UHC Digitalization of eye health (internet telemedicine) Regional integration: political and economic Global events like World Sight Day to magnify the need for eye health Devolution of eye care services Embracing multi-sectoral approach or inter-ministerial modelling of eye health Leverage on research innovation Strengthen delivery of eye health services through local evidence based innovations such as use of Portable Eye Examination Kit (PEEK) 2 indicators of the 30 UHC cover eye health Availability of global frameworks e.g. SDGs Political stability Linkage between MOH and training institutions Organized and vibrant organizations of persons with disabilities Implementation of UHC program at County level which eye health can leverage on Training of more CHV, CHW and CHEW for identifying cases of presbyopia 	<ul style="list-style-type: none"> Shifting donor priorities in funding Insecurity especially in Northern and Coast regions of Kenya where the need for eye health is very huge Climate change and global warming Emerging chronic diseases/ conditions e.g. diabetes Global events e.g. forex impacting negatively on our service delivery Lack of harmonized structure for eye health from National level across all Counties Epidemics such as Covid-19 Pandemic-Overwhelming to the Health system

VISION

A Nation where all eye health needs are met

MISSION

To provide Integrated People-Centred Eye Health Services

MANDATE

To develop appropriate and responsive policies and strategies, standardize, regulate, harmonize and coordinate the provision of sustainable quality eye health services

CORE VALUES

People-Centrd Services • Integrity • Professionalism
Quality • Innovativeness • Accountability
Partnerships and collaboration

4 THE EYE HEALTH CARE STRATEGY

This eye care strategy is formulated in the framework of the National Health Sector Strategy which in turn is in line with the development strategy of Kenya. This strategy is expected to inform the County Eye Care strategy. Each county will however, develop their strategy based on the county burden of eye disease. The Key strategic areas have been developed according to the Kenya Health Policy Framework to include the following 8 thematic areas:

4.1 Key strategic areas and objectives

1. Eye Health Sector Governance

Key Objectives

1. Improve Governance arrangements in eye health
2. Strengthen eye health partnership
3. Strengthen eye health stewardship
4. Ensure Continuous Quality Improvement and Assurance

2. Eye Health Care Financing

Key Objective

1. To define the different sources of funds for eye health and strategies to mobilize the re sources, for implementation of eye health Strategy

3. Eye Health Service Delivery

Key Objectives

1. Scale up inclusive and integrated strategies for management of eye diseases.
2. Enhance community awareness and empowerment on eye health
3. Reduce the burden of visual impairment through delivery of integrated patient services
4. Provide palliative care for the Blind (Rehabilitate the irreversibly blind).
5. Promote surgical outcome monitoring and service quality Assurance

4. Eye Health Human Resource

Key Objectives

1. Avail adequate HReH at all levels of the health system

5. Eye Health Information Systems

Key Objectives

1. Enhance collection and reporting of eye health data at all levels
2. Improve quality of data at all levels
3. Promote utilization of data at all levels
4. Promote data privacy and protection

6. Eye Health Products and Technologies

Key Objectives

1. Improve availability of eye drugs and products by strengthening the supply chain system
2. Enhance quality of eye health commodities
3. Promote use of innovation and technology in eye health sector

7. Eye Health Infrastructure

Key Objectives

1. To develop/ provide requisite infrastructure &
2. Equipment for enhanced eye health service delivery

8. Eye health Research

Key Objectives

1. Promote evidence-based decision making in eye health.
2. Coordinate National research agenda in eye health
3. Promotion of Learning and teaching through conferences

4.2 Gap analysis and timeline of prioritized interventions

4.2.1 Eye Health Sector Governance

Leadership and governance is about organization, decision making and coordination of the eye health policy and strategies. The set Leadership and governance structures guide strategic direction, developing appropriate plans and policies with effective oversight, regulation, motivation, and essential partnerships integrated into the health system all to achieve the desired results. Governance is anchored on existing legal Framework and regulate both Public and Private Sectors. Effective leadership and governance at all levels is key to achieving the desired goals of the Strategic plan. The structures described will also provide appropriate linkages and collaborations between the eye health subsector and the National Health sector, focusing on contribution to the overarching targets of the National health policy of reduced mortality, reduced number of years lived with disability, increased life expectancy.

Gaps – challenges	Proposed actions, interventions
<ul style="list-style-type: none"> • Weak link between the Inter-Agency Coordinating Committee Eye Health and county governments 	<ul style="list-style-type: none"> • Embrace county governments and other stakeholders into the Inter-Agency Coordinating Committee Eye Health, meet regularly and undertake joint monitoring and support supervision visits
<ul style="list-style-type: none"> • Limited number of County Prevention of Blindness Working Groups 	<ul style="list-style-type: none"> • Development of a National eye health policy and priority guidelines for eye Health at both national and County level
<ul style="list-style-type: none"> • Eye conditions are not prioritized, especially at the county level due to low visibility at the decision-making level, leading to under resourcing 	<ul style="list-style-type: none"> • Ensure that national and county health plans include eye health
<ul style="list-style-type: none"> • Inadequate coordination of partner activities leading to duplication of activities, especially at the county level 	<ul style="list-style-type: none"> • Guidelines of Rules of Partnerships engagement developed and executed. This includes the development of MOUs with partners.
<ul style="list-style-type: none"> • Poor documentation 	<ul style="list-style-type: none"> • A Monitoring & Evaluation framework in place and Implemented at all levels and Systems of service delivery

Timeline and responsibilities for key outputs

Strategic Objective	Key Outputs	20/21	21/22	22/23	23/24	24/25
4.2.1.1 Improved Governance arrangements in eye health	National Eye Health Strategic Plan 2021-2025					
	National eye health policy developed					
	Regulatory Mechanism for Optometrists developed and institutionalized,					
	Determine and Develop Priority Guidelines for eye Health					
	Annual Work plans (in line with eye health national strategic plan)					
	A Monitoring & Evaluation framework in place and Implemented at all levels and Systems of service delivery					
4.2.1.2 Strengthen eye health partnership	Guidelines Rules of Partnerships engagement developed and executed • MOUs with partners					
4.2.1.3 Strengthen eye health stewardship	Joint accountability through: National Eye Health Working Group meetings					
	Joint monitoring and support supervision visits					
	Eye health included in the national and county health plans					
4.2.1.4 Ensure Continuous Quality Improvement/ Assurance	Syatemns Quality Assessment and Improvement framework.					
	Integrated System Quality Improvement teams to Hospital Quality Improvement teams					

4.2.2 Eye Health Care Financing

The overall goal of the health finance strategy in this strategic plan is to mobilize financial resources to facilitate the delivery of the plan. The key aspects of health systems financing: resource mobilization, risk pooling and purchasing of services are considered.

Gaps – challenges	Proposed actions, interventions
<ul style="list-style-type: none"> •The current health care financing system is not adequate to ensure access to high-impact cost effective and preventive interventions. •The NHIF does not cover all vulnerable groups and does not include payment for spectacles in the Student NHIF cover (Edu-Afya). •There is an overreliance on partner funding. Funding and budget allocation by the government is inadequate, especially at the county level. • Underutilized value for money invested in eye health by the providers • Inadequate capital investments by government 	<ul style="list-style-type: none"> •Increase resource mobilization for eye health through new partners in eye health and enhanced contribution of private and the development partners. • Increase efficiency of coordinated donor support through the Kenya Health Partnership Framework 2018-2030 • Increased contributions to the NHIF by informal sector workers • Inclusion of County Eye Health Plans into the CIDP • Equitable resource allocation and utilization through NHIF cover for vulnerable groups and increased NHIF coverage of eye health services, especially spectacles for school going children and teenage students. • Eye health finance by county government

Timeline of key outputs

Strategic Objective	Key Outputs	20/21	21/22	22/23	23/24	24/25
4.2.2.1a Resource mobilization	Increased Partnership in and for Eye Health					
	Aligned, Operational and harmonized donor support through Kenya Health Partnership Framework 2018-2030					
	Private Sector contributes to health sector investment: -UHC, HReH, Infrastructure, Pharmaceutical and manufacturing. Complimentary health insurance.					
	Increased Contributions to NHIF by Informal sector workers					
	Inclusion of County Eye Health Plans into the CIDP	8	16	32	47	
4.2.2.1b Equitable resource allocation and utilization.	Inclusion of Spectacles and Low Vision devices for Student NHIF cover. (Edu-Afya)					
	Eye health care for all children and persons aged beyond 60 years (vulnerable)					
	Increased Coverage of Eye Health Service financing by NHIF by 30% (number of eye diseases/ condition and medical products covered)					

4.2.3 Eye Health Service Delivery

Eye care services are delivered as an integral part of integrated healthcare delivery system through the available infrastructure and human resources at all levels of the health system. This strategy is to ensure an effective and efficient way of delivering these services to the community. The Key aspects of the strategy are: Scale up inclusive and integrated strategies for prevention of eye diseases, Enhance community awareness and empowerment on eye health, Reduce the burden of visual impairment due to diseases, Improve vision related quality of life for people with functional low vision and irreversibly blind and lastly Improve quality of eye health services received by the community.

