

The African Council of Optometry,  
the Brien Holden Vision Institute,  
The International Agency for the  
Prevention of Blindness and Vision Aid Overseas

# SITUATION ANALYSIS OF OPTOMETRY IN AFRICA



Promoting Sight | Preventing Blindness | Enhancing Life

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“We are like dwarfs sitting on the shoulders of giants. We see more, and things that are more distant, than they did, not because our sight is superior or because we are taller than they, but because they raise us up, and by their great stature add to ours” (*Isaac Newton*)

This Situation Analysis benefitted from the input of many people and we would like to acknowledge the specific contributions of Prof. Kovin Naidoo, Senanu Quacoe, Anguyo Dralega, Nigel Wilson, Kesi Naidoo, Pirindha Govender, Vingfai Chan and Simon Day.

**Photo Credit: BHVI**

## 1. BACKGROUND

Globally, according to Naidoo, Leasher et al., 2016, it is estimated that 153 million people are visually impaired due to uncorrected refractive errors and a further 517 million have uncorrected presbyopia making a total of 640 million people who are blind or visually impaired simply because they don't have a pair of glasses. In Africa, it is estimated that 19,862,425 are visually impaired with a further 103,010,578 with uncorrected presbyopia. Major milestones in addressing this challenge in Africa include:

### 1998: Launch of The African Council of Optometry (AFCO)

### 2000: Vision 2020:

The Right to Sight: This WHO-IAPB initiative to eliminate avoidable blindness was launched in Africa in 2000 in Cape Town and in 2001 in Bamako. Uncorrected Refractive Error (URE) and low vision were two priority diseases identified by Vision 2020. A key challenge to implementing a Vision 2020 plan for URE and low vision is the need to effectively and swiftly address the need for human resources.

### 2007:

First World Congress on Uncorrected Refractive Error. Bearing this in mind, in 2007 over 650 delegates representing eye care professionals, researchers, civil society, governments and industry met in Durban, South Africa for the first World Congress on Refractive Error and declared inter alia, their full support for Vision 2020, their willingness to work together to develop comprehensive eye and health care services for the correction of refractive errors and their determination to prioritise communities, countries and regions in greatest need, particularly children, adults over 45 and women.

### 2012:

IAPB Africa took this and other issues forward in a ground breaking meeting in Kenya in December 2012 when planning for Human Resources for eye Health (HReH), including optometry, was central to the agenda. The following extract from the Report highlights key issues going forward:

### A range of actions for the medium and longer term were recommended:

Medium Term	Progress
Relevant data collection started as per the stated information needed in the strategy.	See IAPB Africa HReH Database and Training Directory.
In consultation with WCO, BHVI, leading training institutions and recognized experts, develop minimum required qualification standards for Optometrists trained in Africa.	Core competencies for optometrists in Africa now with WHO-Afro for validation. Attached as Appendix 2.
Advocacy strategy and implementation plan developed for the integration of Optometry into the Public Health System.	Underway in 8 pilot countries as part of a wider integration into national HRH strategies.
Long Term	Progress
What is an Optometrist? Role and competencies of an Optometrist. This Concept to be accepted within 3 years by key stakeholders.	Under validation by WHO-Afro.
Advocacy strategy and implementation for the acceptance of the WCO concept of optometry by all key stakeholders	Underway.
Optometric posts created in MOH, Public Health structure.	Created in many countries .
Optometry recognized and registered with the relevant Health Professions Councils.	Recognised in the majority of countries.

## The meeting called for a paradigm shift in optometry planning.

Old Paradigm	New Paradigm
A poor understanding of what an optometrist is.	Acceptance of the WCO competency based model that defines the minimum training standards for an Optometrist.
Optometry is not integrated into the public health system.	Optometry needs to have a recognized role within the public health delivery system.
Optometry has previously not been in the WHO structure, therefore not a typical cadre in public health systems at country levels.	Optometry should be integrated in the WHO structure and cadres recognized in public health systems.
Training programs not standardized within and harmonized between countries throughout Sub-Saharan Africa.	Harmonization of curricula and qualification standards based on the WCO competency levels.

## Key Barriers that Prevent us from Adopting a Paradigm Shift.

- Resistance from existing cadres and professional bodies due to concerns about the impact of Optometry on their professional scope of practice and on their income.
- Budget constraints on new posts make Governments resistant to creating a new cadre within the health system.
- A general lack of political will to drive the process and the bureaucratic process can mean it takes years to affect change.
- Unwillingness to train personnel for whom there is no definite job.
- Resistance to change from existing training institutions due to challenges around faculty, infrastructure and support.

## 2. WHAT IS UNCORRECTED REFRACTIVE ERROR

Uncorrected refractive error (URE) is a leading cause of global blindness and visual impairment.

Refractive errors (**ametropias**) are ocular conditions that result from an imbalance between refractive power and axial length of the eye and can be rectified by corrective lenses or refractive surgery. The most common types of refractive error, **myopia**, **hyperopia** and **astigmatism**, occur in an unaccommodated eye when parallel light rays are not brought into sharp focus precisely on the retina, thus producing a blurred retinal image.

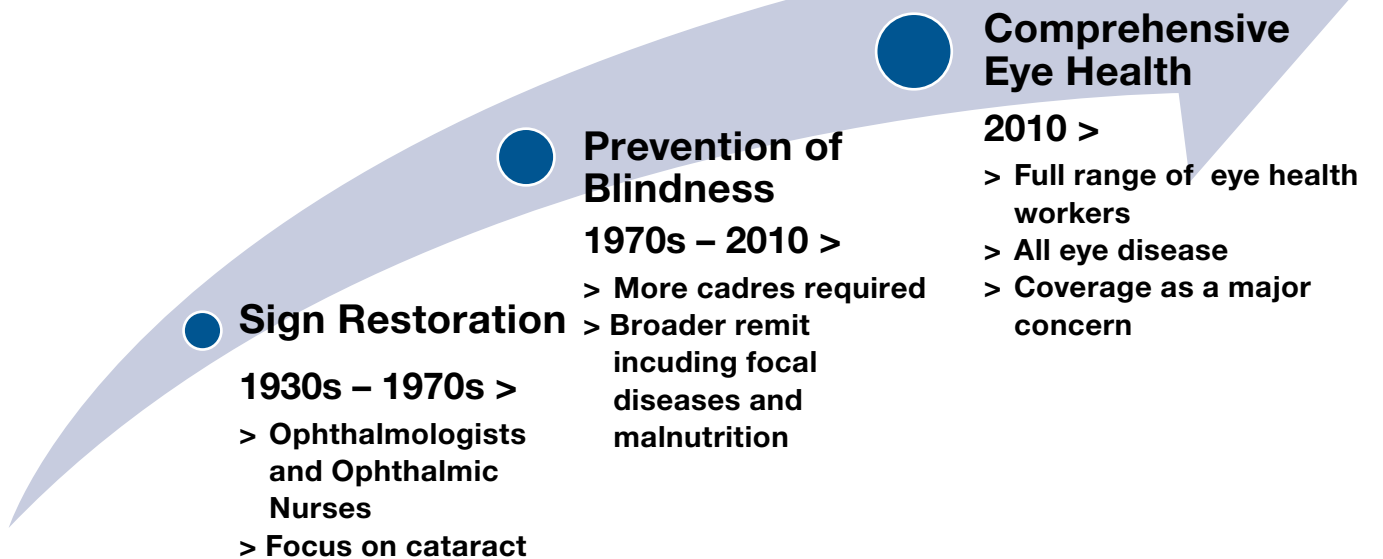
**Presbyopia**, an additional type of refractive condition in which the ability to accommodate is generally associated with ageing and is considered to be physiological rather than pathological, occurring almost universally.

As commonly occurring conditions, refractive errors are a cause of public health and economic concerns, with high costs associated with their correction. Refractive errors, even at moderate levels, are associated with other ocular complications and visual impairment (*Johnson & Minassian, The Epidemiology of Eye Disease, 3<sup>rd</sup> Edition, 2012, Chapter 11*).

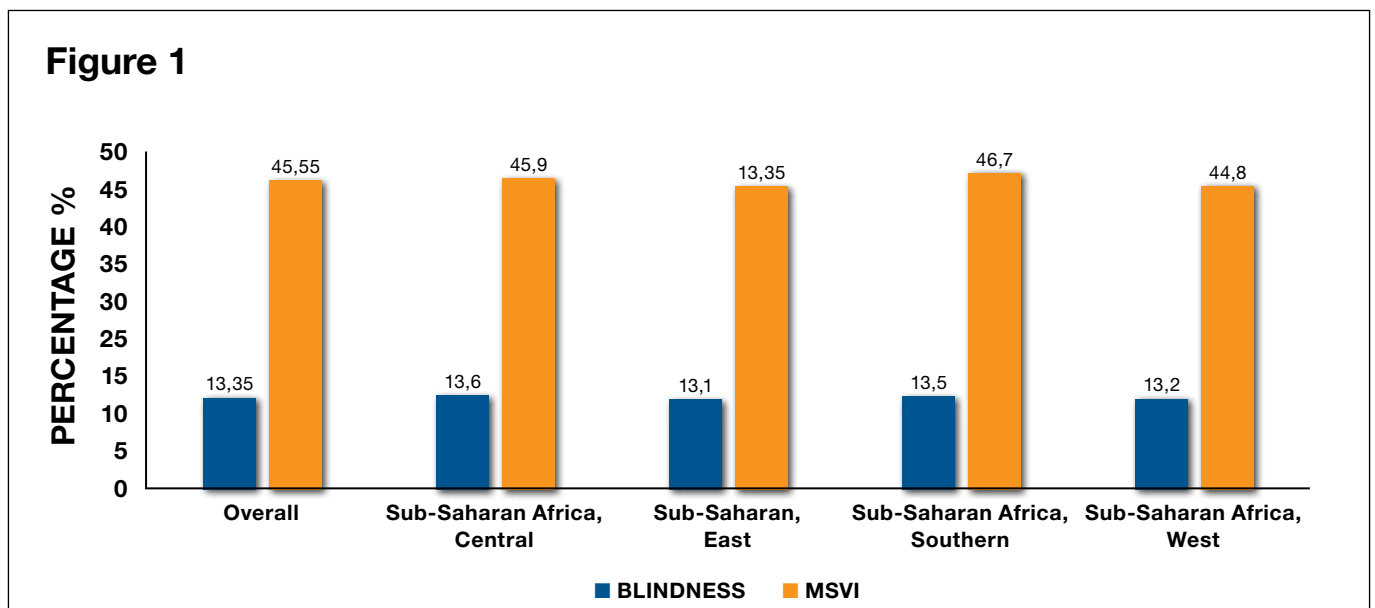
The refractive state of the eye is a continuum and changes throughout life leading to variations at different stages of life. Because of these variations, information is often presented by age category and type of refractive error. URE in children may lead to the development of amblyopia, which may hinder school performance.

