INTERNATIONAL STANDARDS FOR VISION REHABILITATION: REPORT OF THE INTERNATIONAL CONSENSUS CONFERENCE

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FGE Editore Regione Rivelle, 7/F
14050 Moasca (AT), Italy
Tel. 0141 1706694 - Fax 0141 856013
info@fgeditore.it - www.fgeditore.it

WHO INTERNATIONAL CONFERENCE ON VISION REHABILITATION STANDARDS

This document is the outcome of a consultative process to elaborate international standards on vision rehabilitation. The process, which began in 2014, culminated in the International Consensus Conference on Vision rehabilitation, Rome (Italy) 9 – 12 December 2015. It was organized by the World Health Organization and supported by the Italian National Reference Centre for Services and Research for the Prevention of Blindness and Rehabilitation of the Visually Impaired, a WHO Collaborating Centre.

Table of Contents

Foreword

The World Health Organization (WHO) is a specialised agency of the United Nations, leading the health sector. Provides policy advice and technical assistance to its 194 Member States, using published and practical evidence as the basis for its informed advice to Ministry of Health. WHO leads a large number of global or regional initiatives for health, and has been in charge of framing the Sustainable Development Goals. Universal Access is the global theme from WHO for its Member States, and is the theme for 2014-19 eye care global plan and it includes vision rehabilitation.

WHO has initiated an innovative global approach to public health, called Universal Health Coverage and Access.[1]
Universal Health Coverage (UHC) is the goal that all people obtain the health services they need without risking financial hardship from unaffordable out-of-pocket payments. It involves coverage with good health services, from health promotion to prevention, treatment, rehabilitation and palliation, as well as coverage with a form of financial risk protection. A third feature is universality since the coverage should be for everyone.
UHC is attained when people actually obtain the health service they need and benefit form financial risk protection.
Access is the opportunity or ability to do both these things. Hence, universal health coverage is not possible without universal access, but the two are not the same.
Access has three dimensions:

1. Physical accessibility: this requirement is fulfilled when the services are available, of good quality and located close to people.
2. Financial affordability: it takes into account not only the price of the health services, but also indirect and opportunity costs.
3. Acceptability: this captures people's willingness to seek services. Acceptability is low when patients perceive services to be ineffective or when social and cultural factors such as language or the age, sex, ethnicity or religion of the health provider discourage them from seeking services.

Improving health service coverage and health outcomes depends on the availability, accessibility and capacity of health workers to deliver quality people-centered integrated care, which focuses on the patient's needs rather than on building system and developing human resources only. A fundamental shift in service delivery is needed such that services are integrated and focused on the needs of people and communities. This includes reorienting health services to ensure that care is provided in the most appropriate setting, by well-trained and motivated health workers,

with the right balance between out- and in-patient care and strengthening the coordination of care. This framework will lead the work in the health sector of the 194 Member States of WHO in the next 20 years, consistently improving the status of the general population in term of health. The above is part of the Sustainable Development Goals, set by the United Nations Members States as development objectives after the Millennium Development Goals. The 2030 Agenda for sustainable development includes 17 sustainable development objectives and objective 3 is intended to ensure healthy lives and promote well-being for all at all ages.

Why an International Consensus Conference on low vision rehabilitation?

WHO coordinates the international efforts to reduce visual impairment.
It's role is to:

- monitor the worldwide trends of visual impairment by country and by region;
- develop policies and strategies to prevent blindness appropriate for various development settings;
- give technical assistance to Member States and partners;
- plan, monitor and evaluate programmes;
- coordinate effective international partnerships in support of national efforts.

WHO works to strengthen national and country-level efforts to eliminate avoidable blindness, help national health care providers treat eye diseases, expand access to eye health services, and increase rehabilitation for people with residual visual impairment or who are blind. Building accessible and comprehensive health systems is the focus of this decade.

In 2013, the World Health Assembly approved the 2014-19 Action Plan for the universal access to eye health, a rodmap for Member States, WHO Secretariat and international partners with the aim of achieving a measurable reduction of 25% of avoidable visual impairments by 2019. The aims of the plan are the prevention of the visual impairment and vision rehabilitation.[2] It should be emphasized that for the first time the plan explicitly refers to vision rehabilitation as essential component of eye care. In fact, for long time the priority for action for WHO work in prevention of blindness was set by the Member States on infectious diseases prevention, in particular onchocerciasis and trachoma, and on cataract surgery. The action above has been used to build the backbone of eye care services in over 140 countries. However, currently, onchocerciasis and trachoma aren't anymore priority diseases for the prevention of vision impairment, but chronic eye conditions have emerged as priority for action, as crystallized in the WHA 66.4 resolution. For the first time in a WHA Resolution on prevention of blindness the reference to provide rehabilitation services was made.
Vision rehabilitation has been neglected in this first two decades of work due to competing priorities and insufficient resources available. Also, vision rehabilitation was part of the rehabilitation area of work, largely dominated by the work on mobility and mental disorders, due to the high prevalence of the same and to the visibility gained through awareness campaigns supported by international organizations of patients and of care providers. With the revised approach to health, vision rehabilitation has become part of Eye Care and therefore has gained visibility in terms of the need to define the subject, clarify its relevance in terms of burden, frame the condition for the interventions, define the expected outcomes and costs. However, when

informed Governments ask to WHO what should they do in developing a vision rehabilitation system, WHO have no master plan or guide to use for the answer and the current situation is the following:

- there is no internationally agreed definition on what professional vision rehabilitation is, no verified model to support a substantive evidence of its effectiveness and efficiency in different settings (high income countries, middle income countries, low income countries);
- there is no agreement on what are the core, fundamental, necessary standards of care to be offered which a government can use and known to have responded to the need of its citizens;
- there are no internationally agreed variables to be used in evaluation, no definition of acceptable costs, no indicators to monitor progresses in achieve the universal access which Member States can use to verify to be on the right track;
- many approaches exist, mainly in rich countries, many models and systems, definitions and outcomes, but no understanding of pros and cons of the same, no evaluation systematically done to verify the appropriate use of resources.

WHO supports a comprehensive approach to the work in rehabilitation, including human rights, inclusive education and living, provision of assistive devices, etc.
To provide policy advice and technical assistance to its Member States, WHO needs to develop the normative and standard framework to be offered to the Ministry of Health of the different countries, to be used as reference for crafting national policies and plans, and evaluate the current situation to be used as baseline to measure progresses. In agreement to these premises, WHO launched the process to reach an international consensus on the definition of vision rehabilitation and its various delivery levels and expected performances, linked to the development setting of the place where it is conducted.
The guidance need to come from approaches which are based on scientific evidence, acceptability by the population and are feasible to implement for the professionals and sustainable for the national health system, making therefore accessible to the people in need. There must be a minimum standards of care, which are required to be made available to all those in need in each and every member state of WHO, along the lines of universal access to health, the theme for the Sustainable Development Goals. In order to do this, a baseline for quality of care need to be agreed, as well as a step-wise development of services to be provided in order for the person with visual impairment to able to develop, produce, live satisfactorily in their own societies. WHO approached this trough a 15 months long work calling for involvement of all those who perceive the critical value for taking this opportunity to define quality standards of rehabilitation services, and wish to work in order to achieve an international consensus.