- Continuous quality improvement(CQI)
Continuous Quality improvement (CQI) is a 'whole system' concept, meaning that every individual in the system regardless of function or position, should be encouraged to find ways to improve quality. The following are frequently measurable quality indicators in eye care
 - Vision, Surgical Outcome
 - Patients Satisfaction; subsequently leads to financial viability
 - Non clinical care-Communication during care, Waiting time

challenges	Proposed actions, interventions
<ul style="list-style-type: none"> • Training of CHEW and CHV in primary eye care often depends on external partner support through specific programs, so PEC is not part of PHC in all counties. 	<ul style="list-style-type: none"> • Increase number of counties where PEC is an integral part of PHC through advocacy at the county level.
<ul style="list-style-type: none"> • There is often a lack of awareness about eye conditions in the community. 	<ul style="list-style-type: none"> • Enhance community awareness and empowerment on eye health through county-specific eye health implementation plans.
<ul style="list-style-type: none"> • Not all county referral hospitals can provide advanced medical, surgical, laser, refractive and rehabilitative services. 	<ul style="list-style-type: none"> • Increase number of County Referral Hospital with comprehensive, functional eye units and robust referral systems, validated mHealth solutions such as PEEK.
<ul style="list-style-type: none"> • The referral system is weak and there is no evidence if patients that have been referred reach the facility where they have been referred to. 	<ul style="list-style-type: none"> • Established refractive error services established in each county.
<ul style="list-style-type: none"> • There is a high burden of visual impairment due to preventable diseases. 	<ul style="list-style-type: none"> • Increase number of counties with community and school screening programs using of M-health and other technologies.
<ul style="list-style-type: none"> • Trachoma is not yet fully eliminated in all affected areas. 	<ul style="list-style-type: none"> • Establish 3 new functional comprehensive DM/DR centers.
<ul style="list-style-type: none"> • Low vision services and optical services are insufficient. 	<ul style="list-style-type: none"> • Follow up trachoma elimination process.
<ul style="list-style-type: none"> • Limited use of available and tested Technology (like mHealth) to monitor or improve service delivery 	<ul style="list-style-type: none"> • Provision of low vision care according to community needs and establishment of 5 new functional centers.

Timeline of key outputs

Strategic Objective	Key Outputs,	20/21	21/22	22/23	23/24	24/25
4.2.3.1 Scale up inclusive and integrated strategies for prevention of eye diseases.	Primary Eye Care integrated into Primary Health Care through advocacy at the county level- 15 counties. Train CHEWs and CHVs Join County Primary Health Care/ Community Networks					
4.2.3.2 Enhance community awareness and empowerment on eye health	County-specific eye health implementation plans in place Eye health prioritized in county annual operation plans					
4.2.3.3 Reduce the burden of visual impairment due to eye diseases.	Provide Quality Cataract Surgical Services Refractive error and low vision services established in each county 3 new functional comprehensive DM/DR centres Kenya declared free of trachoma Increased demand for eye care. Community and School screening using tested and available m-Health solutions in 24 counties					
4.2.3.4 Improve vision related quality of life for people with functional low vision and irreversibly blind.	Integrated and Person-Centred -Low vision/ Rehabilitation care provided. Counties have frameworks and Relevant for Collaborative networks for low vision and Rehabilitation service provision, including schools Five new functional Low vision centers added Nationally, with comprehensive teams;Clinicians,Optometrist, Teachers and Social worker.					
4.2.3.5 Continuous Quality Improvement/ Assurance	Eye care Quality Assessment and Improvement framework. Integrated Eye care Quality Improvement teams to Hospital Quality Improvement teams					

4.2.4 Eye Health Human Resource

Human resources for eye health (HReH) is a key building block underpinning any health system. The human resource development component encompasses providing equitable, affordable and high quality comprehensive eye care to communities through a well-trained, adequate, equipped and equitably distributed team of eye health professionals with the right cadre mix and fit for the purpose. To address the high disease burden and inadequate number of eye health workforce, the MOH needs to work hand in hand with the training institutions so as to increase the number of workforce trained and produced per year, as outlined in the strategy.

Gaps – challenges	Proposed actions, interventions
<ul style="list-style-type: none"> • Generally, the numbers of eye health workers are not adequate and are unevenly distributed. • There are only two Ophthalmic Medical Equipment technicians. • There is need to encourage more investment in the production of eye health workers • Existing training institutions must be fully utilized and strengthened across a range of issues including faculty development, on-line learning, better infrastructure and equipment and Continuing Professional Development (CPD). The latter needs to be available for all eye health workers. • The quality of service provision at all levels needs to be strengthened thought the development of competency-based training and clarifying scopes of practice leading to the harmonization of training curricula. • Generally, PEC is not part of the training of PHC workers in all counties. • Optometrists, an essential cadre in provision of eye care services are not in the public scheme of service • There is also need to recruit from rural areas to enhance rural retention and to strengthen mid-level and community health workers. 	<ul style="list-style-type: none"> • Carry out a skills-gap assessment and provide results to all counties and the national government. • The MOH to work hand in hand with the training institutions to increase the number of workforces trained and produced per year. • Establish new training facilities for Ophthalmologists, Allied Eye Health Workers (ophthalmic clinical officer and ophthalmic nurses) and Ophthalmic Medical Equipment technicians • Advocate for counties to invest more in eye health training and to release more workers for HReH training for a more equitable distribution of HReH across the nation. • Integrate PEC into PHC training modules and training of eye health screening and promotion into community health strategy trainings in all counties • Keeping the knowledge of existing HReH current through CPD • The Kenya Human Resource Advisory Council formed through an act of parliament shall review policy and establish uniform norms and standards, and develop Career Progression Guidelines for all workers, and advice on Placement.

Timeline of key outputs

Strategic Objective	Key Outputs,	20/21	21/22	22/23	23/24	24/25
4.2.4.1 Adequate HReH is made available at all levels of the health system	1 skills-gap assessment.					
	1 more center training at least 5 Ophthalmologists per year					
	Establish 1 centre for collegiate training system for ophthalmologists					
	Establish 3 new training centres for Allied Eye Health Workers(Mid-Level) producing 7 clinical officer 12 ophthalmic nurses per year					
	Advocate and capacity build UoN to train 2 more ophthalmologists per year.					
	Train 10 Ophthalmic Medical Equipment technicians (2 at National and 8 at Regions)					
	Equitable distribution of HReH across the nation					
	Advocate for Counties to invest more in eye health training, and Recruitment of needed workforce					
	Keeping the knowledge of existing HReH current through CPD					
	Norms and standards in place recognizing all cadres(Scope of Practice for all cadres)					
Accredit training institutions for Optometrists in Kenya(Through KHPOA and CUE)						
Develop Career Progression Guidelines for Optometrist(including Placement)						

4.2.5 Health Information Systems

Health Information Systems (HIS) provides evidence for policy and program decisions. In Kenya it is mainly anchored to the District Health Information System. It is important for eye health patient monitoring, improving disease surveillance and pinpointing outbreaks, and speeding up health data access. Many hospitals have adopted hospital information and records system making data management easier. Although there are challenges with low reporting rates and accuracy of data, the strategy has addressed this through regular support supervision, routine DQAs and training of records officers. Utilization of information also needs to be strengthened at all levels of the system, through enhancing the culture and practice of “Data and Information use for Decision-Making” and capacity building at national, county and facility levels.

Gaps – challenges	Proposed actions, interventions
<ul style="list-style-type: none"> • There are currently major challenges with low reporting rates and accuracy of data. • There is also limited capacity to analyze and utilize the information gathered both at the national and county level. • Information about the referral pathway do not exist. • It is important to develop standard and uniform software tools that are compatible with the hospital systems 	<ul style="list-style-type: none"> • Enhance collection and reporting of eye health data at all levels including the referral pathway. • Improve quality of data at all levels through regular support supervision, routine Data Quality Assessment (DQAs) and training of records officers <ul style="list-style-type: none"> • Promote utilization of data at all levels through enhancing the culture and practice of “Data and Information use for Decision-Making” and capacity building at national, county and facility levels. • Promote surgical outcome monitoring and service quality. The reports are to be shared with respective health management teams. • Promote data privacy and protection through awareness creation and compliance with existing data protection laws • Monitoring and evaluation of data management processes

Timeline of key outputs

Strategic Objective	Key Outputs,	20/21	21/22	22/23	23/24	24/25
4.2.5.1 Enhance collection and reporting of eye health data at all levels	1 Data collection Register for eye health in place					
	Updated eye health data collection tools in line with eye health strategy.					
	Updated CHV tool with eye indicators***					
	Number of facilities reporting on eye health					
	Regional and National eye health information system sensitization meetings held					
	8 regional meetings held on eye health information system					
	Referral pathway for eye health strengthened -Number of people referred -Electronic referral piloted and implemented					

4.2.5.2 Improve quality of data at all levels (accuracy)	≥80% of Eye units participating in quarterly data review and data quality assessments at facility level / county					
	MoH and partners conduct annual joint Data Quality Audits (DQA) held on sampled facilities					
	Health facilities implementing best practices (dimensions) on data management					
4.2.5.3 Promote utilization of data at all levels	Health facilities analyze and share eye data with relevant health management teams					
	Eye Health data used for planning and target setting					
4.2.5.4 Promote surgical outcome monitoring and service quality	All eye units / facilities conducting surgical outcome monitoring and share reports with health management teams					
	All eye units adherent to quality standards during service delivery					
4.2.5.5 a Promote data privacy and protection	stakeholders aware and comply with existing data protection laws					
4.2.5.5 b Monitoring and evaluation of data management processes	Annual national performance reports produced and disseminated					

*** also to be tried on smartphone base; Implementation Science

4.2.6 Health Products and Technologies

Equitable access to medical products and technologies that are of assured quality, safety, efficacy and cost effective is important for a well-functioning health system. To achieve these, it is important to have national policies, standards, guidelines and regulations that support policy; adopt reliable manufacturing practices and support for rational use of medicines, commodities and equipment, through guidelines and strategies to assure adherence, reduce resistance, and maximize patient safety and training. The strategy outlines the areas of focus to ensure access to eye health products and technologies.

Gaps – challenges	Proposed actions, interventions
<ul style="list-style-type: none"> • Not all the eye products listed in the essential medical list (EML) are stocked in KEMSA, thus hampering access to the essential eye medicines especially for those counties who sole supplier is KEMSA. • National Eye Drop Production Unit (NEPU) currently operates at 30% of their capacity but at the same time cannot meet the demand. • Huge burden of unaddressed refractive errors. 	<ul style="list-style-type: none"> • Increase number of eye health commodities in the Essential Medicines and Medical Supplies (EMMS) and the output of eye drops of NEPU at the Kenya Society for the Blind. • Strengthen the supply chain system through monitoring, feedback from facilities, sensitizing eye health practitioners on available reporting mechanisms and the use of management information systems. • Policy guideline on assimilation of technology in eye health developed • Enhance quality of eye health commodities • Optimize supply of consumables for the new (and existing) eye units (through budgeting, appropriate procurement & stock control, as advised by the information systems). The latter will also be used to avoid wastage and expiry. • Promote innovation and technology in eye health sector through piloting of new innovations, information about and use of best practices and the development of policy guidelines on assimilation of technology in eye health. • Introduce low cost quality spectacles through existing supply chain systems.