## 3. THE BURDEN OF DISEASE

Our appreciation of the burden of eye disease has increased enormously over the last 50 years as reliable data becomes increasingly available. We have also moved on from planning for the simple **restoration of sight**, through the **prevention of blindness** to the current commitment to **universal eye health coverage**: A central theme of the current WHO Global Action Plan 2014-2019 and the new Sustainable Development Goals. What has not changed is the fact that most of the causes of blindness are avoidable and that the treatments available are amongst the most successful and cost effective of all health interventions.



Various approaches to estimating the burden of URE/presbyopia in Africa exist including Rapid Assessments of Avoidable Blindness (RAABs), Rapid Assessments of Refractive Error (RAREs) and a range of country and project specific research activities. Figure 1 shows that URE accounts for approximately 13% of blindness in SSA and approximately 45% of all visual impairment in SSA, excluding presbyopia.



**Figure 1: Prevalence of Blindness and VI due to URE in Africa in 2010. Source: Naidoo et al. Global Vision Impairment and Blindness Due to Uncorrected Refractive Error, 1990-2010: A Systematic Review and Meta-Analysis. Optom Vis Sci 2016; 93:227-234.**

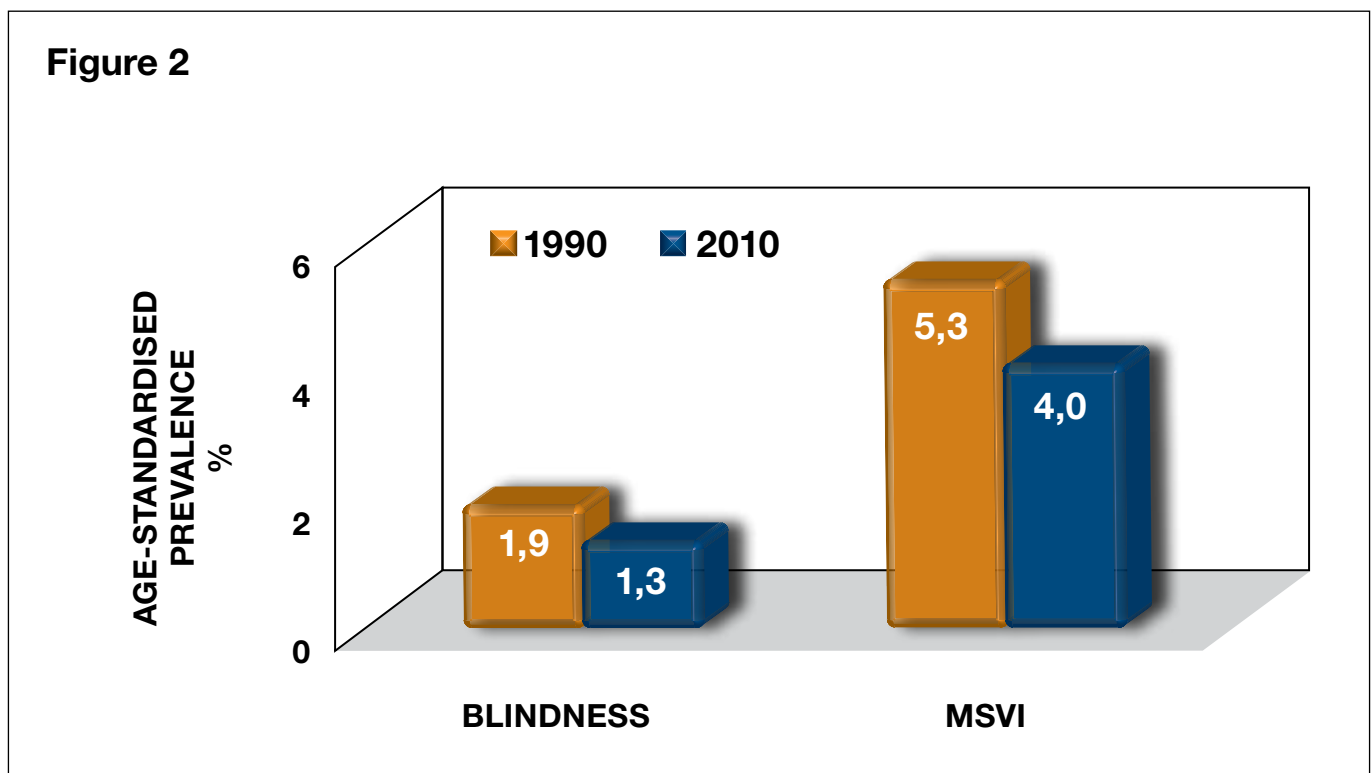
## 3.1 Rapid Assessments of Refractive Error (RARE) in SSA

A number of RAREs have been undertaken over the last 6 years demonstrating prevalence of both URE and presbyopia.

Country	Year	Published	Age Group	RE Prevalence	Presbyopia Prevalence	Spectacle Wear
Tanzania	2010	OVS	15+	7.5%	46.5%	
Eritrea	2010	OE	15-50	6.4%	32.9%	3.37%
Uganda	2010	AVEH	15+	4.6%	50.3%	1%-3.5%
Ghana	2011	Tba	15-50	3.37%	54.7%	1.7%
Mozambique	2012	JVI & B	15-50	2.6%	25.8%	4.7%
South Africa	2016	Accepted	15-35	1.5%	77%	3.8%
<b>Averages</b>				<b>1.5%-7.5%</b>	<b>25.8%-77%</b>	<b>1%-4.7%</b>

## 3.2 Age standardized prevalence of blindness and VI in SSA, 2010

Age Standardized Prevalence	%	Africa	Million People
Blindness	1.3%	11,778,000	13,000
Visual impairment	4.0%	36,240,000	40,000

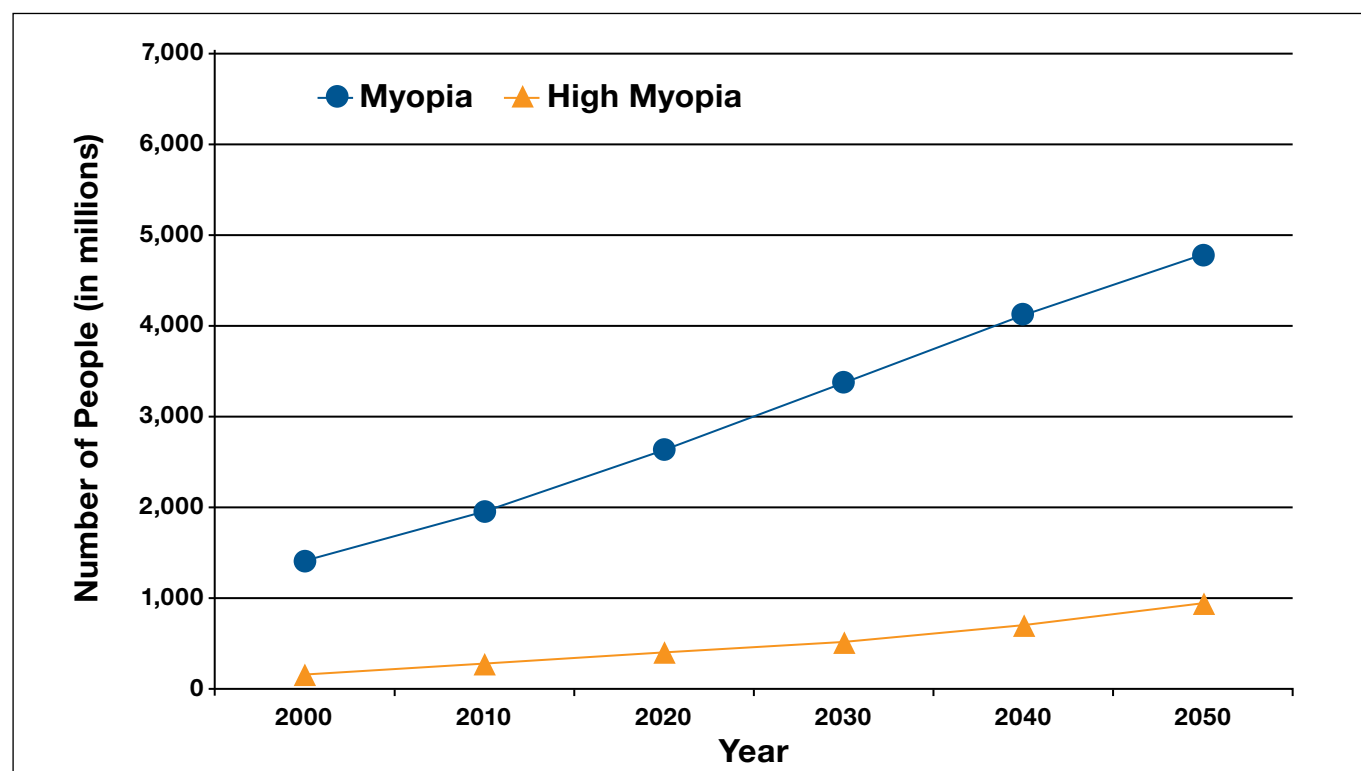


**Figure 2: Overall distribution of blindness and vision impairment in Africa in 1990 and 2010. Source: Naidoo et al. Global Vision Impairment and Blindness Due to Uncorrected Refractive Error, 1990-2010: A Systematic Review and Meta-Analysis. Optom Vis Sci 2016; 93:227-234.**

A recent paper by Holden, Fricke et al., 2016, focused on the global prevalence of myopia and high myopia and temporal trends from 2000 through to 2050 concluding that we should anticipate significant increases in prevalence globally with implications for the planning of services. The projections for the four WHO Africa regions are as follows:

### 3.3 Global prevalence of Myopia and High Myopia 2010-2050

Region	2000	2010	2020	2030	2040	2050
Central	5.1	7.0	9.8	14.1	20.4	27.9
East	3.2	4.9	8.4	12.3	17.1	22.7
Southern	5.1	8.0	12.1	17.5	23.4	30.2
West	5.2	7.0	9.6	13.6	19.7	26.8
<b>Averages</b>		<b>6.725</b>	⇒	<b>14.375</b>	⇒	<b>26.9</b>



**Figure 3.** Graph showing the number of people estimated to have myopia and high myopia for each decade from 2000 through 2050. Error bars represent the 95% confidence intervals. Source: Holden et al., *Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050*. Graph available at: [http://www.aaojournal.org/article/S0161-6420\(16\)00025-7/ppt](http://www.aaojournal.org/article/S0161-6420(16)00025-7/ppt).