Why a step-wise approach?
“One fit all” is rarely a feasible approach for WHO Member States, resulting in neglecting intervention as perceived unrealistic for the development level of the population or of the health system. If standards are too demanding in terms of type of interventions to be offered to qualify the services provided, these can be replaced by other health interventions in the scale of priority.
At all level quality should not be compromised, but a careful selection of content of the

rehabilitation offer can make it feasible and accessible to a wider number of people in need. A modular approach is likely to fit all WHO Member States, as they can modulate what is provided according to the development level and resources available in the community.
The step-wise approach is not only for rehabilitation, but all health interventions are modelled to be feasible in the largest number of Member States according to their development level. Is not trading quality, but a modulation of the approach to health service provision.

Acknowledgements

The International Consensus Conference was planned and organized by the Prevention of Blindness unit of the World Health Organization, Geneva.
It was coordinated by the National Reference Centre for Vision Rehabilitation, Polo Nazionale, A. Gemelli Hospital, Rome.
We wish to acknowledge the work carried out throughout the preparatory work and during the meeting by the Polo Nazionale team, namely F. Amore, S. Turco, S. Superbi.
The regional conference chairs, M. L. Jackson (Americas), J. Keeffe (Western Pacific), Z. Rashid (Africa), PY. Robert (Europe), S. Senanayake (South-East Asia), A. Trabelsi (Middle East), carried out the thorough regional work to gather evidence and best practices and were actively involved in the whole process.
The engagement and work of the paediatric vision rehabilitation group (V. Bosch, L. Fernandes, KA. Ferrell, L. Hyvärinen, L. Lawrence, C. Martinoli and D. Ricci) is also acknowledged.
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Executive summary

During the work an agreement was reached on the following points:

- the approach to the person who has a vision impairment and undertakes a rehabilitation program should be multidisciplinary and centered on the person and not clinically-focused;
- the rehabilitative intervention should be tiered on the basis of the individual goals and risks;
- is necessary to have collaboration, cooperation and communication between all professionals involved in the process of vision rehabilitation and between workers at different levels of the vision rehabilitation process;
- the lack of data at country level on need for vision rehabilitation requires that the collection of data occurs from primary level; the tertiary level will collect the data and analyze them to identify if needs of the population are satisfied;
- in children, the habilitative/rehabilitative intervention should start as early as possible;
- it is appropriate to revise the definition of a person with low vision as defined by the WHO in in following way:
  "May eligible to vision rehabilitation patients with low vision as defined by WHO/PBL/93.27, and generally patients with bilateral visual defects, of troubles of visual cognition interfering with daily life"
- it is appropriate to speak of vision rehabilitation and no more of visual rehabilitation, since the vision should be considered as a multiple function: a function of perception, exploration, cognition and regulation, and vision rehabilitation should therefore be addressed through a multidisciplinary approach, tailored to the specific needs of the individual;
- the overlapping of competencies across the health system cadres makes it appropriate to speak of skills and not of professional roles, especially at the primary level, regardless of the economic setting;
- it is necessary therefore to develop curricula for operators of vision rehabilitation (eye care workers, health care workers and medical studies);
- it is recommended that a rehabilitation supervisor is assigned to every patient, to coordinate the multidisciplinary approach and to update patient's records;
- it is recommended to use the WHO-TARSS (Tool for Assessment of Rehabilitation and Support Services) as the tool to provide the information needed to assess the current rehabilitation needs and gaps in service provision and to monitor access to the same following the recommended process of the Universal Health Coverage. The TARSS is an innovative approach to access the accessibility, and the functionality of the services and systems for vision rehabilitation. This tool is based on a questionnaire to be administered to the national providers and users of rehabilitation services at national and sub-national level; due to its simplicity, low cost and resources requirement it can be repeated at short time interval to measure progresses.

Introduction

In 2010, the WHO estimated that 285 million people around the world were living with visual impairment, 39 million of whom were blind and 246 had low vision. Visual impairment is more frequent among older age groups: in 2010, 82% of those blind and 65% of those with moderate and severe blindness were older than 50 years of age and this age group comprises about 20% of the world's population. About 90% of the world's visually impaired live in low-income settings. Globally, 80% of visual impairment can be prevented or cured.
An estimated 19 million children below age 15 are visually impaired. Of these, 12 million children are visually impaired due to refractive errors, a condition that could be easily diagnosed and corrected. 1.4 million are irreversibly blind for the rest of their lives and need vision rehabilitation interventions for a full psychological and personal development.[3]
In the next years, it is estimated that without corrective actions an increase people who are visually impaired will occur for the following reasons:

- the increase in life expectancy and, consequently, of chronic-degenerative diseases;
- improved treatments, for most eye diseases that once led to blindness while now they are resulting in low vision;
- the sudden change of which leads to obesity, hypertension and diabetes;
- the increased survival in premature children correlated with development of multiple disabilities in the surviving children.[4]

Vision rehabilitation services have a key role to play in mitigating the negative consequences of low vision, and enabling people children and adults with visual impairment to meet their full potential.
Rehabilitation is a set of measures that assists individuals who experience or are likely to experience disability to achieve and maintain optimal functioning in interaction with their environments. The rehabilitation involves the identification of a person's problems and needs, relating the problems to relevant factors of the persona and the environment, defining rehabilitation goals, planning and implementing measures and assessing the effects.

The rehabilitation objectives include:

- prevention of the loss of function;
- slowing the rate of loss of function;
- improvement or restoration of function;
- compensation for loss of function;
- maintenance of current function.

The rehabilitation outcomes are the benefit and changes in the functioning of an individual over time that are attributable to a single measure or a set of measures. They may include:

- increased independence;
- decreased burden of care;
- return to role/occupation that is age, gender and context relevant;
- improved quality of life.

As defined in the "WHO Right to Health" rehabilitation should rely on the following four principals:[5]

1. *Availability*
   Functioning public health and health care facilities, goods and services, as well as programmes in sufficient quantity.
2. *Accessibility*
   Health facilities, goods and services accessible to everyone, within the jurisdiction of the State party.
   Accessibility has four overlapping dimension:
   - non-discrimination;
   - physical accessibility;
   - economical accessibility (affordability);
   - information accessibility.
3. *Acceptability*
   All health facilities, goods and services must be respectful of medical ethics and culturally appropriate, as well as sensitive to gender and life-cycle requirements.

4. *Quality*
   Health facilities, goods and services must be scientifically and medically appropriate and of good quality.

Despite the importance of vision rehabilitation for the performance of activities of daily living, accident prevention and general physical and psychological well-being, low vision rehabilitation services are only accessible to approximately 15 per cent of people around the world who would benefit. Given the ageing of the global population, the need for these services is on the rise.

People with visual impairment encounter a range of barriers when they attempt to access low vision rehabilitation services, including the following:

- limited availability of services;
- physical barriers;
- inadequate skills and knowledge of health workers;
- prohibitive costs.

Lack of access to low vision rehabilitation services can increase the effects and consequences of diseases, delay discharge, limit activities, restrict participation, cause deterioration in health, decrease quality of life and increase use of health and rehabilitation services.

Global data on the need for low vision rehabilitation, the type and quality of measures provided and estimates of unmet need does not exists. However, national-level data reveals large gaps in the provision of and access to low vision rehabilitation services in many low and middle-income countries. In many countries low vision rehabilitation services are inadequate. Services for children are different from services for adults. The former often require more complex, multi-disciplinary resources, and are family centred: in addition there are some unique populations:

1. Newborn to 3 y.o.: development milestones are assessed in addition to traditional methods for ocular diseases and visual acuity
2. Deafblind: dual sensory impairment requires additional evaluations and interventions
3. Multiple disabilities: cognitive, motor, and other sensory impairments with visual impairment need more specialized and intensive care

The United Nations Convention on the Rights of Persons with Disabilities[6], in particular article 26 on habilitation and rehabilitation, the Global Disability Action Plan 2014–2021[7], which aims, among other things, to strengthen and extend rehabilitation, habilitation and access to assistive technology and particularly relevant in the context of the 2030 Agenda for Sustainable Development and its accompanying Sustainable Development Goals, which have been built on the commitment to “leave no one behind”.[8]

Taking forward the 3 above mentioned UN document and WHO initiatives, those could be directly applicable to vision impairment in children as follows:

1. Universal access and equity
2. Human rights
3. Evidence-based practice
4. A life course approach
5. Empowerment of people with visual impairment

Convention on the Rights of Persons with Disabilities

Article 1 Purpose
The purpose of the present Convention is to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities, and to promote respect for their inherent dignity. Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.