Timeline of key outputs

Strategic Objective	Key Outputs,	20/21	21/22	22/23	23/24	24/25
4.2.6.1 Improve availability of eye drugs and products by strengthening the supply chain system	New number of eye health commodities included in the Essential Medicines and Medical Supplies (EMMS) including spectacles.					
	Monitored flow of eye health commodities in the Counties.					
	Improved capacity to manufacture eye drops at KSB.					
	Supply chain Feedback tool developed Feedback reports received from facilities.					
	Improve access to good quality low cost frames, lenses, low vision devices and presbyopia correction					
4.2.6.2 Enhance quality of eye health commodities	Sensitizing eye health practitioners on available reporting mechanisms for adverse drug reactions.					
	Management information system to improve access and efficiency.					
	Well Managed eye health commodities (avoid wastage and expiry).					
4.2.6.3 Promote innovation and technology in eye health sector	Policy guideline on assimilation of technology in eye health developed.					
	New innovations in place, piloted Best practices adopted, modeled, documented and disseminated.					

4.2.7 Eye Health Infrastructure

The health infrastructures here referred include physical infrastructure, equipment, transport and Information Communication Technology (ICT), relevant to eye health care delivery. Provision of appropriate infrastructure is expected to improve access to quality eye health care³⁸. This eye health strategic plan aims at identifying sets of equipment and physical infrastructure that would be basic for a functional eye unit to deliver comprehensive eye care services that would lead to the realisation of Universal Eye Health³⁹.

The requisite structure of an eye health service delivery point includes the following.⁴⁰

Eye Clinic: Consulting Rooms, Examinations and Procedure Rooms and Minor Theatre.

Eye Theatre: Meeting the standards.

Eye Wards:- Male and female wards, usually not very Large Numbers, e.g. a 120 bed capacity ward is large enough to be the level of a Tertiary Eye Hospital. A basic Eye Unit for a level 4 hospital would have about 32 bed capacity.

These vary according to levels of care and the minimum requirements are:

Level 1 – none

Level 2&3 - Dedicated or shared room, Snellen’s chart, Torch

Level 4: &5:

Sub – county hospitals: 2 or more dedicated rooms with basic equipment for surgery and refractive services. Dedicated or shared eye theatre

County Referral hospitals - Separate Eye unit with waiting bay and consultation rooms, operating theatre, basic equipment for surgery and refractive services plus Optical workshop

Regional hospitals (Former provincial hospitals and the former Meru, Kisii, Machakos district hospitals) - Eye Hospital, Centre or Eye unit with at least 3 consultation rooms, wards and theatre and training facility for eye health trainees.

Level 6:

As for Regional Hospitals above plus sub-specialized Ophthalmologists and training facility for both under and post-graduate student.

³⁸MoH: Kenya Health Policy Framework 2014-2030. 2015

³⁹MoH: National Strategic Plan For Eye Health and Blindness Prevention 2012 to 2018

⁴⁰<https://iapb.standardlist.org/products/>

Gaps – challenges	Proposed actions, interventions
<ul style="list-style-type: none"> • Not all eye care facilities are sufficiently equipped to provide services according to their KEPH level. • Huge challenges with equipment maintenance leading to difficulties in maintaining equipment in good working order. 	<ul style="list-style-type: none"> • It is anticipated that four state of the art eye and dental units will be established as per presidential directive based on the Tenwek model at Kenyatta National Hospital, Moi Teaching and Referral Hospital, Mombasa and Nyeri. Further resources will be mobilized to establish 1 more centre with the view of balancing the geographic distribution. It is also anticipated that 10 existing eye facilities will be upgraded in various Counties. • Standard guidelines for eye health facilities at the different KEPH levels will be developed. • All counties will benefit from procurement of identified ophthalmic equipment during the five years. • The use of available eye health equipment will be optimized through inventory taking, planned preventive maintenance and audits.

Timeline of key outputs

Strategic Objective	Key Outputs,	20/21	21/22	22/23	23/24	24/25
4.2.7.1 To develop / provide requisite infrastructure for enhanced eye health service delivery (with all disability mainstreaming provision))	Develop standard guidelines for eye health facilities at different KEPH levels					
	Establish 5 state of the art ultra-modern eye facilities for Tertiary Eye Care					
	Upgrade 10 existing eye health facilities					
	Upgrade National Eye Drop Production Unit-KSB (To meet GMP)					
4.2.7.2 To avail appropriate equipment for enhanced eye Health service delivery	Procure the requisite eye health equipment for the 5 new units, (at least to the level of PHACO, LASIK, Cross Linking and Eye Banking) and other facilities across all Counties					
	Optimize the use of the available eye health equipment through inventory taking, Planned Preventive Maintenance and Audits					

4.2.8 Research

Gaps – challenges	Proposed actions, interventions
<ul style="list-style-type: none"> • Research in eye health has been given low priority and therefore been inadequate in informing evidence-based interventions. • There is no national research committee or national eye health research resource center • There is a lot of eye health data from user facilities in the counties that has never been analyzed • A lot of baseline, impact and surveillance surveys have also been undertaken under the Kenya Trachoma Elimination Programme (KTEP) but this work has not been published. • Additionally, several TT surgery audits and Cataract Surgical Outcome Monitoring (CSOM) have been undertaken but the findings have not been published. One of the limitations to publishing is the lack of skills in writing manuscripts targeted for peer reviewed journals (ETR Report, 2018). • Generally, eye health research is under-funded. • No Partnerships in research/ Collaborative Research 	<ul style="list-style-type: none"> • No conferences for comparative learning and education on good practice. • The aim of Research and Development will be to create a culture in which research plays a significant role in guiding policy formulation and action to improve the health and development of the people of Kenya (MOH, 2012). • Research will play an important role in planning, prioritizing and designing of appropriate and cost-effective eye health interventions. • A national eye health research committee will be established to oversee matters eye health research. • This committee will: <ul style="list-style-type: none"> o Review the existing eye health protocols with the view of developing a national eye health research agenda for use by research and training institutions as well as programme operational researches. o Document county specific eye health data to inform best/ preferred practices. o be instrumental in the establishment of a well-equipped, accessible and functional national resource centre for eye health. • During the first three years, the Kenya Eye Diseases and Systems Survey (KEDSS) will be undertaken to provide eye health prevalence data to guide planning. • There will be deliberate efforts to mobilize resources through collaborative Partnerships for Research. • Develop and undertake at least five home grown research projects per year and encourage publishing through biannual trainings on manuscript writing skills. • The Kenya National Ophthalmic Workers Conference will be held annually to bring together all health workers and stakeholders to share information on policies, guidelines, experiences and research findings.

5 MONITORING, EVALUATION, REPORTING & LEARNING

Timeline of key outputs

Strategic Objective	Key Outputs,	20/21	21/22	22/23	23/24	24/25
4.2.8.1 Promote evidence-based decision making in eye health	Rapid Assessment of Avoidable Blindness (RAAB-7) (Situation Analysis) done, and used.					
	Kenya Eye Diseases and Systems Survey completed					
	Develop Eye drop Molecule-Riboflavin for Cross-Linking					
	Kenya Eye Diseases and Systems Survey report disseminated					
4.2.8.2 Coordinate National research agenda in eye health	Eye health research data utilized for planning					
	A functional National Eye Health research committee established,					
	A well-equipped, functional and accessible National resource centre for eye Health established					
	A focused National eye health research agenda in place					
	Existing eye health data and best/preferred practices utilized					
	Increased funding for eye health research to encourage home-grown research					
4.2.8.2 Learning and Teaching	Eye health workers trained in manuscript writing skills					
	Conferences that give good practice and enhance comparative education					

The Monitoring and Evaluation (M & E) process will adopt Action Research, a term for a variety of methodologies that at their core are cycles of planning, action and reflection. This is a useful approach because we are integrating M&E into on-going plans and activities of the strategy.

To ensure M & E is relevant to all stakeholders, key internal and external stakeholders were involved in the design, implementation, analysis and /or communication of findings.

Data collection will be carried out at every facility by eye health care providers supported by stakeholders working in those regions. The data will be submitted to the county eye care units on a monthly basis and submitted to the Ministry of Health Ophthalmic Services Unit for analysis. The data will be recorded to track eye health indicators in each county. Review meetings and workshops will be scheduled through the National eye health working Group on a quarterly basis to review performance. **Strategies for Monitoring and Evaluation**

- 1.1. Annual Work Plans against the County Plans
- 1.2. Monthly Data **Collection**
- 1.3. Scheduled review meetings and **Workshops**
- 1.4. Progress reports

The following M&E indicators will be tracked for each eye health thematic area.