### 3.4 Burden of blindness from URE by WHO Region

REGION	Population (Millions)	Proportion of Blindness %	Number of Blind	Number of Blind/ Million
WEST	386,727	13.2	765,269	1,979
CENTRAL	114,379	13.6	116,695	1,020
EAST	418,009	13.1	766,863	1,835
SOUTH	78,512	13.5	79,756	1,014
<b>TOTAL/AVERAGE</b>	<b>997,627</b>		<b>1,728,404</b>	<b>1,733</b>

## 3.5 Burden of blindness from URE by Linguistic Zone

LANGUAGE	Population(Millions)	Number of Blind	Number of Blind/Million
Anglophone	635,935	1,133,074	1,782
Francophone	306,136	513,336	1,677
Lusophone	55,556	81,994	1,476
<b>TOTAL/AVERAGE</b>	<b>997,627</b>	<b>1,728,404</b>	<b>1,733</b>

## 3.6 Burden of MSVI from URE by WHO Region

REGION	Population (Millions)	Proportion of MSVI %	Number of MSVI	Number of MSVI/ Million
WEST	386,727	44.8	7,618,579	19,700
CENTRAL	114,379	45.9	1,785,383	15,609
EAST	418,009	44.8	7,960,893	19,045
SOUTH	78,512	46.7	789,166	10,052
<b>TOTAL/AVERAGE</b>	<b>997,627</b>		<b>18,154,021</b>	<b>18,197</b>

## 3.7 Burden of MSVI from URE by Linguistic Zone

LANGUAGE	Population (Millions)	Number of MSVI	Number of MSVI/ Million
Anglophone	635,935	11,543,877	18,153
Francophone	306,136	5,635,646	18,409
Lusophone	55,556	974,498	17,541
<b>TOTAL</b>	<b>997,627</b>	<b>18,154,021</b>	<b>18,197</b>

## 3.8 Burden of Presbyopia by Region

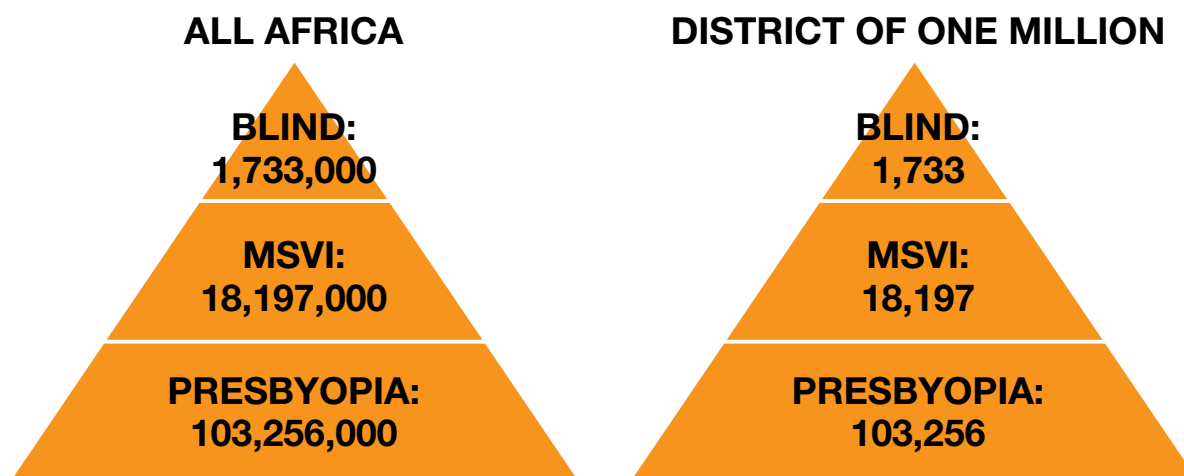
REGION	Population (Millions)	Number of Presbyopes	Number of Presbyopes /Million
WEST	386,727	39,506,400	102,156
CENTRAL	114,379	11,138,610	97,383
EAST	418,009	41,517,828	99,323
SOUTH	78,512	10,8407,740	138,167
<b>TOTAL/ AVERAGE</b>	<b>997,627</b>	<b>103,010,578</b>	<b>103,254</b>

## 3.9 Burden of Presbyopia by Linguistic Zone

LANGUAGE	Population(Millions)	Number of Presbyopes	Number of Presbyopes/Million
Anglophone	635,935	67,353,338	105,912
Francophone	306,136	30,421,580	99,373
Lusophone	55,556	5,235,660	94,241
<b>TOTAL/ AVERAGE</b>	<b>997,627</b>	<b>103,010,578</b>	<b>103,256</b>



*It is now estimated that the population of SSA will be approximately 1 billion by 2020 and the diagram below projects the total burden of URE and presbyopia in SSA for both the total population and a typical Vision 2020 planning district of 1 million. Figure 2.*



**Figure 4. Burden of URE and presbyopia in SSA for both the total population and Vision 2020 planning district of 1 million.**

These estimates are alarming and addressing them will require the further expansion of optometry capacity in Africa. However, they also provide reliable and robust evidence on which to base strategic advocacy campaigns with Ministries of Health and Education and civil society organisations.

## 4. WHAT IS AN OPTOMETRIST?

Optometry is a healthcare profession that is autonomous, educated, and regulated (licensed/registered), and optometrists are the primary healthcare practitioners of the eye and visual system who provide comprehensive eye and vision care, which includes refraction and dispensing, detection, diagnosis and management of disease in the eye, and the rehabilitation of conditions of the visual system.

	DISPENSING OPTICIAN Dispensing assistive devices	OPTOMETRY TECHNICIAN Management of defects of the visual systems + screen for eye disease	OPTOMETRIST Diagnosis of ocular conditions/ disease	OPTOMETRIST Use therapeutic pharmaceutical agents
Optical Technology	✓	✓	✓	✓
Visual Function		✓	✓	✓
Ocular Diagnostic			✓	✓
Ocular Therapeutic				✓

Over the last 10 years, much effort has been made to establish harmonized curricula for training optometrists in SSA, based on the WCO curriculum, and comprising a 4 year degree course for optometrists and a 2-3 year diploma course for optometry technicians. At the same time, many Allied Ophthalmic Personnel (AOPs) have been given additional training in refraction, further expanding the number of eye health professionals providing refractive services.

More recently, the issue of meeting both population needs and career development has been further addressed by the emergence of sub-specialists in optometry, mirroring the emergence of sub-specialists in ophthalmology in SSA. Three particular concerns have been widely discussed as delineating the critical needs of a growing and ageing population – low vision, orthoptics and contact lenses and several specialist training courses now exist.

## 5. THE NUMBER AND DISTRIBUTION OF OPTOMETRISTS IN AFRICA

### 5.1 Estimated Numbers:

There is no definitive source for the total number of practicing optometrists (Level 3 and 4) in Africa but best estimates, compiled by IAPB and derived from a range of sources, indicate a workforce of approximately 9,000, with an estimated 7,500 working in only 2 countries: Nigeria with 4,000 and South Africa with 3,500.

Country	Population UN 2014	Optometry (Degree)	Optometry (Diploma)	Training Institution
Nigeria	177,934,087	4,000		5
Ethiopia	97,387,739	210		2
D.R.C	69,807,358	20		
S. Africa	52,800,238	3,500		4
Tanzania	50,810,343	280		1
Kenya	45,636,833	134		1
Uganda	39,092,009	9		1
Ghana	26,691,978	370		2
Mozambique	26,576,218	28		1
Madagascar	23,670,158	39		
Cameroon	22,978,718	10		1
Angola	22,271,123	15		
C. d'Ivoire	20,646,125	10		1
Niger	18,453,865	9		
B. Faso	17,607,286	2		
Malawi	16,855,317	23	33	2
Mali	15,963,616	25		1
Zambia	14,879,116		19	1
Senegal	14,635,696	4		
Zimbabwe	14,070,454	60		1
Chad	13,388,608	1		
Rwanda	12,201,716	6		
Guinea	12,123,223	5		
South Sudan	11,025,523	2		
Benin	10,692,774	3		
Burundi	10,522,515	2		
Togo	7,005,067	2		
Eritrea	6,514,014		63	2
S. Leone	6,256,709	4		
C.A.R	4,698,665	1		
Congo	4,577,515	1		
Liberia	4,433,854	1		
Namibia	2,355,787			
Lesotho	2,107,902	7		
Botswana	2,030,711	39		
The Gambia	1,915,226	4		1
G. Bissau	1,762,595	8		
Gabon	1,708,141	7		
Swaziland	1,278,448	3		
Mauritius	1,249,632			
Comoros	764,284	1		
Eq. Guinea	763,768	2		
Cape Verde	521,516	6		
S. Tome	200,818			
Seychelles	94,764	2		
<b>Total</b>	<b>908,962,052</b>	<b>8,855</b>	<b>115</b>	<b>27</b>

## 5.2 Distribution by Location and Sector:

During a major research project undertaken by ICEH, AVRI and IAPB into the mapping, distribution and retention of key eye health workers in Africa, data was collected in 2011-12 from a total of 20 countries. Data for optometry is available from 17 countries. The study concluded that practitioner/million ratios will remain low for combined cadres at 3.1/million by 2020 and that when data is pooled across 17 countries, progress towards the Vision 2020 target appeared to be poorer than for other cadres.