Article 26 Habilitation and rehabilitation
1. States Parties shall take effective and appropriate measures, including through peer support, to enable persons with disabilities to attain and maintain maximum independence, full physical, mental, social and vocational ability, and full inclusion and participation in all aspects of life. To that end, States Parties shall organize, strengthen and extend comprehensive habilitation and rehabilitation services and programmes, particularly in the areas of health, employment, education and social services, in such a way that these services and programmes: (a) Begin at the earliest possible stage, and are based on the multidisciplinary assessment of individual needs and strengths; (b) Support participation and inclusion in the community and all aspects of society, are voluntary, and are available to persons with disabilities as close as possible to their own communities, including in rural areas.
2. States Parties shall promote the development of initial and continuing training for professionals and staff working in habilitation and rehabilitation services.
3. States Parties shall promote the availability, knowledge and use of assistive devices and technologies, designed for persons with disabilities, as they relate to habilitation and rehabilitation.

Lets reword these for the child:

1. Universal access and equity for all **regardless** of age or ability
   There must be a unique attention to the needs of children.
2. Human rights for the **child**[9]
   All children and adolescent should have the means and the opportunity to develop to their full potential. Life, survival, maximum development, access to health and access to health services are not just basic needs of children and adolescent, but fundamental human rights. The primary instrument for protecting and fulfilling these rights is the United Nations Convention on the Rights of the Child (CRC). The CRC reflects the international consensus on standards for ensuring the overall well-being of all children and young people up to the age of 18 years, and:

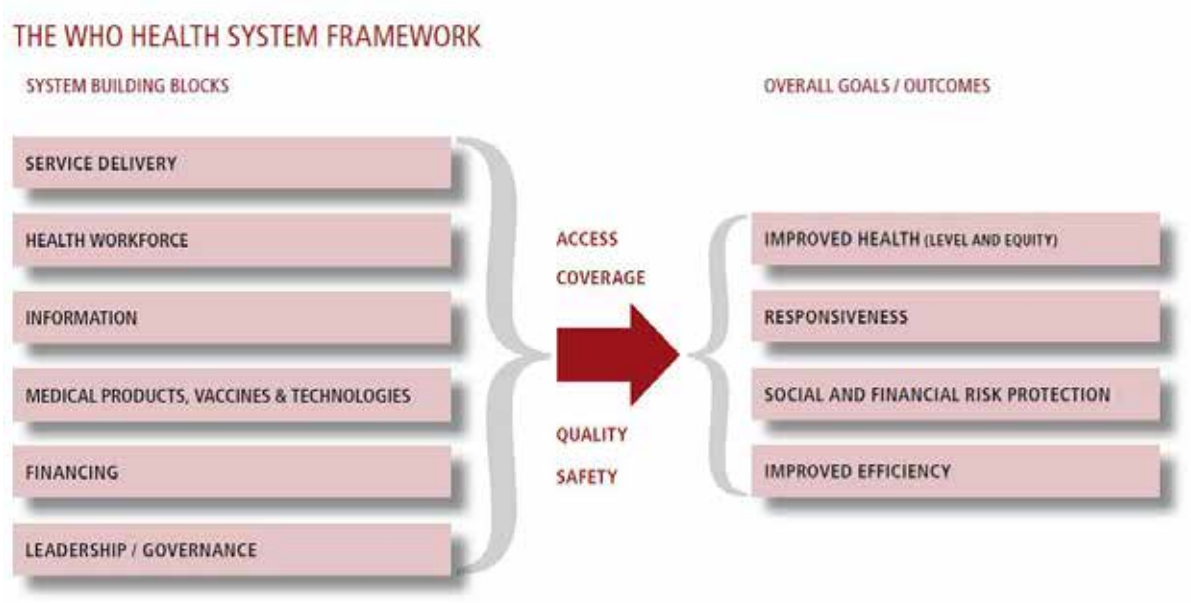
- recalls the basic principles of the United Nations and specific provisions to certain relevant human rights treaties and proclamations such as the Universal Declaration of Human Rights;
- reaffirms the fact that children, because of their vulnerability, need special care and protection;
- places special emphasis on the primary caring and protective responsibility of the family, the need for legal and other protection of the child, the importance of respect for the cultural values of the child's community, and the vital role of international co-operation in achieving the realisation of children's rights.

3. Evidence-based practice for early intervention and accessible education **for all**. Children can only learn from what they see and hear. If they do not see or hear as others do, they cannot learn. So all education and teaching much then be made accessible, if not, the individual (in this case the child) is not able to participate in society, to fulfil their rights as a human being. Most children can participate in the educational system except for those at the other end of the developmental spectrum, whether visually impaired, other sensory impaired, or physical or intellectual disabilities that limit access. Those with visual impairment warrant identification to ensure all education is perceivable, comprehensible, and learnable. This means an individual approach matched to abilities of each child (including vision, hearing, intellect and motor).
4. A life course approach
   The goal of interventions for children with visual impairment should be "to get it right for every child" (ref. GIRFEC – Getting It Right For Every Child, Scotland)[10]. All children with disabilities need to be identified, characterized, and attended to with the goal that they be successful learners, confident individuals, who are as independent as possible, and with good communication skills.
5. Empowerment of people (**child and family**) with visual impairment starting at the earliest age, so they gain social acceptance, access to life, and dignity as any other person, as well as support the development of advocacy skills for the child and family.

In order to respond to frequent requests from WHO Member States for technical and policy assistance for the implementation of the action plan, a process was launched to produce a set of standards for vision rehabilitation. These will serve as guidance and support for governments in all aspects of the establishment of visual habilitation and rehabilitation services at all levels of health care.

Health system

A health system consists of all organizations, people and actions whose primary interest is to promote, restore or maintain health.
Its goals are improving health and health equity in ways that are responsive, financially fair, and make the best, or most efficient, use of available resources.
A good health system delivers quality services to all people, when and where they need them.
The exact configuration of services is different from country to country, but in all cases should reflect the WHO "Framework for Action" on health systems, who describes six clearly defined Health System Building Blocks that together constitute a complete system.[11]



The building block alone do not constitute a system, but the multiple relationships and interactions among the blocks convert these blocks into a system. All systems are contained within larger systems; among all of these sub-systems are reactions, synergies and interactions to varying degrees with all of the health system's other building blocks.
It is critical that the role of people is highlighted, at the centre of the system as actors in driving the system itself. This includes their participation as individuals, civil society organizations, and stakeholders networks, and also as key actors influencing each of the building blocks, as health workers, managers and policy-makers[12].