5.1.1 Eye Health Sector Governance

Strategic Objective	Key Outputs	Key Performance indicator	Baseline 2021	Mid-Term 2023	End-Term 2025	Responsibility
5.1.1.1 Improved Governance arrangements in eye health	A National Eye Health Strategic Plan 2021-2025 in place	Eye health Strategic Plan 2021-2025 Document	2012 – 2018 Eye Health Strategic plan	2021 – 2025 Strategic Plan in Place	2021-2025 Midterm Evaluation Report	MoH
	National eye health policy developed	National eye health policy-Draft Document	No Explicit Policy	Explicit Eye Health policy in place		MoH
	Determine and Develop Priority Guidelines for eye Health Systems and Services	List of Guidelines/ Standards for Eye Health Systems Guidelines developed(one set annually)	No documented list 4 Existing	A documented priority List 3 More	A documented priority List 5 More	MoH
	Annual Work plans in line with eye health national strategic plan	Annual work Plans – National (5) County % of Counties with Annual Eye Health Work Plans County	AWP-2029/20 25%	3 AWP document 50%	5 AWP Documents 100%	MoH

	An M& E framework in place and Implemented at all levels and systems of service delivery	M/E Framework/ Component in the Strategic Plan document in place	Nil documented	Framework Available	End Term Evaluation	
5.1.1.2 Strengthen eye health partnership	Guidelines, Rules of Partnerships engagement developed and executed (MOUs with partners)	Signed partnership framework and MoU (Listed all NGO Eye Health Stakeholders)	3 MOUs 20%	100% 100%	100% 100%	MoH
5.1.1.3 Strengthen eye health stewardship	Joint accountability through National Eye Health Working Group	Sets of Minutes of Quarterly meetings held	4 meetings per year	4 meetings per year	4 meetings per year	MoH
	Joint monitoring and support supervision visits	Number of joint visits	0	6	10	MoH
	Eye health included in the national and county health plans	No of Counties with Eye health Plas	4	8	15	MoH/County Governments
5.1.1.4 Continuous Quality Improvement/ Assurance	Quality Assessment and Improvement framework	Piloted tested and documented quality improvement tool(QIT)	0	1 tool		MoH
		% of Health facilities using Quality assessment and Improvement tool	0	10%	50%	MoH
	Integrated Eye Care Quality Improvement teams to Hospital Quality Improvement teams	% of Health Facilities with Eye Care trained Quality Improvement	0	20%	50%	MoH
		% of Health Facilities with Eye Care included in the Hospital Quality Improvement Team	0	20%	50%	MoH
		% of Hospitals Implementing Corrective Actions from QIT		5%	30%	MoH

5.1.2 Health Financing

Strategic Objective	Key Outputs	Key Performance indicator	Baseline 2021	Mid-Term 2023	End-Term 2025	Responsibility
5.1.2.1a	Increased Partnership in and for Eye Health	No of New Partners in Eye Health	XX			MoH Partners
Resource Mobilization	Aligned, Operational and harmonized donor support through Kenya Health Partnership Framework 2018-2030	Proportion of Partners compliant to the Framework	0%	100%		MoH/ Partners
	Private Sector and Development partners contribute to health sector investment:	% financing/ available for the eye health Plan (2021-25), Private Sector./ Governments	0	60%	100%	MOH/OSU, NHIF & Development Partners
5.1.2.1b						
Equitable resource allocation and utilization	Inclusion and increase of Spectacles/LVD for Student NHIF cover. (Edu-Afya) (Increase by 20 % annually)	% Receiving spectacles from Edu-Afya	TBD(n)	n+40%	n+60%	MOH/OSU, NHIF & Development Partners
	Eye health care for All aged below 5 years and beyond 65 years (vulnerable)	% Aged below 5 covered by NHIF % above 65 covered by NHIF	25%	50%	100%	MOH/OSU, NHIF & Development Partners
	Increased Coverage of Eye Health Service financing by NHIF by 30% (number of eye diseases / condition covered)	No of additional disease entities added on NHIF Cover (% increase by 30% by 2025)	TBD(n)	n+10%	n+30%	MoH/NHIF

5.1.3 Health Service Delivery

Strategic Objective	Key Outputs	Key Performance indicator	Baseline 2021	Mid-Term 2023	End-Term 2025	Responsibility
5.1.3.1 Inclusive and integrated strategies for prevention of eye diseases scaled up	PEC integrated into PHC through CHS	No. of counties undertaking multi-sectoral activities	0	15	25	MoH/OSU, CHMT, Private Health Facilities and Partners
	Eye health integrated into the Community strategy activities.	Number of Counties including eye health screening/ promotion in the Community health activities.	25%	50%	75%	MOH/OSU, CHMTs, Private Health Facilities, Partners.
5.1.3.2 Community awareness and empowerment on eye health enhanced	Expanded role of community members in eye health activities and ensure inclusivity	Proportion of Counties with active community engagement in eye health	5%	40%	80%	County Community Health Strategy focal persons, Private Health Facilities and Partners
5.1.3.3 The burden of vision impairment due to diseases reduced	Integrated curative eye health services provided	No. of County referral hospital with comprehensive, functional eye units and robust referral systems	15	To be determined based on baseline	47	MoH/OSU, CHMT
	Specific target disease indices improved	Increased CSR from 800 to 1,000 by 2025	800	900	1000	MoH/OSU, CHMT, Partners
		Increased CSC from 85% to 95% by 2025	85%	90%	95%	MoH(RAAB Surveys-2022/25)
		Proportion of refractive error needs(Coverage) met	15%	60%	90%	MoH/OSU, CHMT, Partners
		3 additional functional comprehensive DM/DR centres	3	4	6	MoH/OSU, CHMT, Partners
		Proportion of previously endemic counties declared trachoma free	0%	80%	100%	MoH/OSU, CHMTs, Partners
		Validated mhealth solution (such as PEEK) rolled out in eye health service delivery.	0%	25%	50%	MoH/OSU, CHMTs, Partners

5.1.3.4 Improve vision related quality of life for people with functional low vision and irreversibly blind.	Counties with Referral Systems for Low Vision	No of Counties with Low Vision Referral System(Networks) No of Low Vision and Rehabilitation Centres	0	75%	100%	MoH/OSU, CHMTs, Private Health Facilities, Partners	
	Low vision care provided according to community needs	No of Centres Equipped to deliver Basic LV Services	0 0	3 3	5 5		
	Five new functional centres added nationally	Proportion of People requiring LV services, and receiving it (Those Received / Those diagnosed in need)	5%	10%	20%		
5.1.3.5a	Improved uptake of eye health Services	Number of cases Reported in Health facilities,	1.6m	2.25m	3m	MoH/OSU, CHMTs, Partners	
5.1.3.5b Continuous Quality Improvement/ Assurance	Quality Assessment and Improvement framework	Piloted tested and documented quality improvement tool(QIT)	0	1 tool		MoH	
		% of Health facilities using Quality assessment and Improvement tool	0	10%	50%	MoH	
	Integrated Eye Care Quality Improvement teams to Hospital Quality Improvement teams	% of Health Facilities with Eye Care trained Quality Improvement	0	20%	50%	MoH	
		% of Health Facilities with Eye Care included in the Hospital Quality Improvement Team	0	20%	50%	MoH	
		% of Hospitals Implementing Corrective Actions from QIT	0	5%	30%	MoH	

5.1.4 Human Resource for Health

Strategic Objective	Key Outputs	Key Performance indicator	Baseline 2021	Mid-Term 2023	End-Term 2025	Responsibility
5.1.4.1 Adequate HReH is made available at all levels of the health system	1 skills-gap assessment performed.(HReH gap analysis)	Gap-analysis report available. Gap-analysis report disseminated to all 47 Counties and National Govt.	0%	100%	100%	MOH/OSU, CHMT, Partners.
	Rational Distribution of HReH	Proportion of counties with minimum HReH ratios.	25%	50%	75%	MOH/OSU, County Public Service Boards, CHMTs, Partners.
	Counties releasing more workers for HReH training					
	Counties allocating more funds for eye health worker trainings	Proportion of Counties with Workforce in training	TBD	50%	75%	MOH/OSU, Private Health Facilities, Training Institutions, CHMTs, Partners.
	PHCWs Capacity on Eye care integrated into PHC in all Counties.	Proportions of Counties training at least 50% of PHC workers in Primary Eye Care	25%	50%	75%	MOH/OSU, CHMTs, Training institutions, Partners.
	HReH Current in Knowledge and skills through CPDs/ CMEs	Proportion of HReH (OS, OCO/CS and ONs) attaining 50% of required CPD points.	30%	50%	80%	MOH/OSU, Training institutions, Professional Bodies and Private Health Facilities, Partners, Research Teams
	Norms and standards /Scope of Practice for all cadres)	Document--Scope of Practice for All eye health Cadres		1		MoH-OSU
	Accredit training institutions for Optometrists in Kenya(Through KHPOA and CUE)	Accreditaion Report		1		MoH/KH-POA, CUE
	Career Progression Guidelines for Optometrist	Approved Document(Career Progression Guide for Optometrists) for Implementation		1		MoH OSU

Health Information Systems

Strategic Objective	Key Outputs	Key Performance indicator	Baseline 2021	Mid-Term 2023	End-Term 2025	Responsibility
5.1.5.1 Enhance collection and reporting of eye health data at all levels	Improved reporting rates of eye health data into KHIS	RR of EHI	40.2%	75.0%	100.0%	HRIOs, MoH/OSU, Private Health Facilities & Partners
5.1.5.2 Improve quality of data at all levels	Improved quality of eye health data at all levels	Proportion of Counties reporting Timely Accurately	42.0%	65.0%	100.0%	County M&E Officers, CHRIO, MoH/OSU, Private Health Facilities & Partners
5.1.5.3						
Promote outcome monitoring and service quality	Increase number of County referral Hospitals/ facilities conducting cataract audits from 10 to 20 Counties	Percentage of Hospitals/ facilities conducting cataract surgical audits	23%	46%	75%	MoH/OSU, CHMTs, Private Health Facilities, & Partners
5.1.5.4 a Promote data privacy and protection	stakeholders aware and comply with existing data protection laws	% Compliant with data law	0%	100%		MoH
5.1.5.4b Monitoring and evaluation of data management processes	Annual national performance reports produced and disseminated	% of Counties with DQA	5%	30%	6%	MoH