Cadre	Capital	Outside capital	Not for profit (Government / NGO)	Private for profit
<b>Optometrists*</b>	<b>60%</b>	<b>40%</b>	<b>42.8%</b>	<b>57.2%</b>
<b>Refractionists**</b>	<b>24%</b>	<b>76%</b>	<b>62.4%</b>	<b>37.6%</b>

\*Optometrists = Personnel with BSc or Diploma in Optometry (normally 3-4 years)

\*\* Refractionists = All other mid-level personnel with refraction training who perform refractions as a primary duty.

## 5.3 Distribution by African Sub-region:

While this analysis clearly conceals significant differences in density at the individual country level, it does highlight 2 regions, East and Central, where the total number of practicing optometrists fails to meet minimum requirements.

	Countries	Population	Optometrists	Density
South	12	178	3,371	1/48,000
West	15	335	3,017	1/111,000
East	10	274	708	1/387,000
Central	7	118	42	1 /2,820,000
<b>Totals</b>	<b>44</b>	<b>905</b>	<b>7,138</b>	<b>1/127,000</b>

## 5.4 Distribution by Linguistic Zone:

The issue of distribution is even more marked when considered from a linguistic perspective with Francophone Africa being particularly under-served.

Linguistic Zone	Population, UN 2014	Optometrists	Density
Anglophone	586,200,000	7,293	1/80,378
Lusophone	50,300,000	57	1/882,456
Francophone	269,500,000	148	1/1,182,945
	<b>96,000,000</b>	<b>7,498</b>	<b>1/120,832</b>



## 6. WHERE ARE OPTOMETRISTS TRAINED IN AFRICA?

Optometry is well established in Africa with the earliest recorded training programme starting in 1924 in South Africa. The majority of Phase 1 training centres were established between 1970 and 2005 in 5 countries.

COUNTRY	INSTITUTION	FOUNDED	Current Estimates	Estimated Annual Capacity
SOUTH AFRICA	Witwatersrand (now UJ)	1924	3,500	120
	Limpopo	1975		
	KZN	1979		
	Johannesburg	1985		
	Bloemfontein	2002		
NIGERIA	Benin	1970	4,000	150
	Abia State	1980		
	Imo State	1993		
	Madonna (Private)	2006		
	Owerri	2010		
GHANA	Kumasi	1991	300	50
	Cape Coast	2002		
TANZANIA	KCMC	1979	300	20
ETHIOPIA	Gondar	2005	200	50
	Hawassa	2008	80	10
<b>5</b>	<b>15</b>		<b>8,280</b>	<b>400</b>

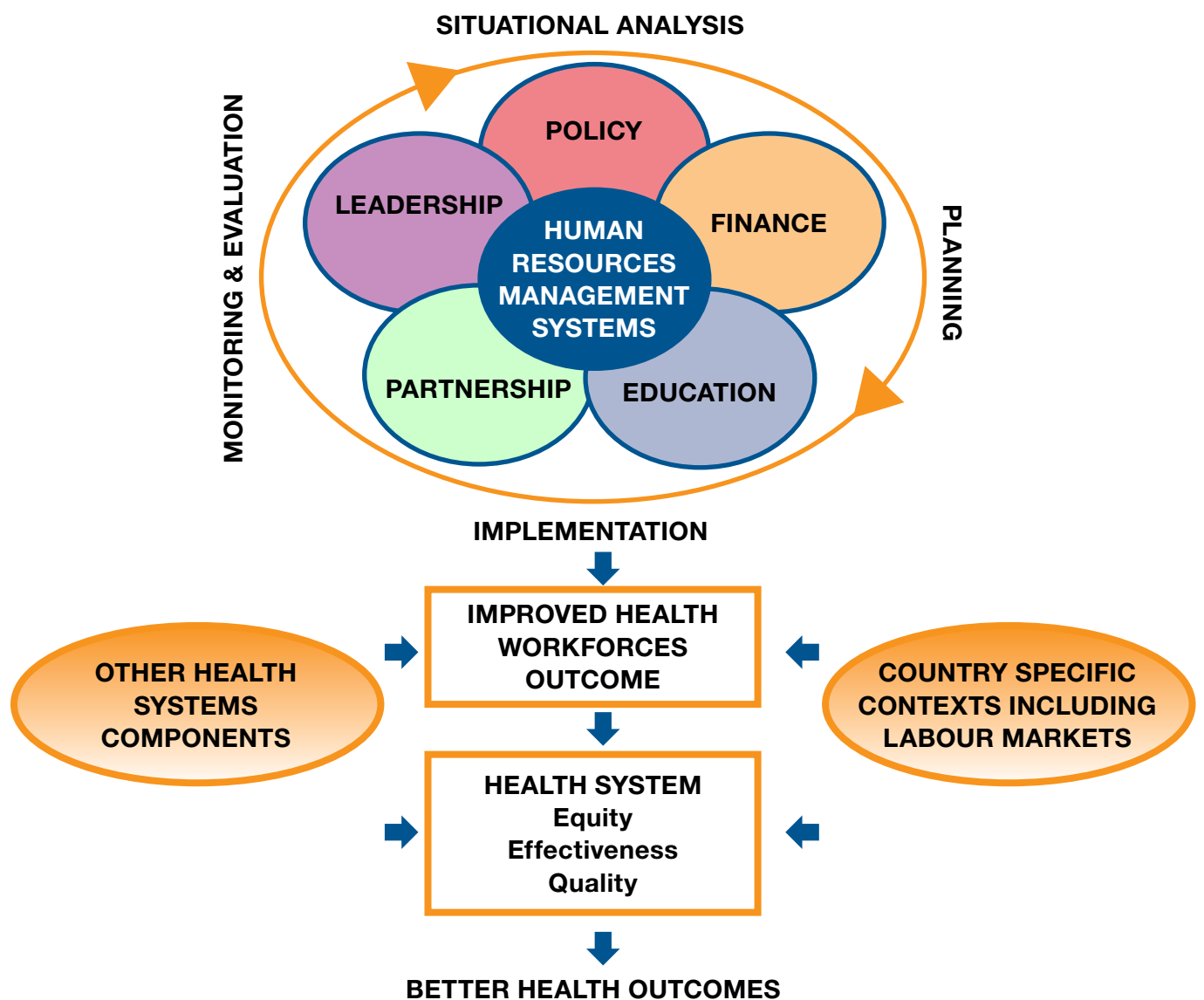
Following the publication of new evidence of the real burden of URE in 2006, a second wave of investment was launched leading to the development of new schools of optometry in 10 countries.

COUNTRY	INSTITUTION	FOUNDED	TRAINED TO DATE	ANNUAL CAPACITY
MALAWI	Mzuzu MCHS	2008	30	20
		2010	33	20
MOZAMBIQUE	UniLurio	2009	40	20
ERITREA	Asmara Degree Asmara Diploma	2012	0	20
		2009	56	20
GAMBIA	Sheik Zayed RTC	2006	25	5
MALI	IOTA	2008	35	10
COTE D'IVOIRE	Institut Superior			
CAMEROON	Ecole des Infirmiers	2011	30	16
ZAMBIA	Chainama	2009	40	20
KENYA	Musinde Muliro	2011	50	40
UGANDA	Makerere	2013	0	15
<b>10</b>	<b>12</b>		<b>339</b>	<b>186</b>

Taken together the 15 schools in the original 5 countries have trained an estimated 8000 optometrists while the 12 new schools are now adding a significant number of new practitioners every year. We must also take into account a significant number of practicing optometrists who were trained outside of Africa. Currently, we estimate that between 500-600 optometrists are added to the workforce every year. Information in relation to retention and exits due to retirement, mortality and migration is much harder to estimate,

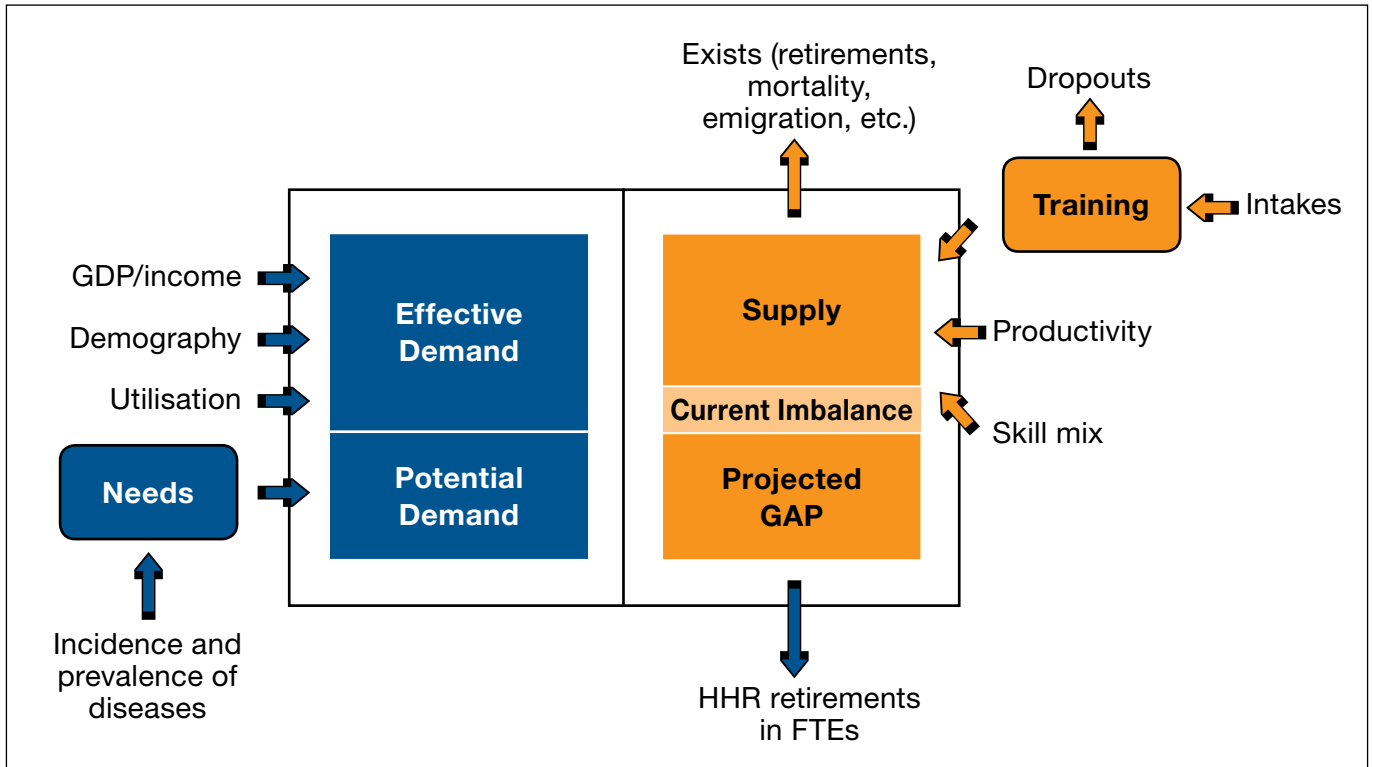
## 6.1 Planning the Optometry Workforce in Africa