Network of service delivery - Key characteristics

Comprehensiveness	A comprehensive range of health services is provided, appropriate to needs of target population, including preventive, curative, palliative and rehabilitative services and health promotion activities.
Accessibility	Service are directly and permanently accessible with no undue barriers of cost, language, culture or geography. Health services are close to the people with a routine point of entry to the service network at primary care level. Services may be provided in the home, the community, the workplace, or health facilities as appropriate.
Coverage	Service delivery is designed so that all people in a defined target population are covered, all income groups and all social groups.
Continuity	Service delivery is organized to provide an individual with continuity of care across the network of services, health conditions, levels of care and over the life-cycle.
Quality	Health services are of high quality, i.e. they are effective, safe, centred on the patient's needs and given in a timely fashion
Person-centeredness	Service are organized around the person, not the disease. Users perceive health services to be responsive and acceptable to them. There is participation from the target population in service delivery design and assessment. People are partners in their own health care.
Coordination	Local area health service networks are actively coordinated. Coordination also take place with other sectors (e.g. social services) and partners (e.g. community organizations)
Accountability and efficiency	Health services are well managed so as to achieve the core elements described above with a minimum wastage of resources. Managers are allocated the necessary authority to achieved planned objectives and held accountable for overall performance and results.

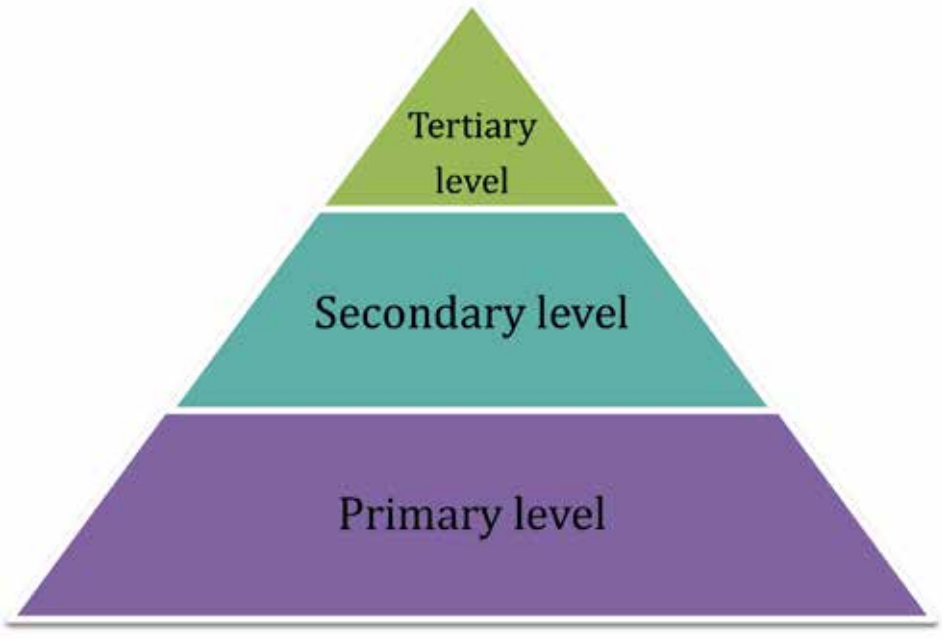
From: "Systems thinking for health systems strengthening". World Health Organization 2009

Levels of care

Primary level
Is the first point of contact for patients within the health care system, and provides a link to more specialized care.
It's usually based at the local level, and provided in a range of settings, typically community-based setting. It should provide rehabilitation services for 50.000-100.000 individuals and, therefore, it should provide the lower tier of the rehabilitation needs.

Secondary level
Is health care services provided by medical specialists and other health professionals. It's usually based at the district/regional level, and provided in a range of settings, typically hospital and institutional settings. Hence, each secondary level should more specialized services for the rehabilitation needs and reflect the following territorial distribution: 100.000-300.000 resident people.

Tertiary level
It's a specialized consultative health care, usually based at national level and provides in hospital settings. The tertiary level have a leadership/networking role for all centre as well as for planning, monitoring, advocacy and research programmes.



Overview of the process underlying the ICCRome2015

The first step of the process was the development of the conceptual framework for the task by the Italian National Reference Centre for the Prevention of Blindness and Rehabilitation of the Visually Impaired working with WHO as a Collaborating Centre for Vision rehabilitation and Blindness Prevention (WHO-CC). Among the objectives defined by WHO for the National Reference Centre there was the responsibility of coordinating an international process that would lead to an consensus conference to define the "Vision rehabilitation Standards".
The process has foreseen three main phases.

1. During the first phase the planning of the Consensus Project has taken place thanks to the involvement of the WHO-HQ, the Italian Ministry of Health and the WHOCC.
2. The second phase consisted in the establishment of 3 main Committees (Steering Committee; Managing Committee; Core Scientific Committee) and the nomination of 6 Regional Chairs from the WHO Global Regions. Four members of the Core Scientific Committee were quickly identified, two of them serving also as Chairs of their respective Regions, for the other Chairs and technical experts there has been a considerable work in reviewing curricula and working experiences. In this process the role of the Chairs has been also important in identifying Scientific Committee's members and Working Groups members*. Every decision was always shared with WHO. The official launch of the Consensus has taken place in Melbourne during Vision 2014.
3. In July 2014, the third phase has been carried out through the creation and mailing of WHO-ICC draft support document and templates. The templates have been developed bearing in mind the WHO levels of care, using a different approach for adults and children and identifying the different areas of the rehabilitative intervention. In each area on intervention were specified the objectives, the operators, the activities, the equipment and the outcomes.

From August 2014 to May 2015 were gathering the documents on existing scientific evidence in order to identify the useful models and to lead the Chairs to develop a thematic/description paper for each Region and to filling-in the provided templates. This phase of the work was carried out through teleconferences, ad-hoc meeting (AAO, APAO, ARVO), regular mailing, exchange and skype meetings.
In this "collection/elaboration of data", the process has not been really smooth and timings have been delayed. Therefore, a Preliminary Meeting with the Core Scientific Committee and the Chairs has been organized in Rome (8-9 July 2015). During the preliminary Meeting the Chairs gave on overview of vision rehabilitation in their own Region, making a SWOT analysis. Furthermore, it was reached a preliminary agreement on the definition of "vision rehabilitation services", the WHO-ICC outcomes have been reviewed in light of the need to define Minimum Standards in order to allow a start-up of these services especially in low income setting and it was decided not to differentiate the services provided to adults and children.
From July to October 2015 some previous decisions have been reviewed and amended, the Draft Models has been further discussed and comments collected, and Draft Model and Excel

* See WHO International Consensus Conference Committees in Annex 1

Sheets presented in the ICCRome 2015 have been updated and circulated.
The recommendations shared with the Chairs before ICCRome 2015 were the following:

- the definition of what is meant with “vision rehabilitation”;
- what type of services are provided currently in the various regions to identify what should be provided as minimum standards;
- how these services could/should be carried out;
- at what level of the health care system and the expected/preferred referral pathways form health care system, eye care system and within the three levels of the system.

It was agreed to refer to three levels of services. For the primary and secondary level it has been agreed to identify minimum standards and minimum plus and the differentiation between adults and children has been reconsidered.
The main issues identified throughout the entire process were the following:

- poor representation of contacts/experts in some geographical areas for low vision rehabilitation;
- the availability of a Chair for the European Region;
- resignation of the Project Secretary;
- deadlines not always matched;
- failure to send/share the materials (often partial or incomplete documentation);
- lack of a consistent and shared approach;
- geographical distance/timings.

Regional Perspectives

Africa (Mrs. Zahra Aly RASHID)
Vision rehabilitation service provision varies across the African Region, between and within countries. In some settings, only very elementary primary level services are available, which still struggle to provide the most basic eye care and lack the requisite vision assessment skills to meet the needs of children and adults. In others, however, advanced tertiary level centers have been established. Low vision rehabilitation is not a government priority, since it is often overshadowed by other urgent health issues that are prominent in the Region, such as malaria, HIV and the high prevalence of cataracts. Gaps in service provision are therefore arising when non-governmental organizations withdraw, having set up services, while government support is not being provided to enable those services to continue. Research and access to reference materials is also lacking. Efforts are therefore required to make low vision rehabilitation a more attractive prospect for governments in order to garner greater support.