5.1.6 Eye Health Products and Technology

Strategic Objective	Key Outputs	Key Performance Indicator	Baseline 2021	Mid-Term 2023	End-Term 2025	Responsibility
5.1.6.1						
Improved availability of eye drugs and products	Improved availability of eye medicines at the Kenya Medical Supplies Agency (KEMSA)	Increased number of eye medicines available at KEMSA from 14 to 42	33% eye medicines available in KEMSA	60%	100%	MOH, CHMT,
	Monitored flow of eye health commodities in the Counties	Proportion of facilities (CRHs) stocking essential set number of eye commodities, (Medicines, Consumables)	TBD	50%	100%	MoH, CHMTs
	Advocate for increased capacity to manufacture eye drops at KSB	Proportion of National demand for eye drops met by KSB	35%	65%	100%	MOH, KSB
5.1.6.2 Promote innovation and technology in eye health sector	Policy guideline on assimilation of technology in eye health developed	One policy guideline on assimilation of technology in eye health is available and used	0	1 policy	1 policy	MoH/OSU
		m-health solution integrated into eye health service delivery	0	25% health facilities	50% health facilities	MOH/OSU, CHMTs, Private Health Facilities, Partners
5.1.6.2 Optimize supply of consumables for the new (and existing) eye units (through budgeting, appropriate procurement & stock control, as advised by the information systems).	Reduced commodity stock outs in facilities; efficiency & less wastage.	Improved availability of eye health commodities such as optical & surgical supplies; improved fill rate for eye health pharmaceuticals.	25%	50%	75%	MOH/OSU, CHMT, KEMSA, KSB-NEPU, Eye Health Partners.
		Fully functional ICT infrastructure.	20%	50%	75%	
		Tele-Ophthalmology facilities available and in use for information sharing.	20%	50%	75%	

5.1.7 Infrastructure

Strategic Objective	Key Outputs	Key Performance Indicator	Baseline 2021	Mid-Term 2023	End-Term 2025	Responsibility
5.1.7.1 To develop/ provide requisite infrastructure for enhanced eye health service delivery	Standard guidelines for eye health facilities at different KEPH levels developed	Copies of standard guidelines (Document)	0%	100%	100%	MOH/OSU/ Partners
	4 state of the art ultra-modern eye units established at KNH, MTRH, Mombasa, Nyeri	Operational 5 ultra-modern eye units (new)	0%	100%	100%	MOH/OSU to follow up with CS Health and Office of the President.
	10 existing eye health facilities upgraded in 10 Counties	List of 10 upgraded eye health facilities (2020-25)	0%	50%	100%	MOH/OSU/ Partners
	Upgrade National Eye Drop Production Unit-KSB to meet GMP Standards	Inspection Report from PPB	10%	100%		MoH/ KSB/ PPB
5.1.7.2 To avail appropriate equipment for enhanced eye Health service delivery	Requisite eye health equipment Available	% of Eye Health facilities with standard requisite Equipment	40%	70%	90%	National Govt. through MOH/OSU, CHMT reflecting budgets through CIDP, Partners, Biomedical Engineer
	Available Serviceable and Optimized equipment	% Counties with PPM, % Counties with Fully Functional Equipment	50%	75%	100%	MOH/OSU, CHMT, Partners, Ophthalmic Biomedical Engineers.

5.1.8 Research

Strategic Objective	Key Outputs	Key Performance indicator	Baseline 2021	Mid-Term 2023	End-Term 2025	Responsibility
5.1.8.1 Evidence based decision making in eye health	Rapid Assessment of Avoidable Blindness (RAAB-7) (Situation Analysis) done, and used.	RAAB Reports 2022	0	1	1	MoH/OSU, Partners, CHMT & Private Health Facilities
	Kenya Eye Diseases and Systems Survey (KEDSS)	Kenya Eye Diseases and Systems Survey (KEDSS) report	0	1	1	MoH/OSU, Partners, CHMT & Private Health Facilities
	Dissemination of the KEDSS report	Number of Counties receiving dissemination of the KEDSS report	0	30	47	MoH/OSU, Partners, CHMT
	Molecule-Riboflavin for Cross-Linking	Available Local Riboflavin Eye Preparations for cross Linking	0	50%	100%	MoH/ KEMRI/UoN
	Use of Eye Health research data in county planning	No. of counties utilizing research data in planning	0	20	40	CHMT, Partners & Private Health Facilities
5.1.8.2 National Coordination of the research agenda in eye health improved	Comprehensive National Research agenda for Kenya	Documented Research Agenda	0	1	1	MoH/OSU, Partners
	A functional National Eye Health research committee	Functional EHRC				
	A well-equipped, functional and accessible National resource centre for eye Health	Functional Centre for Eye Health Research and Technology Eye Health Data Repository Eye Health Excellence in Research and Technology] Eye Implementation Science and Knowledge Translation	0	1	1	MoH/OSU, Partners
	Utilization of existing eye health data and best/ preferred practices	Number of counties utilizing existing eye health data for planning	0		47	MoH/OSU, Partners, CHMT
	Increased funding for eye health research	Number of publications on local eye health research work utilized	3	6	10	National Eye Health research committee
5.1.8.3 Learning and Teaching	Comparative education and Best/ good practices	2 Conferences	1	2	2	National Eye Health research committee

6 COSTING

NO.	INVESTMENT AREA	TOTAL BUDGET
1.	Eye Health Governance	41,300,000
2.	Eye Health Financing	15,000,000
3.	Eye Health Service Delivery	1,030,000,000
4.	Human Resource for Eye Health	330,400,000
5.	Health Information System	40,500,000
6.	Health Products and Technologies	10,500,000
7.	Health Infrastructure	2,091,000,000
8.	Health Research	593,700,000
	Total	4,158,400,000

Budget Summary

6.1 Budget for Eye Health Sector Governance

No.	Activities	Quantity	Unit Cost (KES)	Total Cost(KES)
1	Develop, print and disseminate the 2021-2025 Strategic Plan for Eye Health	1	3,000,000.00	3,000,000.00
2	Develop National Eye Health policy	1	3,000,000.00	3,000,000.00
3	Implement Kenya Health Sector Partnership Framework/MoUs/Joint Plan of Action and Accountability	3	100,000.00	300,000.00
4	Determine and Develop Priority Guidelines for eye Health	5	3,000,000.00	15,000,000.00
5	Develop Annual Work Plans (AWPs) for eye health	5	1,000,000.00	5,000,000.00
6	Implement Monitoring and Evaluation framework for quality Eye Health	5	3,000,000.00	15,000,000.00
	Sub-total: Eye Health Sector Governance			41,300,000.00

6.2 Budget for Eye Health Care Financing

No.	Activities	Quantity	Unit Cost (KES)	Total Cost(KES)
1.	Advocacy, Communications Collaborations for Resource Mobilization, Allocation and Utilization Activities	5	3,000,000.00	15,000,000.00
	Sub-total: Health Care Financing			15,000,000.00

6.3 Budget for Eye Health Service Delivery

No.	Activities	Quantity	Unit Cost (KES)	Total Cost(KES)
1	Integrate Primary Eye Care into Primary Health Care in 15 Counties	15	5,000,000.00	75,000,000.00
2	Link Eye care services into existing Health Systems in 15 Counties	15	1,000,000.00	15,000,000.00
3	Increase Cataract Surgical Rate from 800 to 1000/ million population	50,000	15,000.00	750,000,000.00
4	Establish Refractive eye care services in 15 disadvantaged Counties	15	10,000,000.00	150,000,000.00
5	Establish Comprehensive Diabetic Retinopathy Centres in 3 centres in the Country	3	5,000,000.00	15,000,000.00
6	Achieve trachoma elimination by 2023	1	-	-
7	Establish 5 Rehabilitation and Low Vision and Counseling Centres	5	5,000,000.00	25,000,000.00
Sub-total: Eye Health Service Delivery				1,030,000,000.00

6.4 Budget for Human Resources for Eye Health

No.	Activities	Quantity	Unit Cost (KES)	Total Cost(KES)
1	Conduct 1 Skills gap assessment every 2 years and disseminate the results	2	4,200,000.00	8,400,000.00
2	Establish 1 centre for collegiate system in Nairobi or Kiambu	1	20,000,000.00	20,000,000.00
3	Establish Mmed Ophthalmology training in other University	1	150,000,000.00	150,000,000.00
4	Decentralize training of Allied Eye Health workers	3	30,000,000.00	90,000,000.00
5	Hire 12 lecturers (4x3) for the 3 decentralized training centres of Allied Eye Health workers	12	3,600,000.00	43,200,000.00
6	Facilitate equitable distribution of 4 Ophthalmologists through support for training in disadvantaged Counties	4	3,000,000.00	12,000,000.00
7	Facilitate equitable distribution of 8 Ophthalmic Clinical Officers through support for training in disadvantaged Counties	8	250,000.00	2,000,000.00
8	Facilitate equitable distribution of 12 Ophthalmic Nurses through support for training in disadvantaged Counties	12	150,000.00	1,800,000.00
9	Train 10 Ophthalmic Medical Equipment technicians (2 at National and 8 at Regions)	10	300,000.00	3,000,000.00
10	Accredit training institutions for Optometrists in Kenya(Through KHPOA and CUE)	2	3,000,000.100	6,000,000.00
11	Develop Career Progression Guidelines for Optometrist	1	3,000,000	3,000,000.00
Sub-total: HReH				330,410,000.00

6.5 Budget for Eye Health Information Systems

No.	Activity	Quantity	Unit Cost (KES)	Total Cost(KES)
1	Develop outpatient data collection registers, update Eye Health Information Indicators on MOH 735 A & B, lobby for inclusion of eye indicators in the MOH 515 tool	2,000	500.00	1,000,000.00
2	Monitor the number of facilities reporting eye health services and find ways to improve reporting rate in 15 facilities	15	300,000.00	4,500,000.00
3	Carry out annual regional Data Quality Assurance exercises, regional analysis of eye health information and regional eye health information review and feedback meetings.	5	3,000,000.00	15,000,000.00
4	Hold National Eye Health Information review and feedback meeting annually	5	1,000,000.00	5,000,000.00
5	Carry out Hospital based Cataract Surgical Outcome Monitoring and use data to improve cataract services in 10 facilities	10	1,000,000.00	10,000,000.00
6	Carry out biannual M&E of eye care services	20	250,000.00	5,000,000.00
Sub-total: Health Information Systems				40,500,000.00