Health workforce planning in Africa to meet the new demands of universal health coverage starts with the Human Resources for Health Action Framework (HAF).



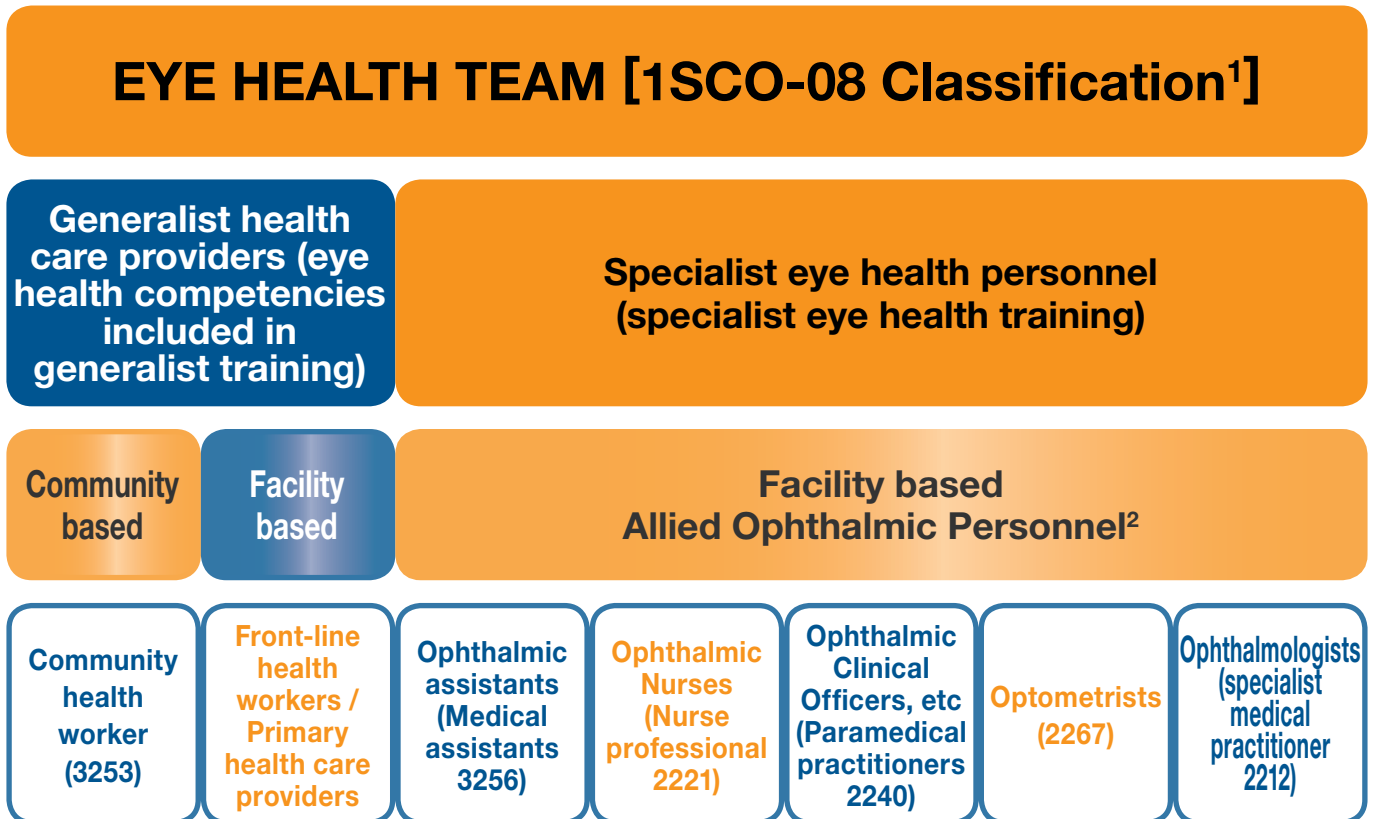
**Figure 5: Human Resources for Health Action Framework**

Various approaches have been used to plan the eye health workforce in Africa, starting with the original Vision 2020 population/practitioner targets, revised in 2006. However, over the course of time these targets have been overtaken in many countries by new approaches such as aligning workforce needs with existing health administrative structures and, more recently, the Workload Indicators of Staffing Needs (WISN) approach recommended by WHO. Nonetheless, whatever method is adopted the starting point for planning the optometry workforce is still the burden of disease and the needs of the population as the figure below illustrates.



**Figure 6: Planning the optometry workforce**

Further work is also still required in many countries to ensure that positions for optometrists in the public sector are established as a vital part of the wider eye health team. The good news is that while this may require targeted strategic advocacy, all Ministries of Health in Africa subscribe to the International Standard Classification of Occupations (ISCO 2008).



**Figure 7: Structuring the eye health team**

## 7. AFCO AND NATIONAL PROFESSIONAL SOCIETIES

The African Council of Optometry was founded in 1998 in Abuja, Nigeria and is affiliated to the global body, the World Council of Optometry (WCO). There are now an estimated 13 national professional societies in SSA building on the existence of early national societies in South Africa (1924), Nigeria (1968), Tanzania (1989) and Ghana (1998)

The move for its formation was initiated by the World Council of Optometry to make regional representation at the WCO more effective. During the conference of the International Association of Contact Lens Educators (IACLE) in Durban, South Africa, in July 1996, the organization was proposed. A mandate was given to Mr. Senanu Quacoe Wossinu to prepare a draft constitution for review and amendment before adoption at the next meeting. The following countries and representatives were present in Durban for that purpose: Gambia was represented by B.S Daffeh; Ghana by Dr. F. Morny, Beatrice Letsu and Angela Amedo; Kenya by Prof. B.S Mencias; Nigeria by Dr. Emma Esenwa; Tanzania by J.K. Amugisha and Valerian Lyimo; Togo by Senanu Quacoe Wossinu and South Africa by Alan Rubin and other national officers.

In July 1998, during the Nigerian Optometrists Association General Delegates meeting in Nigeria, AFCO was formally formed and Prof. Sheni was elected the first president with Quacoe-Wossinu Senanu as Secretary and Beatrice Letsu as Treasurer. Prof. Sheni was the representative of AFCO alongside D. Eyime and Quacoe Wossinu to the WCO Governing Board. In 2000 Dr. Eyime became the second AFCO president and started the General Delegates meeting, the first of which took place in Accra in 2001. The next one, planned for Abidjan, was cancelled due to political unrest and transferred to Lome. Since then the following persons were elected as AFCO presidents and every year or so a GDM took place in various part of the continent: Senanu Quacoe Wossinu, Dr. Uduak Udom, Dr. Cecil Nwafor and Mr. Anguyo Dralega. In the course of time 8 new national societies, affiliated to AFCO were established, as summarized below.

Country	Founded	Members	Full Title of Society
South Africa	1924	1000+ (est)	South African Optometry Association (SAOA)
Nigeria	1968	2968	Nigerian Optometry Association
Ghana	1998	200	Ghana Optometric Association
Tanzania	1989	250 (est)	Tanzania Optometric Association
Ethiopia			Ethiopian Optometric Association
Zimbabwe	2016	50	Zimbabwe Optometry Association
Uganda		10 (est)	Optometry Association of Uganda
Malawi	2015	20	Malawi Optometry Association
Botswana	2012		Botswana Optometrists Association
Cameroon	2016		Cameroon Optometry Association
10			

## 8. REGULATION AND ACCREDITATION:

In those countries in which the profession is recognized, optometry graduates upon completion of their academic program and being awarded the degree or diploma in optometry are usually required to register with a council that is established by government. In some instances the training institutions are accredited by the council and graduates from these institutions are directly registered with council. In other instances registration with council may be subject to satisfactory completion of an internship period or even successfully completing an entrance exam.

Practitioners that are registered with the council are also expected to participate in Continuous Professional Development (CPD) or Continuous Medical Education (CME) activities. These activities are typically awarded points based on the nature, content and duration of the activity. Practitioners are expected to gain a predetermined number of points per year or cycle of years in order to maintain registration with the council and practise the profession in that country. CPD/CME activities could include, workshop, conference attendance, conference presentations and each council will accredit activities that qualify for CPD/CME.