SWOT analysis

	Strengths	Weaknesses
Internal	• Experienced professionals are available, knowledgeable in the area of low vision and are passionate about their work • Eye care services are constantly improving in the region	• Many of the services provided are only available in the private sector • Knowledge of rehabilitation other than clinical low vision is lacking • Services face financial constraints and time restrictions • Information on education for children with visual impairments is lacking

	Opportunities	Threats
External	• NGOs and governments are aware of the need for vision rehabilitation services and some work is already being done	• NGOs tend to work in silos, in competition with each other and with governments • Eye care professionals tend to work in competition with each other

The Americas (Dr. Mary Lou JACKSON)
Low vision rehabilitation service coverage varies across the Americas, with generally good coverage in Canada, unequal distribution of services in the United States, and low levels of coverage in Latin America, with no coverage in some Latin American countries. Access tends to be best in developed, urban settings, with rural and remote areas often remaining underserved. Access to assistive devices also varies. Some excellent models of care are available, one example being services provided by the United States Department for Veterans' Affairs, which triage and match individuals to the intensity of multidisciplinary rehabilitation service required. Evidence shows that low vision rehabilitation is a valuable element in preventing falls, depression, dependence and the need for long-term care.

SWOT analysis

	Strengths	Weaknesses
Internal	• There is a broad range of expertise in the Region • Stakeholders are engaged • Effective models of care exist	• There are many vision rehabilitation models • Triage to intensive rehabilitation, when required, is often lacking • There is a lack of funding for training in many settings • There is a lack of consensus regarding outcomes and hence effectiveness • Data collection is fragmented

	Opportunities	Threats
External	• New technologies are becoming more affordable • Evidence supports the value of support groups and self-management programs and there can be offered efficiently • There is an interest in efficiency in chronic disease management in health care which may support further development of efficient models of multidisciplinary vision rehabilitation	• The ageing population, increasing population and advances in medical treatments will lead to increasing numbers of individuals who will require vision rehabilitation • Device coverage is insufficient and affordability threatens access to devices • Inadequate funding for services in some areas • Patients are unaware of the potential benefits of rehabilitation • There are barriers to access, such as comorbidities and transport issues • Cost effective services are required for lower income settings • Referrals are lacking and there is a general lack of awareness of the need for vision rehabilitation services by health care professionals, health planners and administrators

South East Asia (Prof. Saman SENANAYAKE)
The South East Asian Region has an extremely large, ageing population, which is increasing the demand for vision rehabilitation. While almost all countries in the Region have some Vision 2020 initiatives in place, low vision rehabilitation has only been prioritized in one country. While Government funded services are available in the Region, coverage and accessibility are poor. The private sector and NGOs provide eye care, but at a cost, and very few people have health insurance coverage. An ideal model for the Region would be one of government ownership of eye care, led by a Government appointed focal person, with clearly defined roles for NGOs and the private sector.

SWOT analysis

	Strengths	Weaknesses
Internal	• Low vision services are available and costs are often absorbed by governments • There are adequate human resources for care • Low vision care is already included in some professional training courses • Centres of excellence with rehabilitation facilities exist • Primary rehabilitation services with links to ophthalmology services have been developed • Social services departments are defining low vision as an area of interest	• The magnitude of the issue is not fully understood by ministries of health • Low vision rehabilitation is not a healthy system priority • The organization of low vision care is particularly complex • Systems are not target driven • Government, NGOs and private sector funding is not adequately coordinated • The data collection system is poor, and data collection and monitoring are inadequate • Collaboration between care providers is poor • Continuity of care is underdeveloped

	Opportunities	Threats
External	• The country with the largest population in the Region had adequate human resources • Vision 2020 has been set up in all countries in the Region • Countries are developing their own strategies for low vision care • The rights of persons with disabilities are becoming better known • NGOs in the Region are actively promoting low vision care	• Some eye diseases are gaining prominence over others, owing to better financial return for services • Professional training for low vision care is not standard • Vision rehabilitation is not an eye care priority • Collaboration among sectors is lacking • Funding allocations are insufficient • Low vision care is not included in care management strategies

Europe (Prof. Pierre-Yves ROBERT)
There are a large number of societies and organizations working on low vision in the European Region, but the number of professionals and specialized centres remain extremely heterogeneous from a country to another. Challenges are, however, posed by the lack of a harmonized definition of low vision and vision rehabilitation, inconsistencies in the recognized threshold for legal blindness, and differing definitions of eligibility for vision rehabilitation, all of which can lead to people being denied access to vision rehabilitation services.

SWOT analysis

	Strengths	Weaknesses
Internal	• There is a wide range of professional experience in vision rehabilitation across the Region • Institutions are strong in some leading countries • Networks are well developed in a number of regions • Private sector corporations and NGOs are active in vision rehabilitation • Associations of patients are strong	• Categorization and definitions are not harmonized • Expertise, references and guidelines are not standardized • Assessment is lacking • There is insufficient coordination • Training of personnel is inadequate • There is a lack of government acknowledgment of the importance of vision rehabilitation

	Opportunities	Threats
External	• New treatments are becoming available for blinding diseases • Post-treatment rehabilitation can be further developed	• Economic crisis has put pressure on funding • Transport issues can cause barriers to access

Eastern Mediterranean (Prof. Ahmed TRABELSI)
Data on low vision rehabilitation in the Eastern Mediterranean Region is generally lacking, and many countries are not in a position to ensure monitoring or data collection owing to political instability. Low vision care services vary considerably from country to country. Meetings of experts at the regional level have concluded that regional guidelines on low vision should be elaborated. Countries that have no services at all should aim to establish a low vision clinic and those that already have services up to tertiary level should increase coverage at the district level as part of comprehensive eye care. There are large numbers of children with visual impairment in the Region, thus making early intervention in low vision care a priority.

SWOT analysis

	Strengths	Weaknesses
Internal	• Low vision services are well developed in some parts of the Region • Excellent services for children are available in some areas • Early intervention is a priority	• Low vision services for adults are limited • Coverage of low vision services is poor • The curricula for training personnel require revision and standardization

	Opportunities	Threats
External	• Comprehensive eye care teams are being established • A regional meeting has been held, and a task force established to follow up on the recommendations emanating from the meeting • Countries with tertiary level services could extend those services at the district level • Consultations could be held with consumer groups	• There is a lack of interest in low vision rehabilitation among ophthalmologists • There is a lack of information on and awareness of the benefits of low vision rehabilitation • Medical insurance coverage is low • The cost of importing materials and devices is high • Imported materials and devices can get delayed at customs

Western Pacific (Prof. Jill KEEFFE)
In the majority of countries that responded to a survey in the Western Pacific Region, fewer than 10 per cent of people with low vision had access to low vision rehabilitation services. Many countries in the Region do not have any data on low vision services. Common diseases in the Region include diabetic retinopathy, glaucoma and age-related macular degeneration. Consideration must therefore be given to the long-term provision of care and services that would be accessed multiple times throughout the life course. In higher income countries in the Region, tertiary services are already available, while low income countries have no vision rehabilitation services at all. Some countries, such as Cambodia, have excellent examples of community-based care, while in the Pacific Island States care is only available in Fiji. On the whole, children with visual impairment remain in mainstream education, and social welfare and financial benefits are usual in the high and some mid resource countries.