6.6 Budget for Health Products and Technologies

No.	Activity	Quantity	Unit Cost (KES)	Total Cost(KES)
1	Increase the number of eye health commodities in the National Essential Medicines List and KEMSA list	5	-	-
2	Develop guidelines for health products and technology for eye care	1	3,000,000.00	3,000,000.00
3	Use of Commodity Management Information System to track eye health medicine and commodity donations to avoid wastages, and sensitize donors and eye care workers on the same	7	1,000,000.00	7,000,000.00
4	Document new innovations and best/preferred practices especially in movement and distribution of eye health products to avoid wastage.	5	100,000.00	500,000.00
5	Improve access to good quality low cost frames, lenses, low vision devices and presbyopia correction	>45yrs(40% of 6m) <14yrs(100%)		560,000,000.00 1,000,000,000.00
Sub-total: Health Products and Technologies				10,500,000.00

6.7 Budget for Eye Health Infrastructure

No.	Activity	Quantity	Unit Cost (KES)	Total Cost(KES)
1	Develop standard guidelines for eye unit designs	1	3,000,000.00	3,000,000.00
2	Construct 5 new state of the art eye units in the country	5	350,000,000.00	1,750,000,000.00
3	Upgrade 10 eye health facilities in 10 Counties	10	10,000,000	100,000,000
	Upgrade National Eye Drop Production Unit-KSB	1	64,000,000	64,000,000
4	Purchase identified eye health equipment	47	5,000,000.00	235,000,000.00
5	Monitor the utilization of eye health equipment through inventory taking, PPM, regular Audits and replacement of unserviceable ones	10	300,000.00	3,000,000.00
Sub-total: Eye Health Infrastructure				2,091,000,000.00

6.8 Budget for Eye Health Research

No.	Activity	Quantity	Unit Cost (KES)	Total Cost(KES)
1	Rapid Assessment of Avoidable Blindness (RAAB-7) (Situation Analysis) done, and used.	1	75,000,000.00	75,000,000.00
2	Carry out Kenya Eye Diseases and Systems Survey (KEDSS)	1	350,000,000.00	350,000,000.00
	Develop Eye drop Molecule-Riboflavin for Cross-Linking	1	30,000,000.00	30,000,000.00
3	Dissemination of the KEDSS report	3	300,000.00	900,000.00
4	Utilize Eye Health research data in county planning	47	-	-
5	Establish a functional National Eye Health research committee established	1	100,000.00	100,000.00
6	Establish a well-equipped, functional and accessible National resource centre for eye Health	1	100,000,000.00	100,000,000.00
7	Develop a focused National eye health research agenda	1	3,000,000.00	3,000,000.00
8	Utilization of existing eye health data and best/preferred practices	47	100,000.00	4,700,000.00
9	Increased funding for eye health research	25	2,000,000.00	50,000,000.00
10	Conduct 10 Research Manuscript writing workshops to enhance local publications	10	1,000,000.00	10,000,000.00
Sub-total: Eye Health Research				593,700,000.00

7 Appendixes

7.1 Appendix I: Status of specific policies and guidelines

Topic	Policy / guideline	Status	Part of the strategy
Glaucoma	National guideline ²⁾		
Trachoma	<ul style="list-style-type: none"> Kenya National Plan for Elimination of trachoma (KNPET) 2008-2015 ¹⁾ Neglected Tropical Diseases (NTD) Strategic Action Plan 2010-2015 ¹⁾ Kenya Trachoma Action Plan (KTAP) 2011-2021 National Breaking Transmission strategy 2019-2023 		
Diabetic Retinopathy	<ul style="list-style-type: none"> Guidelines ^{1), 3)} IEC materials ^{1), 3)} 		
Primary Eye Care	<ul style="list-style-type: none"> 2 guidelines ¹⁾ 2 manuals ¹⁾ IEC materials ¹⁾ 		
Retinopathy of Prematurity (ROP)	Guideline 2018 ²⁾		
Retinoblastoma	Guidelines ³⁾		
Childhood diseases	<ul style="list-style-type: none"> Inclusion of eye examination into maternal and child health booklet (MOH 216) ²⁾ manual for medical and health workers ²⁾ Policy on early detection, management, and referral of childhood eye conditions (by 2017) ²⁾		
School health	Policy with specific guidelines ²⁾		
Ocular Allergy	Clinical Grading Guide ⁴⁾		
Low Vision	National guidelines ¹⁾ Manuals ¹⁾		
Optical services / practice	Standard basic refraction guide ²⁾		

Status: Green = developed, yellow = in progress, red = not developed

Sources:

- “Report of the evaluation of the National Strategic Plan for Eye Health and Blindness Prevention 2012 – 2018”, Ophthalmic Services Unit, Ministry of Health, Republic of Kenya, International Development Institute – Africa (IDIA), Nairobi, Kenya, April 2018
- “National Eye Health Strategy 2021 – 2050”, Ministry of Health, Kenya, 2021
- “Evidence for national universal eye health plans”, Jacqueline Ramke, Anthony B Zwi, Juan Carlos Silva, Nyawira Mwangi, Hillary Rono, Michael Gichangi, Muhammad Babar Qureshi & Clare E Gilbert, Bull World Health Organ 2018;96:695–704
- “Managing Ocular Allergy in Resource Poor Settings”, Millicent Bore Lecturer: Department of Ophthalmology, College of Health Sciences, University of Nairobi, Kenya. Comm Eye Health Vol. 29 No. 95 2016 pp 47 – 49, published online 10th February 2017

7.2 Appendix II: Kenya Essential Medicine List 2019, Ophthalmology Preparations

#	Medicine Name	Dose-form	Strength/Size	LoU
22. OPHTHALMICAL PREPARATIONS				
22.1 Anti-infective agents				
22.1.1	Acyclovir410	Eye ointment	3%	4
22.1.2	Azithromycin	Eye drops	1.5%	5
22.1.3	Erthromycin411	Eye ointment	0.5%[c]	4
22.1.4	Gentamicin +	Eye drops	0.3% (as sulphate)	2
22.1.5	Gentamicin Dexamethasone	Eye drops	0.3%+0.1%	4
22.1.6	Natamycin413	Eye drops	5%	5
22.1.7	Ofloxacin	Eye drops	0.3% (as sulphate)	4
22.1.8	Tetracycline	Eye ointment	1% (as HCl)	1
22.2 Anti-inflammatory agents				
22.2.1	Fluoromethalone414	Eye drops	0.1%	3
22.2.2	Ketorolac trometamol415	Eye drops	0.5%	4
22.2.3	Methylprednisolone416	PFI	1g vial (as sodium succinate)	5
22.2.4	Prednisolone	Eye drops	1% (acetate) (5mL)	4
22.2.5	Triamcinolone acetonide417	Injection(aq.suspension)	40mg/1mL amp	5
22.3 Local Anesthetics				
22.3.1	Tetracaine418	Eye drops	0.5% (as HCl)	4
22.4 Miotics and anti- glaucoma medicines				
22.4.1	Acetazolamide419	Tablets	250mg	4
22.4.2	Dorzolamide	Eye drops	2% (as CHI)	4
22.4.3	Latanoprost	Solution(eye drop)	0.005%	4
22.4.4	Pilocarpine420	Solution(eye drop)	4% (as CHI or nitrate)	5
22.4.5	Timolol	Eye drops	0.5% (as hyd. maleate	4
22.5 Mydriatics				
22.5.1	Atropine	Eye drops	0.1% (as sulphate) [c]421	4
		Eye drops	0.5% (as sulphate)	4
22.5.2	Tropicamide Phenylephrine422	Eye drops	0.8% +5% w/v	4
22.6 Anti-vascular endothelial growth factor (VEGF) preparation				
22.6.1	Bevacizumab	injection	25gm/ml (4 mL vial)	6
22.7 Allergy medicine for the eye				
22.7.1	Azelastine423	Eye drops	0.05%	2
22.7.2	Sodium cromoglicate	Eye drops	2%	5
22.8 Other Medicines for the eye				
22.8.1	Hypertonic saline424	Eye drops	3%	5
22.8.2	Methyl cellulose425	Eye drops	0.3-1%	4

Appendix III: MINIMUM SET EYE MEDICINE IN A GENERAL HOSPITAL

CATEGORY	EYE DROPS
DIAGNOSTICS	o Tetracaine
	o Tropicamide
CYCLOPLEGIC	o Atropine
STEROIDS	o Prednisolone
STEROID / ANTIBIOTIC	o Gentamycin / Dexamethasone
MAST CELL STABILIZER	o Sodium Chromoglycate
BETA BLOCKERS	o Timolol
ANTIBIOTICS	o Gentamycin
	o Ofloxacin
LUBRICANT	o Methyl Cellulose
Antifungal	o Econazole

Note; This is a list of bear minimum set of eye medicines / molecules / eye drops recommended to be stocked in a hospital to meet the basic eye care needs.