## 9. SUPPORT FOR OPTOMETRY IN AFRICA

Initially, support for the development of optometry in Africa was often driven by the personal vision of key individuals who understood the need, principally myopia, hyperopia, astigmatism and presbyopia, and possessed the drive to open training schools. In the course of time, these schools received recognition from the regulatory bodies and the profession was established. There are now an estimated 9,000 optometrists plying their trade in Africa with an estimated 57% working in the private sector. The rest, 43%, work in the public sector, faith based organisations or INGOs. Collectively they service the refractive needs of an estimated 123 million people.

### 9.1 GOVERNMENT

Government, through Ministries of Education and Health, provide the greatest support for the training of optometrists and employ a significant percentage of the total number, around 40%.

### 9.2 INTERNATIONAL NON-GOVERNMENT ORGANISATIONS

Several IAPB member agencies have focussed primarily on addressing URE challenges in Africa.

#### *Brien Holden Vision Institute*

*The Brien Holden Vision Institute recognizes the critical role that an appropriate health workforce will play in addressing the challenge of avoidable blindness. A suitably skilled and equitably distributed workforce will go a long way in reaching the 640 million people who are blind or vision impaired simply because they don't have access to an eye examination and a pair of glasses. The Institute further acknowledges that the critical human resources required to address the refractive error and low vision challenges in particular are optometric personnel, specifically Optometrists and Optometric Technicians. The training of these cadres was therefore identified by the Institute as a key strategy in addressing the shortage of an appropriate workforce to address vision impairment and blindness resulting from uncorrected refractive errors and Low Vision.*

*The most efficient and sustainable strategy adopted was to initiate training programmes at existing institutions of higher learning. The Institute thus embarked on an Optometry Schools Development Programme. The core components of the support extended to new and emerging schools of Optometry were as follows: Spearheading the curriculum development and adaptation process: Providing training resources such as books, equipment and other teaching material: Recruiting qualified expatriate lecturers: Providing overall technical support and providing access to a global optometry resource platform. To date 8 training programmes have been established in Malawi, Mozambique, Eritrea, Kenya, Uganda, Mali Cameroon and The Gambia.*



*A Human Resource Development for Eye Health project was started in order to address the faculty development needs of targeted institutions and countries in Sub-Saharan Africa. This programmes' objective is to ensure the sustainability as well as to improve the quality of teaching on the continent. Additionally, the programme aims to reduce reliance on expatriate faculty by developing the pedagogical skills of local faculty. Through this project faculty members from schools in Malawi, Mozambique, Uganda, Kenya, Tanzania, Ethiopia, Mali, Cameroon, The Gambia and South Africa have attended workshops in the EyeTeach® series. Finally faculty have been enrolled in upgrading programs from Diploma to Degree level and Masters in Optometry.*

## **Vision Aid Overseas**

*Vision Aid Overseas is an international charity dedicated to fighting poverty by transforming access to eye care in developing countries. Vision Aid Overseas is committed to establishing locally based eye care services in every country in which it operates. One major contribution is the development of Vision Centres where patients can receive a walk-in eye examination, purchase an affordable pair of glasses and be referred for further specialist care if necessary. To operate effectively, Vision Centres must have trained personnel, facilities for eye tests and an optical laboratory where glasses can be glazed. Vision Aid Overseas runs programmes in five African countries: Ethiopia, Sierra Leone, Burkina Faso, Zambia and Ghana. VAO also support the training of eye care workers and outreach programmes.*

## **VOSH**

Provides free quality vision care services through short-term clinics to those who need it and work to develop sustainable programs and local optometric capacity in the developing world in order to help local communities continue to provide quality vision care. VOSH/International and VOSH Chapters are volunteers. Our volunteers are licensed optometrists, opticians, health care providers and lay people. There are clinic trips both domestically as well as internationally, in over 30 countries, serving hundreds of thousands of patients.

One of the greatest impediments to the education of optometrists in developing countries is the lack of local optometry schools and the optometric educators to teach in these institutions. As a solution to this global issue, VOSH, with OGS and BHVI, has created the VOSH Corps Program, which will serve to recruit and support U.S. and Canadian optometrists to teach optometry for at least one year at these emerging optometry schools in the world's poorest countries. Eventually we all hope that the brightest students from these schools will become the new teaching faculty.

## **Vision for a Nation**

We support national governments to provide their citizens with local access to eye care and affordable glasses. Our first national programme is underway in Rwanda where we are training nurses to provide eye care through the country's network of 502 local health centres. By 2017, we aim to have helped build a nationwide eye care service that is fully integrated into Rwanda's national healthcare system.

### **Rwanda delivers:**

- Local eye care services and treatment nationwide.
- Affordable glasses at every one of Rwanda's 502 health centres.
- Outreach to 100% of the country's 15,000 villages.
- A referral system to professionally support people with more severe eye and vision problems.
- Integration with national policies and health service to permanently embed local eye care services.

Other member agencies, who have adopted a comprehensive approach to the provision of eye health services including support to the expansion of optometry in Africa include:

## **Sightsavers**

Our work is guided by Sightsavers' Strategic Framework 2012 – 2018. In this next period, we will strengthen our focus on uncorrected refractive error (URE) by working to develop, replicate, and scale-up innovative interventions to deliver quality, equitable, and cost-effective RE services in sub-Saharan Africa. We will do this by exploring different models to deliver RE services, including collaborations with the private sector. These models include, but are not limited to, vision centres. Pilots will be used to study and demonstrate different approaches. We will focus on creating sustainable solutions by addressing challenges related to both supply and demand of RE services, and will conduct operational research to support our work.

Operational research will be conducted to support continuous improvement in service delivery, and the learning will be captured and disseminated. Sightsavers will work to integrate RE services into comprehensive eye care as an essential component of community, secondary and tertiary levels services, by improving upon supply chain efficiency and by demonstrating value of these services to the targeted community.

Our work in low vision will focus on demonstrating interventions that are integrated within a broader health, education and social inclusion approach. We will develop pilots within a few countries in sub-Saharan Africa which have well-developed eye health programmes to support our low vision work. Within these pilots, we will work with partners to integrate low vision rehabilitation into health, educational and social inclusion services and to increase the awareness among communities, health and education professionals, and governments. Improving the evidence base.

## **From the Sightsavers Website, accessed 31 May 2016**

### **Orbis**

Orbis Africa works in Sub-Saharan Africa to reduce preventable and treatable blindness and visual impairment on the continent. We are dedicated to Saving Sight in Africa by improving comprehensive eye health. Orbis Africa focuses on two large eye health portfolios, working in 10 African Countries. The two portfolios include Child Eye Health and Human Resource for Eye Health.

Orbis leverages strategic partners in order to ensure that our programmes provide optometry services where needed. Currently in Sub Saharan African we have partnered with Vision Aid Overseas and BHVI to deliver optometry services in Zambia, South Africa and Ethiopia

### **Light for the World**

NIURE, a Ministry of Health programme in Uganda jointly developed and implemented by LftW and the BHVI, started to train optometrists at Makerere in 2014. We equipped a teaching lab and installed high quality equipment so students have a solid exposure to preventive diagnostic eye health and comprehensive refraction. We are setting up a vision centre at Makerere hospital which will offer optometry services to clients under close supervision with 3<sup>rd</sup> and 4<sup>th</sup> year students. We expect the first optometry graduates in 2018, whereby we are working toward recognition of this new profession in Uganda and full integration within public service.

In future LftW will address URE as part of comprehensive eye health with partners in Burkina Faso and Mozambique.

## 10. SERVICE DELIVERY APPROACHES

Refractive care is an essential part of eye care, but there are a variety of ways in which it can be provided. Matching an appropriate refractive care option to community needs and characteristics is an essential part of designing a successful eye care system. In addition to matching community needs and characteristics, it is preferable for refractive care to be designed as part of national, coordinated and comprehensive eye care plans, rather than sporadic, isolated activities.

A selection of options, including their defining points, strengths and weaknesses (particularly their ability to integrate with other eye and health services), examples of the approach in action, community characteristics that would make the model specifically applicable, and steps involved in establishing the system, are provided below. The following section is taken, verbatim, from Strategy for the Elimination of Vision Impairment from Uncorrected Refractive Error, IAPB RE Programme Committee, 2008

### 10.1 Hospital-based Refraction Clinics

*Refraction Clinics in District, Regional or National Hospitals provide 50% of refractive care in the developing world. Uses mid-level personnel (1 – 2 year trained refractionists) to deliver refractions in public hospitals – examples in Sri Lanka, Tanzania, Cambodia and countries of the Western Pacific do not supply spectacles (they only provide refractions).*

**Strengths:** established cadres, established systems, short training time (achieved because these practitioners do not have to practice independently) provides efficient development of HR, this is the community expectation for refraction in many places.

**Weaknesses:** providing a service in a hospital that can adequately be provided in a community setting is inefficient; there is a disconnect between the community and the refractive care (it is worth noting that most people with refractive errors don't consider themselves to be sick, so attending a hospital can be counter-intuitive); many hospitals do not supply spectacles, so there is further disconnect between being refracted and obtaining appropriate spectacles; reliance on external supply of spectacles often means the effort to refract is wasted; lack of career path for cadres involved; multi-tasking (when this role is filled by nurses and others with general training, their energy can be directed by management into other tasks).

### 10.2 Multi-Level Pyramid Models

*The LV Prasad Eye Institute Model (<http://www.lvpei.org/>) forms a pyramid with Vision Guardians at the base (providing basic eye care services to 5,000 people at the village level), then Vision Technicians (providing primary eye care to 50,000 people from within Vision Centres), then secondary eye care being provided to up to 1 million people from within Service Centres, then tertiary eye care being provided to up to 5 million people from within Training Centres, and finally a Centre of Excellence at the top of the pyramid covering a population of 50 million people. The Aravind Model is another example with tertiary hospitals, community hospitals, managed care hospitals and community outreach. District health models used by many government health systems essentially provide multi-level eyecare, although some government systems lack the linkages between levels that are a strong feature of the LVPEI and Aravind Models.*

**Strengths:** recognizes the need for eye care to reach into communities; recognizes and accounts for lack of private services in poor, rural areas; structured method for allowing tasks to be divided amongst the available workforce (facilitates sustainability by ensuring that most of the community are cared for by cadres with short educations while the relatively few individuals capable of high-end tasks have time to deliver them); fully integrated between levels.