SWOT analysis

	Strengths	Weaknesses
Internal	• There are existing guidelines and standards in place • Good data low vision prevalence is available for most countries • A wide range of staff and resources are available • Levels of stakeholder engagement are positive • Large, sustainable organizations (NGOs) are present	• Health insurance coverage is lacking in many low resources countries • Services tend to be located mainly in urban areas • Access to service is poor • Monitoring and evaluation are lacking

	Opportunities	Threats
External	• Vision 2020 partnerships can be used for advocacy • National disability insurance schemes are being introduced • Low vision is included in most countries in the training for optometrists and orthoptists • Some research and planning is under way	• The number of older people requiring services is increasing • There is a general lack of awareness of the need for services • Barriers exist to the use of services

International Standards on Vision Rehabilitation

The International Consensus Conference on Vision Rehabilitation Standards was held in Rome, Italy from 9 to 12 December 2015, and was attended by 39 technical experts from 25 countries*. Participants included representatives from all six WHO regions, encompassing a broad range of professional experience, not only in optometry and ophthalmology, but also in education, orientation and mobility, and pediatrics. During the Conference, participants shared their experiences in the field of vision rehabilitation from their various professional perspectives and worked together to revise and amend the draft standards on vision rehabilitation, specifying the services required at the primary, secondary and tertiary levels, how those services would be provided, by whom, and where. At the primary and secondary levels, two sets of standards were drawn up: essential services, and additional, optional services to broaden and strengthen vision rehabilitation at each level. The aim of the Conference was to finalize the standards, ensuring their global relevance and applicability, as a tool for achieving universal access to low vision rehabilitation, and to design a set of indicators, to use in assessing the impact of the applying the standards.

Special considerations for the child

The brain collects a high percentage of information through visual inputs. Several brain areas are devoted to the processing of images in order to detect all the information that make us to move, learn and have a social life. When a visual deficit occurs at an adult age the individual can lose some competences and needs to compensate as possible. When a visual deficit occurs very early, children are at high risk to develop mental and motor delay and behavioural problems. Several studies evidenced that since the neonatal age a baby prefers to look at the face and can imitated the mimic movement. Visual interaction is fundamental for babies and parents to build a good relationship; the process of learning through vision starts since the neonatal age. Visual exploration of faces, objects and environment is crucial for the neurodevelopment of a typical toddler.

These early information help to activate and organize the link between the primary visual cortex and the visual associative areas. If this link fail to activate it can influence visuo-cognitive abilities and learning competences at school age. This implies that an early detection and intervention is fundamental for the best development of a child with visual impairment. It is possible to learn without vision but it is crucial to have a clear profile of competences of a child in order to give the right support and use the best methods, according to the child's needs, to make possible a good neurodevelopment and cognitive level.

Early identification of sensory impairment is important because there are critical periods of development for senses, and the earlier interventions begun, the more success for the child. It is important that we identify children early from a number of community sources, eye care specialists, medical providers, community educators and health care workers.

The first year of life is especially important for the critical periods for vision, social interactions that may be limited by visual impairment, hearing may compound sensory input, and this may

* See Final list of participants contained in Annex 2

affect intellectual and social development adversely.
Visual impairment and hearing impairment are often hidden disabilities. They are not obvious as cerebral palsy, or other physical challenges are. There are proven interventions for children with visual impairment.

The greatest difference between adults and children with visual impairment is related to development. Children are developing functions and concepts based on impaired vision whereas adult persons with vision impairment may have a background of normal visual experiences. The differences between adults and children should be mirrored in our structure of standards at the primary, secondary and tertiary level.* Identification and referral for diagnostic evaluation begin at the primary level. Children with visual impairment may be referred to secondary or tertiary level for diagnosis and habilitation planning but it is expected that these services are to be provided in part at the primary or community level where the child lives.

Primary level services

Primary level services are the first point of contact between an individual and the health care system, usually based at the local community level and provided in a variety of settings. Primary level services provide a critical link to specialized care, through referrals to further services at the secondary and tertiary levels. Consideration must be given to ensuring open lines of communication among all three levels, to maintain patient follow-up, ensure that referrals are acted upon and that the results of referrals are communicated back to the primary level. Primary level services should be provided in a wide range of settings, in order to maximize coverage, with these settings including maternal and child facilities, eye care and health care facilities, schools, community-based rehabilitation facilities and other community settings. The following standards are considered essential for establishing primary level services for vision rehabilitation.

Assessment

Vision screening of adults and children at the basic primary level should include distance and near visual acuity and confrontation visual field. To provide this service, simplified visual acuity charts (distance and near, adult and paediatric, culturally and ability appropriate) will be required, as well as a pen torch. The WHO low vision kit may be used. This screening will be done by primary eye- and health care workers, community workers, teachers or others trained to measure visual acuity and confrontational visual field as appropriate.
The individual needs, goals and personal risks of children and adults with low vision should be considered, discussed and assessed, along with the current ability to complete tasks that require vision (functional vision). The WHO low vision kit may be used.

Rehabilitation

Non-optical devices should be provided, with training in activities of daily living (such as

* See Summary tables of international standards for vision rehabilitation contained in Annex 3

cooking, shopping, managing personal affairs or playing), basic mobility and environment modifications. The devices provided may include equipment for activities of daily living such as bold pens, reading stands, lamps, high contrast items, filters, devices to listen to audio books, talking watches or toys that offer increased contrast. Instruction such as sighted guide technique or basic protection technique may be offered. These activities should be done by primary eye- and health care workers, community-based rehabilitation workers, teachers or others with the capacity to assess individual needs and the individual's environment and to provide basic habilitation and rehabilitation for children and adults with visual impairment.
Children and adults should be always referred, if they did not have this dome already for further services such as comprehensive eye examination, other levels of rehabilitation, general health care, services for the elderly, early childhood services, social services and education services. Referrals can be made by primary eye- and health care workers, community workers, teachers or others with an understanding of the needs for referral to these various services.
If appropriate follow up should be conducted by primary service providers after an individual has received service at another level of rehabilitation or another type of service.

Information and education to raise awareness about vision loss

Information on the benefit of vision rehabilitation should be provided for adults and children with low vision or blindness, and for the wider community, to raise awareness about vision loss and the benefits of early intervention. This should be achieved using promotional campaigns or routine communication that draw attention to vision rehabilitation and methods for referral to services. All individuals involved in community-based rehabilitation, primary health care and multidisciplinary rehabilitation can contribute to these efforts to raises awareness of the vision rehabilitation process.

Data collection

Data should be collected about the number of individuals receiving services and the type of services received. Data should be collected by primary eye- and health care workers, community workers, teachers or others with a knowledge of data collection.

Primary "Plus" services

Additional, optional elements of care under both Assessment and Rehabilitation are recommended to enhance service provision at the primary level. As with essential primary services, these should also be provided in a wide range of communities and settings, in order to maximize coverage and availability.

Assessment

Refraction and reading evaluation can be carried out using refraction equipment and reading tests. These tests could be conducted by optometrists, orthoptists, vision technicians, ophthalmic technologists or other personnel trained in refraction. Self-test (try and pick for glasses) should always be discouraged as they might turn into inappropriate refractive correction which are particularly damaging for children.

Rehabilitation

Primary level support services for persons with visual impairment and their families can include offering information about community services and adjustment to vision loss, counselling and peer support options. These can be provided by primary eye- and health care workers, community workers, teachers or others with knowledge of those services.