7.3 Appendix IV: Eye Unit Summary Reporting Tool

MINISTRY OF HEALTH- OPHTHALMIC SERVICES UNIT													MOH-735									
FACILITY.....													DATE:		TO.....		STATIC / OUTREACH					
New Patient <16 M.....F..... >16 Revisits <16 M.....F..... >16													TOTAL									
Visual Acuity (better eye) - All Patients													Children		Normal (6/6-6/18)		Low Vision (>6/18-3/60)		Blind (<3/60-NPL)		TOTAL	
Age in years													<5yrs		5-<16yrs		>16yrs		5-<16yrs		>16	
SEX													M F		M F		M F		M F		M F	
CLINICAL DIAGNOSIS																						
1. Normal																						
2. Cataract																						
3. Pseudoshakia																						
4. Glaucoma																						
5. Strabisumus/ Amblyopia																						
6. Presbyopia																						
7. Other Refractive errors																						
8. Active Trachoma TT/TF																						
9. Inactive Trachoma TS/TT																						
10. Cornea Scar-Trachoma (CO)																						
11. Cornea Scar Injury or infection																						
12. Prulent Conjunctivitis																						
13. Allergy Conjunctivitis																						
14. Other Conjunctivitis																						
15. Ophthalmic Neonatrum																						
16. Cornea Conjunctiva FB																						
17. C ornea Ulcer																						
18. Keratitis																						
19. Xeropathalmia																						
20. Optic Atrophy (non-glaucoma)																						
21. Optic Neuritis																						
22. Diabetes without Retinopathy																						
23. Diabetes with Retinopathy																						
24. Other Retinopathy																						
25. Muscular Disease																						
26. Injuries																						
27. Uveitis																						
28. Chalazion/Stye																						
29. Conjunctive growth																						
30. Retinoblastoma																						

Appendix VI; CONTINUOUS QUALITY IMPROVEMENT PROCESS INDICATORS

			Frequency
Surgical Conversion Rate	80%	Total no of Patient who come for Surgery / Total No of Patients advised for surgery	Monthly
Theatre Starting Time	90% set time	Total no of times Theatre Started on Set Time / Total no of Theatre days	Monthly
Inter-Operative Time	<10mins	Average time interval between patients	Daily
Post Op Infection	0.08%	No of post op infection / No of all Surgical Operations	Annually
Post Postponed Surgical CaseS	4%	No of Surgical Cases Post Poned / Total No of Patients in the theatre lists	Quarterly
OPD-Clinic Starting Time	90% set time	Total No of times Eye Clinic Started on set time / Total no of Clinic Days	Monthly
CSOM	20% Improvement till 90% good outcome	% of Patients with VA 6/18 or better on day 2 (Day of discharge)	Quarterly
		% of Patients with VA better than 6/18 at week 12.	
Data QUALITY	90% Timely	% of data sent on time	Quarterly
	90% Accuracy	% of data accurate	
Surgical Complication Rate	3%	% of Surgical Cases Complicating.(Post op Infection, failed procedure as planned,)	Quarterly
Patient Satisfaction	95%	% of Patient Satisfied with the services Clinic Ward/Theatre	Monthly
Spectacle Correction, Use of Spectacles		Is there effort to measure quality of Refraction in a hospital?	Annual
Use of Available Clinical Guidelines			Annual
Available Clinical Audit Report			Annual
Interprofessional collaboration		Joint CPDs	Quarterly
Trained Quality Improvement Team in Place (Team Lead, HRIO, ONurse)		Trained QIT, Integrated QIT to Hospital QIT	Annual

7.4 Appendix VII: Eye Service Delivery Definitions

KEPH level 2 Services/Tier 2

Services: Eye Health promotion and education, Identification and referral of common eye diseases and treatment of simple eye ailments. Ophthalmic services are integrated with other services. **Infrastructure:** May use a shared room with other services. **Equipment:** Must have a torch, well displayed Snellen's Chart with a 6 metre mark and shows evidence of being used. **Basic human resources:** Nurse trained in basic primary eye care e.g. the OSUC graduates or CHEW.

KEPH level 3 Services/Tier 2

Services: Medical treatment of eye conditions, minor surgical procedures, simple refraction. **Infrastructure:** A fully fledged eye clinic and a minor theatre. May have an optical workshop. **Equipment:** Basic eye care equipment including Snellen's charts, torch, direct ophthalmoscope, Schiottz tonometer, diagnostic medicine, range of basic eye medicines, trial set, Retinoscope, minor surgery equipment. May have a slit lamp. **Basic human resources:** Must have an ophthalmic clinical officer or an Ophthalmic Nurse plus Optometry technologist and or Optical Technician.

KEPH level 4 services/Tier 3

Services: As for Level 2 & 3 plus Medical and surgical treatment of eye diseases and refractive and low vision services. **Infrastructure:** A separate eye unit with a waiting bay, consultation rooms, operating theatre, low vision clinic and optical workshop. **Equipment:** As for level 3 plus more sophisticated diagnostic and surgical equipment plus refractive services. This include; indirect ophthalmoscope, Slit lamp, Applanation tonometer, biometry, YAG laser, Operating tables, operating microscopes, sterilizers, Cataract, Glaucoma and lid surgery sets, anterior Vitrectomy machine and patient monitoring capability. **Basic human resources:** Must have an OCO/cataract surgeon in addition to ophthalmic clinical officer and Ophthalmic Nurse. Additionally, should have Optometry Technologist and Optical Technician. May have Ophthalmologist, Optometrist, and a general support nurse(s).

KEPH level 5 services/Tier 3

Services: As for Level 4 plus advanced medical, surgical, refractive, laser treatment, low vision and other rehabilitative services (Comprehensive eye care services). The unit should offer training for trainee specialists. **Infrastructure:** A separate eye unit with a waiting bay, multiple consultation rooms, wards, minor and major operating theatre, darkroom, unit pharmacy and optical workshop. **Equipment:** As for Level 4 plus sophisticated diagnostic and surgical equipment plus refractive services and low vision services. Additional equipment will include; Optical Coherence Tomography (OCT), Visual Fielder Analyzers, Indirect Ophthalmoscope, Applanation tonometer, Biometry, B-scan, YAG Laser, Retina laser, Phaco-emulsification machine, Anterior and posterior victrector, Operating tables, Cataract sets, Glaucoma sets, Lid surgery sets, GA machine and patient monitoring capability. **Basic human resources:** Must have an ophthalmologist with provision for sub-specialists. Additionally, should have 1 or 2 OCO/Cataract surgeons, ophthalmic clinical officers, and ophthalmic nurses, an Optometrist, Optometry Technologists and Optical Technicians.

KEPH level 6 services/Tier 4

Services: As for Level 5 plus more advanced medical, surgical, refractive, laser treatment, low vision and other rehabilitative services (Comprehensive eye care services). Additional services include; vitreo-retinal surgery, squint surgery, laser treatment, oculoplastic and corneal transplant services. The unit should offer training of undergraduate and postgraduate medical students. **Infrastructure:** A separate eye unit with a waiting bay, multiple consultation rooms, wards, minor and major operating theatre, darkroom,

unit pharmacy and optical workshop. **Equipment:** As for Level 5 plus more sophisticated diagnostic and surgical equipment plus refractive services and low vision services. Additional equipment will include; Optical Coherence Tomography (OCT), Visual Field Analyzers, Indirect Ophthalmoscope, Applanation tonometer, Biometry, B-scan, YAG Laser, Retina laser, Phaco-emulsification machine, Anterior and posterior vitrector, Operating tables, Cataract sets, Glaucoma sets, Lid surgery sets, GA machine and patient monitoring capability. **Basic Human Resources:** Must have multiple Ophthalmologists, OCO/Cataract surgeons, Ophthalmic Clinical officers, Ophthalmic Nurses, Optometrists, Optometry Technologists, and Optical Technicians. There will be provision for sub-specialty Ophthalmologists in vitreoretinal surgery, oculoplastic, Glaucoma, Paediatrics ophthalmology, anterior segment and squint surgery among others. This includes ophthalmologists working in the national referral facility or from the University faculty.

7.5 Appendix VIII: Minimum Required Resources

	Community Health Services (Level 1)	Primary Care Services (Level 2 & 3)	County Referral Health Services (Level 4 and 5)			National Referral Services (Level 6)
	Community Unit	Dispensaries and Health Centres	Sub-county hospital	County Referral Hospital	Regional Hospital	National Hospitals
Catchment Area (population)	5,000	5,000	100,000	1,000,000	5,000,000	5,000,000
Basic HReH required						
CHV	100	TBC				
CHEW / Nurse trained in basic primary eye care	2	TBC				
Optometry Technologists			10	10		
Optical technologist				10	50	50
Ophthalmic Nurses			10	10	50	50
OCOs			10	10	50	50
OCO/Cataract Surgeons			5	5	25	25
Ophthalmologists				4	20	20
Sub-specialized Ophthalmologists					39	10
Optometrists			4	4	20	20
Minimum required Infrastructure		Dedicated or shared room, Snellen's chart, Torch	2 or more dedicated rooms with basic equipment for surgery and refractive services. Dedicated or shared eye theatre	Separate Eye unit with waiting bay and consultation rooms, operating theatre, basic equipment for surgery and refractive services	Eye Hospital, Centre or Eye unit with at least 3 consultation rooms, wards and theatre and training facility for eye health trainees	As for level 5 plus sub-specialized Ophthalmologists and training facility for both under and post-graduate students
				Optical workshop		

Minimum required services	H/E & Promotion, Outreach services, TT Case finding	H/E & Promotion, Outreach services, TT Case finding, identification & Referral of common eye diseases, Treatment of simple eye ailments, Integration into other Health services	Medical and surgical treatment of eye diseases plus refractive and rehabilitative services. H/E & Promotion, Outreach services, Management of residual TT Cases, identification & Referral of major eye diseases.	As at Level 3 plus advanced medical, surgical, refractive and rehabilitative services	As at Level 4 plus more advanced medical, surgical, refractive and rehabilitative services including some sub-specialty services e.g. Laser treatments, Pediatric surgery etc.	As at Level 5 plus sub-specialty services including: Vitreo-retinal surgery, Squint surgery, Oculoplastic, Corneal transplant, Laser treatments etc. National level training for under and post-graduate students
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7.6 Appendix IX: Possible Facility Ownerships in Kenya