**Weaknesses:** best-suited to densely populated areas such as parts of India (although it appears adaptable to moderately populated areas in Latin America (VERAS Project in El Salvador – unpublished), there is less evidence for adaptability to more sparsely populated and disparate areas such as parts of the Western Pacific); better linkages achieved in private and NGO management structures than in government systems.

## 10.3 Free-market approach

*Facilitate sale of spectacles as a commercial enterprise. This approach has led to the availability of spectacles, particularly ready readers” for correcting presbyopia, in markets, pharmacies, book stores and on-line without prior refraction in some jurisdictions*

**Strengths:** potential for fast roll-out, extended reach and extremely low cost by negating any HR needs or production capacity within communities.

**Weaknesses:** prices set by market rather than regulated for affordability/equitable access, unlikely to serve people with less common refractive errors (large amounts of anything, and even moderate amounts of astigmatism or anisometropia), unlikely to identify non-refractive eye conditions, unlikely to self-regulate for quality, unlikely to distribute throughout a country in a way capable of serving lower socio-economic or rural/remote populations.

## 10.4 Developed Economy Approach

*Optometry and ophthalmology provide essentially all refractive care in Europe, South Africa, Australia, New Zealand and North America. Less established variations are used in other African countries, some Asian countries and some Latin American countries. Division of responsibility within the eye care system varies between jurisdictions. Division of responsibility between public and private (with and without insurance) varies between jurisdictions*

**Strengths:** high quality care with good mainstream community access (provided that training and HR management are adequate).

**Weaknesses:** requires significant and long-term investment in HR, significant infrastructure setup costs (although capable of self-sustainable function once capital investments are made), marginalized minority communities tend to have poor access (e.g. indigenous people, and people with mental health and/or substance abuse issues).

## 10.5 Social Entrepreneur Model

*Franchise and micro-consignment systems, such as those run by VisionSpring (formerly Scojo Foundation) in Latin America and Asia (<http://www.visionspring.org/>)*

**Strengths:** ability to achieve fast roll-out and extended reach into communities, adaptable to varying levels of vision education for the social entrepreneurs, local capacity building/ job creation.

**Weaknesses:** unlikely to identify non-refractive eye conditions or refer appropriately (when used for both service delivery and appliance delivery), quality control depends on the strength of the links between different levels of the system.

## 10.6 Vision Centre Model

*Adaptation of LVPEI Model with a specific focus on primary-level care including refractive care, and independent sustainability of primary eye care facilities. Examples include the BHVI Vision Centre Model which has been implemented in Sri Lanka and Papua New Guinea, specifically adapts systems to facilitate delivery of low-cost spectacles, and can be adapted to include a social entrepreneurship component to assist sustainability where appropriate. The Optical Centre Model of West Africa integrates refractive care (including spectacle dispensing) and low vision into primary eye care centres.*

**Strengths:** the focus on primary level care that includes refractive care ensures that these aspects are available within communities and are not lost amongst other services; social entrepreneurship component aids sustainability and adaptability of services, and availability of spectacle.

**Weaknesses:** efforts are required to integrate these Vision Centres with existing services, and ensure referrals reach the appropriate place with the appropriate urgency.

## 10.7 Outreach Model – Domestic and International variants

*The Domestic Outreach Model uses refractionists trained within the country to provide all non-hospital refraction services in temporary school, religious centre or community centre locations (e.g. include the Community Optometry program in Tanzania). The International Outreach Model usually utilizes optometrists trained in developed countries to provide visiting services in temporary eye clinics in developing countries (Visiting Optometry Services to Humanity (VOSH), OptoNews Africa (ONA) Network and Vision Aid Overseas provide examples.*

**Strengths:** these are sometimes the only practically available model for areas where geographic and population density issues prohibit more permanent presence of refractive care.

**Weaknesses:** poor integration of services (e.g. referrals that can't or don't reach their destination), poor sustainability, absence of services between outreach visits, negative/disabling effect on local capacity (communities often prefer to wait for outreach visits as they are externally subsidized and usually free to the patient)<sup>4</sup>

## 10.8 Delivery through District Health Systems

*District Health Systems are generally government-run. Linkages between levels and sustainability of community level clinics have been difficult to maintain in many places. The District Comprehensive Eye Care (DCEC) Model of Pakistan provides comprehensive services by including refractive care at the district level.*

**Strengths:** when properly run (e.g. DCEC Model) they are accessible, sustainable, well-linked, efficient and comprehensive (including refractive care at each level of the system.

**Weaknesses:** services are often split between levels so that comprehensive care is unavailable at any one level; services can be difficult to access and of poor quality.

## 10.9 Referral Pathways

Each refractive care option requires establishment of referral pathways to facilitate care of patients who require diagnosis and management outside the skill set of the primary care practitioner. Referral pathways between all levels and types of eye care need to be clear, able to be followed by patients (regardless of socio-economic status, geographic location, gender, race, ethnicity or religion), and be consistently followed by practitioners. Referral criteria depend on the skill set of the practitioner providing refractive care.

## 11. TECHNOLOGY AND SOCIAL MEDIA

The use of technology to facilitate improved teaching and learning as well as service delivery is increasing. There are many teaching and learning resources that are now available either on line or as applications on smart phones to facilitate improved access to students, teachers and the community. Some examples include:

- **Global Optometry Resources Platform.** Lecture notes and PowerPoint presentations for teachers are available for download by all students and faculty and are available in English, Portuguese and French.
- **Virtual Refractor.** This online resource is a useful tool in the teaching of refraction skills and allows for an interactive environment within which the teacher can set specific patient types to be refracted and also monitor accurately the students' performance both quantitatively and qualitatively.
- **Cybersight.** A web-based resource that allows practitioners to have access to expertise to manage challenging cases and transmit images.
- **Vula App.** Screening app that functions using an entry level smart phone and allows for a primary health care worker to screen and refer patients in a more effective manner.
- **PEEK Retina.** Smart phone based screening app that can also allow for capture and transfer of images of the retina to aid diagnosis and management.

Social media in particular Facebook and WhatsApp have also started to play a role in improving communication between students at school, and optometrists within a country or region. There have been several Facebook pages established that allow for sharing of information including interesting clinical case presentation, new developments, research and important events.

WhatsApp groups are also starting to become very powerful tools in linking up students and practitioners within a school, country or region. These groups allow for greater involvement of optometrists and students in engaging with colleagues to discuss issues relevant to the profession, country or region.

## 12. CONCLUSIONS

### Context

- The profession of optometry is expanding rapidly in Africa.
- Recognition remains a challenge in some countries.
- The paradigm of eye health in Africa is changing.

### The Burden of Disease

- The evidence base for the burden of disease has expanded significantly over the last 10 years.
- With an overall prevalence approaching 12.5%, URE and presbyopia is now a major public health issue and becomes an important advocacy proposition.

### Training

- A global competency based curriculum is widely available.
- There has been a significant expansion of training opportunities over last few year.
- Our current 'best estimate' shows approximately 9,000 optometrists working in Africa.

### Challenges

- This figure disguises real challenges around distribution within and between countries, between the private and the public sector and between linguistic zones.
- New approaches exist to plan the eye health workforce.
- The paradigm shift we seek will be contested.

### Reasons to be Cheerful

1. Successful models to scale up optometry services in Africa do exist.
2. Professional bodies, training institutions and INGOs exist to promote further rapid progress.
3. Strong leadership and the vision to change the future.

## 13. SOURCES AND RESOURCES

1. The literature on URE and presbyopia is vast and growing. A useful starting point may be the 83 references appended to the ***IAPB RE Programme Committee Strategy, 2009***, available on the IAPB website.
2. Brien Holden Vision Institute Academy is a centre of excellence for global eye health and vision care education. Through innovative and quality education programs, courses and resources, the Academy enables lifelong learning for eye care professionals. Visit the Academy website and register on the IAPB website. You will be able to access a range of resources including:
  - Global Optometry Resources
  - Virtual Refractor
  - Refractive error manuals
  - Grading scales
  - Vision centre toolkits
  - Primary eye care manuals

Frick, Joy et al., *The Global Burden of Potential Productivity Loss from Uncorrected Presbyopia*, AAO Ophthalmology, 122, 2015.

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## APPENDIX 1: CORE COMPETENCIES

### SHARED ROLES OF SPECIALIST EYE HEALTH PROFESSIONALS

The specialist eye health professional workforce groups, i.e. ophthalmologists, optometrists and allied ophthalmic personnel, have different clinical roles, but share roles e.g. as Communicator, Collaborator, Scholar (Lifelong Learning, Critical Appraisal, Teaching/Training, Research), Leader and Manager (eHealth, Patient Safety and Quality Improvement), Health Advocate and Community health practitioner and Professional: (Professionalism/ Physician Health). The competencies that make up these shared roles are described in the table below.

<p><b>1. COMMUNICATOR</b>  <b>Use the most effective communication methods to obtain, discuss and share information with patients, their families and other.</b></p>
<p>1.1 Communicate effectively with a range of people, including patients and families, colleagues and other health care providers in diverse settings, using a variety of materials/ media and skills, such as establishing rapport, active listening, non-verbal skills, delivering information, obtaining consent, breaking bad news and responding to complaints.</p>
<p>1.2 Translate to and communicate all health information in a clear and culturally appropriate format, appropriate to different levels of health literacy, to accurately convey relevant information and explanations to patients and families, colleagues and other health care providers and to function effectively within the context of the cultural and religious beliefs, language, traditional norms and behaviours.</p>
<p>1.3 Communicate and effectively work with others to negotiate, prevent, and resolve conflict, including inter-professional conflict.</p>
<p><b>2. COLLABORATOR</b>  <b>Work effectively with others, including health care and other service providers to provide safe, high-quality patient-centred care.</b></p>
<p>2.1 Develop rapport, trust and ethical therapeutic relationships with patients and families to enable them to fully participate in their care.</p>

2.2 Participate in providing comprehensive and continuous services through cooperation and shared leadership within health teams (eye health, intra-professional or multidisciplinary/ inter-professional and health management teams) e.g. obtain patient information from previous assessments or obtain advice from professional.