Low vision devices can be prescribed and provided for adults and children, along with training in how to use such devices. These could include low power distance and near low vision devices, filters, accessible mobile telephones, and devices for completing activities of daily living. These can be provided by eye care practitioners, including orthoptists, optometrists, ophthalmologists, vision technicians (refractionists), rehabilitation workers, teachers, community-based rehabilitation workers, and social welfare staff.

Recommendations can be offered on how to best manage daily activities, how to modify one's environment (domestic, school and work environments) and how to use sighted guide technique. Basic rehabilitation services, including training in the use of optical low vision devices, should be matched to the needs of the individual. These rehabilitation services can be provided by primary eye- and health care workers, community workers and teachers.

Telephone and internet communication could be used for consultations with individuals in remote areas, as a means of providing early intervention, education and rehabilitation advice. These remote services could be provided by any individual involved in vision rehabilitation at the primary level.

Secondary level services

Secondary level services are usually provided by medical specialists and other health professionals. They tend to be based at the district or regional levels and provided in a range of settings, typically hospitals and institutional settings. The standards for essential secondary level vision rehabilitation services are described below.

Assessment

Essential assessments at the secondary level include assessment of the individual's history, individual goals, comorbidities, specific needs and living situation. This interview can be done by eye- and health care workers, ophthalmic nurses, teachers, social workers, rehabilitation staff or others with knowledge of the causes of vision loss and vision rehabilitation processes. Such assessments would be conducted in schools, community settings, secondary eye- and health care centres, district hospitals and rehabilitation facilities.

Visual functions must be assessed (including visual acuity, contrast sensitivity, depth perception, colour vision, light and dark adaptation, and central/peripheral visual fields as indicated) and refraction should be done. At this level, discussion and education with the individual concerned and his or her family are particularly important and should be repeated as necessary during follow up. Vision assessment equipment and ophthalmic equipment should be used to conduct these assessments. The evaluation should be done by eye care providers, such as ophthalmologists, optometrists, ophthalmic clinical officers, ophthalmic technicians or orthoptists and conducted in health settings that provide low vision rehabilitation services, schools, optometry clinics, orthoptic clinics, eye care or refraction centres, ophthalmology clinics or in people's homes.

Assessment at secondary level should also assess how the individual uses their residual vision to perform tasks (functional vision) and the ability or inability to carry out activities of daily living requiring vision, such as reading, writing, using a computer or ambulation. These assessments could be conducted by eye health professionals, allied health professionals, rehabilitation specialists, orientation and mobility specialists or education specialists, and could be carried out in schools, community settings, secondary eye and health centres, district hospitals, rehabilitation facilities or in people's homes.

Rehabilitation

Low vision aids should be demonstrated with trial devices. Initial training should be provided and then devices prescribed and provided. The standard list of devices for secondary centres can be found in Annex 4. This should be done by eye care providers, including orthoptists, optometrists, ophthalmic clinical officers and ophthalmologists. Services in this regard should be provided in health settings that provide low vision rehabilitation services, optometry clinics, orthoptic clinics, eye care or refraction centres, ophthalmology clinics, or in schools or people's homes.

Rehabilitation at the secondary level should also include additional training in the use of low

vision devices as required, as well as training in conducting activities of daily living, and the use of alternate strategies and senses, and modifications to the environment. Orientation and mobility training to ensure safe ambulation should be provided if required. Training should be done using distance and near vision devices, activities of daily living and mobility devices, filters, and sighted guide techniques. Training should be provided by eye health professionals, allied health professionals, rehabilitation specialists, orientation and mobility instructors, and education specialists, and should be carried out in secondary eye and health facilities, district hospitals and rehabilitation centres, schools and community or home settings.

Training in the use of assistive technologies, such as computer accessibility, text to speech, cell phone accessibility and GPS technology, should also be provided using appropriate technologies matched to user goals. Devices may include mobile telephones, tablets and computers. Training in the use of assistive technologies should be provided by rehabilitation specialists, orientation and mobility specialists and education specialists, and, as with training in the use of low vision devices, should be conducted in secondary eye and health facilities, district hospitals and rehabilitation centres, schools and community or home settings. Braille instruction would also be offered at secondary level.

Psychosocial support, such as counselling and peer support groups for persons with visual impairment and their families, should be provided at the secondary level. These services should be provided by psychologists, counsellors, self-help organizations, social workers, teachers and rehabilitation staff, in schools and community settings, secondary eye- and health care facilities, district hospitals and rehabilitation centres.

Case management during ongoing care should be provided by monitoring of the rehabilitation process, clinical status and progress toward goals. This should be done by rehabilitation staff in settings such as secondary eye- and health care facilities, district hospitals, rehabilitation centres, schools, community centres and homes.

Telephone and internet communication should be set up with adults and children in remote areas, or with distant consultants, for early intervention, education and rehabilitation advice. These services could be provided by any individual involved in vision rehabilitation, through education and rehabilitation resource facilities.

Where necessary, referrals should be made, by specific referral letter or process, to other levels of vision rehabilitation, eye care, health care, care for the elderly, paediatric care and education services. This should be done by eye health professionals, allied health professionals, rehabilitation specialists, orientation and mobility instructors and education specialists, in secondary eye- and health care centres, district hospitals, rehabilitation facilities, schools, homes and community settings.

Awareness

Adults and children with low vision or blindness, and the wider community, should be offered information about vision loss, and the benefits of rehabilitation and early intervention. This may include a variety of communication methods and also promotional campaigns conducted at the secondary level of service. This information should be disseminated by eye- and health care workers, ophthalmic nurses, teachers, social workers, rehabilitation staff and others with knowledge of the causes of vision loss, vision rehabilitation processes and visual milestones, in

a wide range of communities and settings in order to ensure broad coverage and accessibility. These should include schools, community settings, secondary eye- and health care facilities, district hospitals and rehabilitation centres.

Data collection

Questionnaires on quality of life and structured interviews should be administered by eye care and rehabilitation staff in eye care facilities, low vision clinics and rehabilitation centres.

Secondary "Plus" services

The following additional, non-essential standards have also been elaborated, to build on and improve the essential services at secondary level.

Assessment

Young children could be assessed to identify the need for early childhood intervention, using age appropriate visual function assessment. This would be done by paediatric ophthalmologists, optometrists, orthoptists and paediatric neurologists, in settings including schools, paediatric hospitals, secondary eye- and health care facilities, district hospitals, rehabilitations centres and homes.

Rehabilitation

Additional rehabilitation services at secondary level could include psychological support, such as counselling, conducted by psychologists or other trained personnel. Services may include clinical interviews and questionnaires. This support would be provided in secondary level eye- and health care facilities, district hospitals, rehabilitation centres, schools, homes and community settings.

Vocational counselling could also be provided by vocational counsellors, offering advice and information about employment and vocational retraining. This service could be offered in secondary eye- and health care facilities, district hospitals, rehabilitation, centres, schools, homes, workplaces and community settings.

Leisure programmes could be organized for adults and children with low vision, such as recreational camps, sports camps and community programmes. This would be done with the involvement of rehabilitation staff, technical experts and occupational therapists, and would be organized within communities and schools.

Rehabilitation could also include neurovisual interventions, using biofeedback stimulations and instruments that enhance residual visual functions, such as fixation stability, retinal sensitivity and saccadic movements. These interventions would be conducted by rehabilitation personnel, health care personnel, and would take place in health settings providing low vision rehabilitation services, such as optometry clinics, orthoptic clinics, ophthalmology clinics and eye care or refraction centres.

Home and environment evaluations and adaptations could also be provided at the secondary

level led by members of a multidisciplinary team, including specialist teachers and eye- and health care professionals working in individuals' homes and environments.