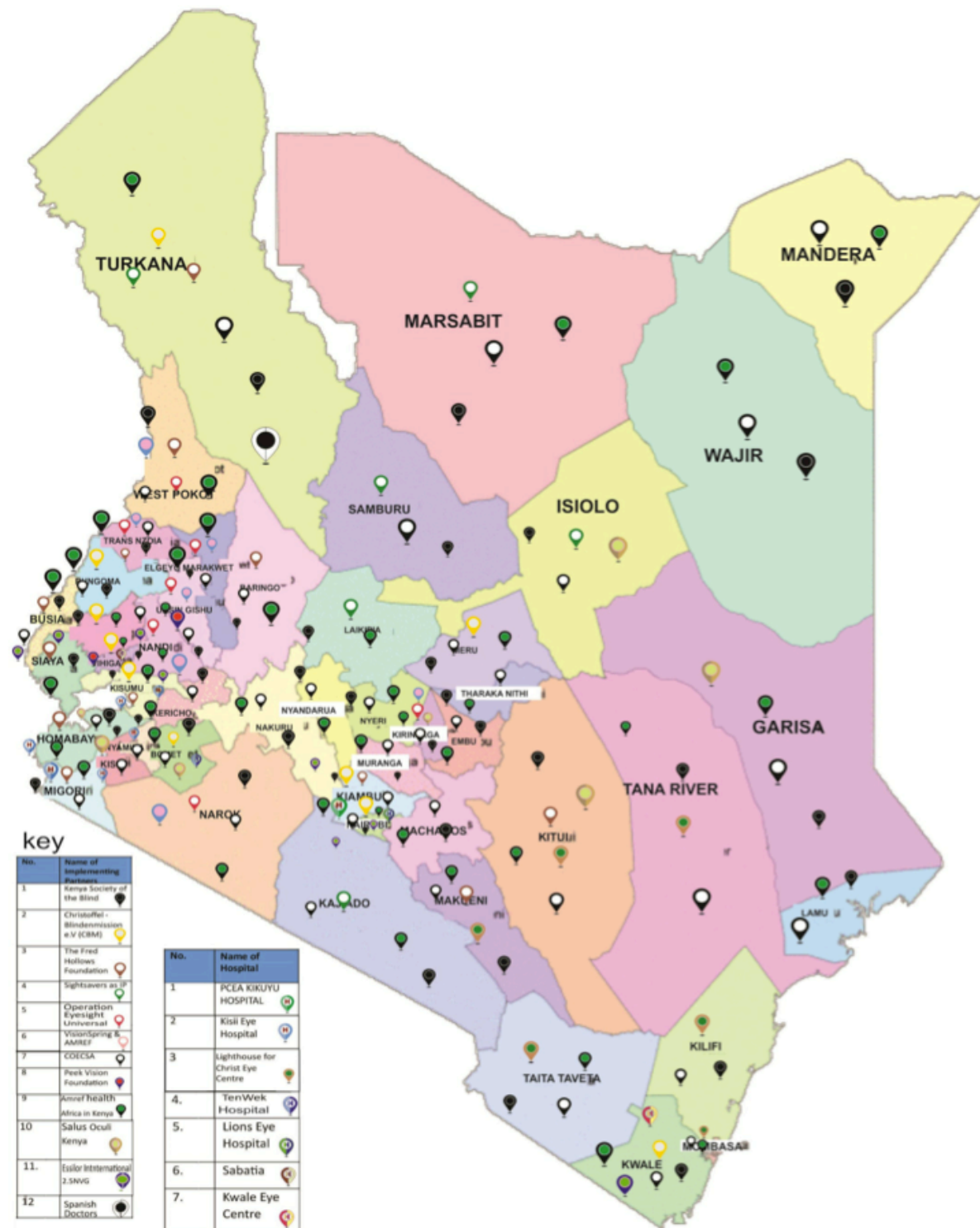
1. State Corporation
2. Ministry of Health
3. Local Authority
4. Prisons
5. Armed Forces
6. Academic (if registered)
7. Parastatal
8. Community
9. Other Public Institution
10. Christian Health Association of Kenya
11. Kenya Episcopal Conference
12. Supreme Council for Kenya Muslims
13. Other Faith Based
14. Non-Governmental Organizations
15. Humanitarian Organisation
16. Private Enterprise (Institution)
17. Private Doctor's Practice
18. Private Nursing Clinic
19. Private - Clinical Officer's Clinic
20. Private - Other
21. Company Medical Service

GOK (2016). Kenya Master Facility List Guidelines, Ministry of Health, Appendix C

Appendix X: Sample County Eye Health Annual Work Plan Template

NAME OF THE COUNTY;											
HOSPITAL; Eye Hospital/Eye Unit/Eye Clinic											
Result Area	Main Activities	Outputs	Performance Indicators	Target Output	2020/2021				Costed requirement (KShs)	Gap	Level of Funding (%)
					Q1	Q2	Q3	Q4			
Eye Health sector governance											
Health care financing											
Human Resources for eye health											
Eye Health Information Systems											
Eye health service delivery											
Health Products and Technologies											
Eye Health Infrastructure											
Eye health research											
Total											

Note: Annual Work Plan is best worked on an excel sheet to introduce as many rows as necessary to accommodate multiple activities under each result area.



Appendix XIb; : List Mapping of Stakeholders in Eye Health

Name	Institution
1. Dr. Michael Gichangi	MOH, Head of Ophthalmic Service Unit
2. Dr. Dorothy Mutie	KMTC
3. Dr. Stephen Gichuhi	UON
4. Dr. Lucy Manyara	KMTC
5. The Fred Hollows Foundation	Implementing Partner
6. Sight savers	Implementing Partner
7. Universal Operation Eyesight	Implementing Partner
8. Vision Spring	Implementing Partner
9. COECSA	Implementing Partner/Training
10. Peek Vision Foundation	Implementing Partner
11. Amref health Africa in Kenya	Implementing Partner
12. Essilor 2.5	Implementing Partner
13. Spanish Doctors	Implementing Partner
14. Salus Oculi Kenya	Implementing Partner
15. PCEA KIKUYU HOSPITAL	Hospital
16. Kisii Eye Hospital	Hospital
17. City Eye Hospital	Hospital
18. Light house for Christ Eye Centre	Hospital
19. Tenwek Eye Hospital	Hospital
20. Lions Eye Hospital	Hospital
21. Sabatia Eye Hospital	Hospital
22. Kwale Eye Centre	Hospital

7.7 Appendix XII: National Eye Health Strategy 2020-2025-Technical Working Group

Name	Institution
1. Dr. Michael Gichangi	MOH, Head of Ophthalmic Service Unit
2. Dr. Dorothy Mutie	KMTC
3. Dr. Stephen Gichuhi	UON
4. Dr. Lucy Manyara	KMTC
5. Milliam Kamau	Nairobi County/ Mbagathi Sub-County Hospital
6. Dr. Ernest Ollando	MTRH
7. Ernest Atemo	Optometry Association of Kenya
8. Sr. Perpetua Nyakundi	MOH OSU
9. Dr. Monicah Bitok	MOH OSU
10. Catherine Mwaura	KMTC
11. Alice Mwangi	Country Manager, OEU
12. Dr. Rebecca Oenga	Kajiado County Referral Hospital
13. Elizabeth Oyugi	Country Manager Sight Savers
14. Jane Ohuma	Country Manager FHF
15. Peter Mugodo	Eye Health Programme Manager/Sabatia Eye Hospital
16. Ernest Wanyama	MOH OSU
17. Kennedy Olwenya	FHF
18. Michael Mwenda	CBM
19. Victoria Bairu	CBM
20. Kevin Sudi	CBM
21. David Munyendo	CBM
22. Agnes Ireri	Kikuyu Eye Hospital - Eye Unit, Low vision
23. Caroline Kemunto	KNH
24. Dr Mpekethu Miingaine	Meru county
25. Dr Angela K. mokaya	Embu County
26. Jepherson Mwasi	Kwale County
27. George Taliani	Mombasa
28. Dr Fredrick kagonda	Kiambu
29. Dr Morris Musyoki	Nakuru
30. Geoffrey Kiptoon	Bomet
31. Dr Austin Ajevi	Kakamega
32. Lauryn Kiplagat	Vihigha
33. DR. Hazel Mumbo	Consultant

Appendix XIII; List of the ICC- Eye Health Membership[National Eye health Working Group]

No.	Organization	Role	Current Member
1	Ministry of Health, Head: Department of National Health Systems Strengthening	Chairman	Dr. Julius Ogato
2	Ministry of Health, Head: Ophthalmic Services Unit	Secretary	Dr. Michael Gichangi
3	World Health Organization (WHO)	Technical Advisor to MOH	Dr. Joyce Nato
4	University of Nairobi (UON)	Chairman, Department of Ophthalmology	Prof. Jefitha Karimurio
5	Kenya Medical Training College (KMTC)	Rep.Head of Ophthalmology training	Dr. Lucy Manyara
6	Christoffel-Blinden Mission eV (CBM)	Country Director	David Munyendo
7	Kenya Society for the Blind (KSB)	Executive Director	Solomon Bukhala
8	Sightsavers	Country Director	Elizabeth Oyugi
9	Operation Eyesight	Country Manager	Alice Mwangi
10	Fred Hollows Foundation (FHF)	Country Manager	Jane Ohuma
11	AMREF Health Africa	Programme Officer	Juma Chitiavi
12	Salus Oculi Kenya (SOK)	Country Director	Michael Ngeno
13	Kenyatta National Hospital (KNH)	Chairman, Ophthalmology Department	Dr. P.T. Nyaga
14	Moi Teaching and Referral Hospital	Head, Department of Ophthalmology	Dr. Ernest Ollando(Rep)
15	Kikuyu Eye Unit/Sabatia- FBO	Team Lead- Eye Unit	Dr Faith Masilla
16	Council of Governors (COG)	Rep.Council of Governors	Vacant
17	Ophthalmological Society of Kenya (OSK)	Chairman	Dr. Fredrick Korir
18	Ophthalmic Clinical Officers Association (OCOFA)	Chairman	Mr. George Ohito
19	Ophthalmic Nurses Association (ONA)	Chairperson	Ms. Catherine Mwaura
20	Optometry Association of Kenya (OAK)	Chairperson	Mr. Ernest Atemo(Rep)
21	Kenya Association of Opticians	Chairman	Mr. Nderitu Njani
22	Kenya Health Federation	Chief Executive officer	
23	Private Practitioners	Representative	

Ministry of Health,
Afya House, Cathedral Road,
P.O. Box:30016-00100, Nairobi, Kenya.