2.3 Identify and work with community / inter-sectoral partners to foster comprehensive, community centred services and good health outcomes\* e.g. public health and school programs, NCDs.

2.4 Coordinate / integrate eye health, especially preventive/promotive care with other providers/ health programmes, especially primary health care e.g. MCH and immunization, environmental sanitation and trachoma.

### **3. LEADER and MANAGER**

**Ensure QUALITY OF HEALTH SERVICE DELIVERY by taking responsibility for developing, maintaining and improving care to contribute a high-quality and responsive health system**

3.1 Coordinate service data collection and management for planning and improving eye health services.

3.2 Manage/coordinate effective and efficient provision of services to facilitate universal access to eye care.

3.3 Manage and maintain infrastructure, equipment and supplies to provide effective, safe, hygienic eye care.

3.4 Manage/coordinate effective and efficient use of human resources.

3.5 Manage/coordinate aspects of financing / resources and health economics to ensure sufficient resources and optimal use of these to provide affordable care.

3.6 Manage e-health, facilitate use and maintenance of technology.

3.7 Displaying leadership qualities as an autonomous professional and as a member of a team, participate in maintaining and improving responsiveness, quality, safety and cost-effectiveness of patient care e.g. by including monitoring and evaluation, clinical/departmental audit, and critical incident management and be an active agent of change and implement innovations.

3.8 Participate in working to improve universal access to care e.g. demonstrate an understanding of district, national and international eye health policies / programs/campaigns/ action plans, participate in formulation and implementation of national health policies/plans effectively working with the community, ministries of health, other government departments and development partners involved in eye care.

### **4. HEALTH ADVOCATE AND COMMUNITY PRACTITIONER**

**Work with community health and non health workers, communities / patients/carers, populations to improve health by determining and understanding community needs, and together with, or on behalf of, others advocate to effect change, and mobilise resources.**

4.1 Support the inclusion of an eye health component in primary health care, health promotion and prevention activities\*.

4.2 Promote a positive and inclusive environment through participation in identifying and responding to the eye health needs of the community / individuals as a human right, especially at risk and special needs groups/ families/ individuals.

4.3 In conjunction with the community and other health workers, identify the needs of both these groups; participate in planning, implementation, management, monitoring, and evaluation of eye care programs including screening, school screening, injury prevention, disease risk reduction, immunisation and supplementation\*.

4.4 Together with providers of health, social services, and education, facilitate the provision of vision and eye health needs of children and older people, including identification of on-going care and support.



4.5 Identify to the eye health needs of the community / individuals, and obtain evidence to use in an advocacy strategy for change both within and beyond the clinical environment.

4.6 In partnership with the community, develop relevant advocacy messages and plans to advocate with them \* to enable universal access to eye care.

## **5. SCHOLAR, RESEARCHER, TEACHER, LIFE LONG LEARNER**

**Demonstrate a lifelong commitment to excellence in practice and professional development through evaluating and using evidence, continuous learning, teaching others, and contributing to scholarship.**

5.1 Contribute to the creation, dissemination, application, and translation of eye health knowledge and practice, and service improvements informed by data /research by applying the principles of biostatistics and epidemiology of eye diseases, to ascertain and address magnitude and distribution of blindness.

5.2 Promote and contribute to a professional culture that supports the use of information and guideline development and use (e.g. evidence-based practice, applying clinical reasoning, using an evidence based approach, life-long learning, critical inquiry, adherence to guidelines, use of data bases, and service improvements informed by data /research).

5.3 Perform clinical/departmental audit, monitoring, evaluation and critical incident management to maintain and improve quality of patient care.

5.4 Facilitate learning of patients, families, public and health science students/ health workers, demonstrating flexibility and responsibility in attitudes regarding patient/ family/ child participation in health care, also in task shifting/sharing, providing training and supportive supervision to ensure safe, evidence-based eye care is provided within scope of practice.

5.5 Maintain and enhance professional activities and professional and personal development through lifelong active learning in ophthalmology and other fields related to ophthalmology.

## **6. PROFESSIONAL**

**Demonstrate commitment to the health and well-being of individual patients and society through ethical practice, high personal standards of behaviour, dedication to the profession, self and profession-led regulation, also continuing professional development and maintenance of personal health.**

6.1 Demonstrate a commitment to the profession by adhering to standards and participating in profession-led regulation to provide care that is professional, ethical and socially accountable.

6.2 Practice according to national legal requirements by applying the principles and adhering to professional and ethical codes, guidelines, standards of practice, laws and regulations to protect the public.

6.3 Maintain and enhance professional activities and professional and personal development through sharing learning, peer and self review.

6.4 Demonstrate responsiveness to patient needs that supersedes self-interest, by applying best practices and adhering to high ethical standards e.g. practise in ways that reflect professionalism, evidence-based and up-to-date knowledge and skills, demonstrate ethical practice and probity, provide equal opportunities, avoid unfair discrimination, demonstrate compassion, integrity, empathy, consideration and respect for patient autonomy and privacy, confidentiality and awareness of appropriate circumstances for disclosure of patient information.

6.5 Submit to professional assessments (e.g. personal audits and peer reviews, appraisal and 360 degree feedback) and conduct personal assessments (audits, engage in reflective practice and maintain a portfolio) to gain insight into personal achievements and limitations to enable the practitioner to disclose error or adverse events, seek help, develop learning outcomes for personal study.

6.6 Maintain and enhance personal health and well-being to advance optimal patient care.

## OPTOMETRY CLINICAL ROLES AND COMPETENCIES

A: SKILLED COMPETENT EYE HEALTH CARE PROVIDER
<b>A. CURATIVE CARE</b>
A.1: Makes general observations of patient.
A.2: Obtains the case history.
A.3: Formulates an examination plan.
A.4: Implements examination plan.
A.5: Assesses the ocular adnexae and the eye.
A.6: Assesses central and peripheral sensory visual function and the integrity of the visual pathways.
A.7: Assesses refractive status.
A.8: Assesses oculomotor and binocular function.
A.9: Assesses visual information processing.
A.10: Assesses the significance of signs and symptoms found incidental to the ocular examination in relation to the patient's eye and/or general health.
A.11: Interprets and analyses findings to establish a diagnosis or diagnoses.
A.12: Designs a management plan for each patient and implements the plan agreed to with the patient.
A.13: Prescribes spectacles.
A.14: Prescribes contact lenses.
A.15: Prescribes pharmacological treatment regimens.
A.16: Dispenses optical prescriptions accurately.
A.17: Treats ocular disease and injury.
<b>B. SURGICAL CARE</b>
B.18: Identifies patients that require surgical management and refers appropriately.
B.19: Conduct pre-surgical examinations and observations.
B.20: Conduct in-theatre objective clinical measurement and assessment of refractive status.
B.21: Conduct post-operative examinations and observations.
<b>C. PREVENTATIVE/PROMOTIVE CARE</b>
C.22: Utilises resources from optometry and other organisations to enhance patient care.
C.23: Provides advice on vision in the workplace.
<b>D. PALLIATIVE AND REHABILITATIVE CARE</b>
D.24: Provides for the care of patients with special needs.
D.25: Ensures emergency optometric care is available.
D.26: Prescribes low vision devices.
D.27: Manages patients requiring vision therapy.

## APPENDIX 2: EQUIPMENT AND SUPPLIES

### THE IAPB STANDARD LIST

The IAPB Standard List is the world's leading procurement platform for eye health services in developing countries. The List provides a carefully evaluated range of technologies from trusted suppliers, enabling IAPB members to access technologies at specially negotiated prices and offering value for money in procurement. Relevant sections include: **Spectacles and Optical Workshop Equipment, Low Vision Devices, Examination and Diagnostic**. To find out more go to: [www.iapb.org.knowledge.standardlist](http://www.iapb.org.knowledge.standardlist).

IAPB is responsible for the content and all content decisions in the Standard List. All commercial transactions (sponsorship, advertising and consulting) are channeled through the trading subsidiary.

### THE GLOBAL RESOURCE CENTRE

The Global Resource Centre (GRC) was initiated by Brien Holden Vision Institute, to supply affordable spectacle frames, lenses, readymade readers, low vision aids and eye care equipment. The availability of eye care service delivery infrastructure by itself does not guarantee access to spectacles because of the lack of their availability or prohibitive costs, particularly in developing countries. Consequently, poor and marginalised individuals, who require vision correction through spectacles and low vision aids, are severely disadvantaged by this avoidable predicament.

By focusing on the needs of the public health and NGO sector, the GRC can supply affordable eye care products, enhancing the ability of these organisations and institutions to provide better eye care services while simultaneously increasing the chances of a patient accessing and acquiring a pair of spectacles or low vision aids.

Through being actively involved in the supply chain at multiple levels, the GRC circumvents much of the compounding effect of price mark-ups, which normally drives product prices upwards. Complementing this with a bulk buying, bulk discount and a pricing strategy driven from a social mission as opposed to a profit perspective, enables the GRC to keep the products within the affordability scale of most organisations and institutions.

To find out more go to:

[spectacles.brienholdenvision.org](http://spectacles.brienholdenvision.org)

### THE HONG KONG LOW VISION RESOURCE CENTRE

The VISION 2020 Low Vision Resource Centre provides low vision devices with good quality at affordable low cost by bulk purchase. Managed by the Hong Kong Society for the Blind, the VISION 2020 Low Vision Resource Centre works as a clearinghouse to centralise the purchase and development of low vision devices and assessment materials at particularly low prices to benefit as many low vision persons as possible in the developing countries, especially those with underdeveloped low vision services due to financial constraints. Download their latest Product Catalogue from the Hong Kong Society for the Blind website: <http://bit.ly/15j0nGV>





**International Agency for the Prevention of Blindness – Africa**

172 Umbilo Road, Umbilo, 4001 Durban, South Africa.

Tel: +27 (0)31 202 3811

**[www.iapbafrica.co.za](http://www.iapbafrica.co.za)**

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