Data collection

Data should be collected, analysed and reported using assessment tools and checklists, by statisticians, researchers and epidemiologists. Such data collection should take place in settings such as secondary eye- and health care facilities, district hospitals, rehabilitation centres, schools, universities and research centres.

Tertiary level services

The tertiary level comprises specialized consultative health care, which is usually based at the national level and provided in hospital settings. Tertiary level not only includes services that deal directly with individuals requiring vision rehabilitation, but also includes research, program development, staff training, professional development, advocacy, and data collection and analysis.

Assessment

The cause of vision loss should be assessed and eye examinations conducted, using complete range of ophthalmic assessment instruments (Annex 4). These examinations should be conducted by ophthalmologists and optometrists in clinics, hospital settings and low vision centres.

The individual's history, goals, comorbidities, particular needs and living situation should be recorded, using interviews and questionnaires. These assessments and records would be made by eye- and health care workers, ophthalmic nurses, teachers, social workers, rehabilitation staff or others with knowledge of the causes of vision loss and vision rehabilitation processes, and would be conducted in eye and health centres, district hospitals, rehabilitation centres, schools or community settings.

Visual function in children and adults should be assessed as indicated (visual acuity, contrast sensitivity, fixation stability, retinal sensitivity, light and dark adaptation, depth perception, colour vision, central/peripheral visual field, refraction, and neurosensory evaluation), using distance and near visual acuity charts (for adults and children), contrast sensitivity tests, tests for light and dark adaptation, depth perception, colour vision, visual field assessment equipment, refraction equipment, electrophysiological instruments and ophthalmic diagnostic equipment. Such assessments should be carried out by eye care professionals, ophthalmic nurses or others with the ability to perform ophthalmic examinations and neurosensory assessments.

The ability of the individual to complete tasks using residual vision or functional vision, should also be assessed, including the ability to carry out activities of daily living, such as reading, writing, driving, using a computer, and ambulating. These assessments would be carried out by eye- and health care professionals, rehabilitation specialists, orientation and mobility

specialists and education specialists, and would be conducted in eye care and rehabilitation facilities that provide low vision services through a multidisciplinary approach, and in schools and community settings.

Rehabilitation

Low vision devices should be demonstrated, tried, prescribed and provided. See Appendix 4 for the list of devices for tertiary facilities. Devices should be prescribed and provided by eye care providers, such as orthoptists, optometrists, ophthalmic clinical officers and ophthalmologists, in eye care and rehabilitation facilities that provide low vision rehabilitation services through a multidisciplinary approach, and in schools or community settings.

Rehabilitation at the tertiary level should also include training in visual skills, the use of simple and advanced low vision devices, assistive technologies such as text to speech, activities of daily living, orientation and mobility, GPS, sighted guide technique and methods to modify the environment. Braille training should be included at this level of rehabilitation. Training should be in line with individuals' goals and specific needs. Training should include the use of distance and near vision devices, activities of daily living devices, mobility devices, filters, mobile telephones, tablets and computers, and should be conducted by eye health professionals, allied health professionals, rehabilitation specialists, orientation and mobility instructors and education specialists. It should be provided in eye care facilities that provide low vision rehabilitation services through a multidisciplinary approach, rehabilitation centres, schools, homes or community settings.

Psychological support for adults, children and families, should be provided through counselling sessions, self-help groups or peer support and conducted by psychologists or other trained personnel. This could take place in eye care facilities that provide low vision rehabilitation services through a multidisciplinary approach, or in schools or community settings.

Vocational counselling should also be available, offering advice and information about retraining and employment provided by vocational counsellors in tertiary eye- and health care centres, district hospitals, rehabilitation centres, schools, workplaces, homes or community settings.

Paediatric assessments and rehabilitation services for children with low vision are important at the tertiary level, including visual processing evaluation, learning media assessment, literacy instruction, assessment of neurodevelopment (cognitive, visual and spatial perception), social relations (with family and peers) and scholastic progress. These services should be provided by pediatric ophthalmologists, teachers, orthoptists, rehabilitation personnel and orientation and mobility specialists, in tertiary eye- and health care centres, district hospitals, rehabilitation centres, schools, homes and community settings.

Ongoing care and case management should be achieved by supervising the rehabilitation process and monitoring the clinical status of the individual concerned. This should be done by rehabilitation staff in national tertiary-level centres.

There should be communication among, and referral to, other levels of vision rehabilitation, eye care and health care, using specific referral contacts and information. All eye care, rehabilitation and education staff should be involved in this, and it should take place in all eye care settings at primary, secondary and tertiary levels.

Training

Training in rehabilitation methods should be available for all cadres of rehabilitation teams, through staff training curricula, courses, fellowships and mentor programmes. Staff training should be conducted by educators and trainers experienced in low vision, blindness and vision rehabilitation and should be provided by national or regional tertiary level centres.

Awareness and advocacy

Networking with other subspecialties of ophthalmology and health care as well as regional, national and international stakeholders is particularly important, and efforts should be made to establish links and contacts in that regard. Such networks should be created by National eye care committees, low vision rehabilitation practitioners and trained national focal persons, with the involvement researchers, administrators, and people with low vision and their families, and should be based in national tertiary level centres.

Awareness raising should be conducted and information disseminated for adults and children with low vision or blindness and the wider community. This should be done using evidence-based messages promotional campaigns, media, outreach and education materials, and by designing and producing materials in national centres. Such awareness raising and the dissemination of information should be conducted by eye- and health care workers, ophthalmic nurses, teachers, social workers, rehabilitation staff and others with a knowledge of the causes of vision loss, vision rehabilitation and visual milestones, and should take place in rehabilitation, academic and health care settings.

Advocacy with regard to the needs of individuals with irreversible vision loss and policies on the development and sustainability of vision rehabilitation services are also necessary and should be initiated in collaboration with all stakeholders including provincial and national governments and the national eye care leaders. Allied eye health and community groups can be involved. This should be co-ordinated by staff in national centres at tertiary level.

Data collection and research

Data collected from primary, secondary and tertiary services should be analysed and reported by the tertiary level. This may include data from questionnaires, quality of life tools, and structured interviews. Analysis should be conducted by epidemiologists and data scientists tertiary settings.

Research related to impacts of vision loss, new technologies, new treatments, outcomes of services, and universal design of materials and environments, should be conducted by establishing collaborative networks and conducting investigations. These types of research should be done by researchers, clinicians, engineers, epidemiologists and health services researchers, at national tertiary level facilities.

Indicators

Performance indicators can be used to assess the outcomes and impact of applying vision rehabilitation standards. These have been divided into essential and optional indicators, with the optional indicators providing more detailed and in-depth analysis of the impact of services provided.

Essential

- Number of people served and the percentage of people with low vision with access to vision (re)habilitation services
- Number of equipped facilities established
- Number and type of personnel trained
- Number and type of devices prescribed, trained and dispensed
- Number of referrals received at all three levels
- Assessment of impact on quality of life in the areas of:
  a. Education
  b. Employment, leisure and ADL
  c. Psychosocial well-being

Optional

- Number of people with low vision assessed:
  a. New cases
  b. Follow up cases
  c. Disaggregated by demographics
  d. Comorbidities
- Number of follow up consultations per patient
- Number of trained staff retained
- Number and types of awareness-raising programs developed and executed

Conclusion

The standard-setting process has resulted in a comprehensive set of standards for vision rehabilitation at the three levels of care, which can be applied in developed and developing settings alike. These standards comprise a comprehensive, multidisciplinary approach to eye care and rehabilitation. Efforts are placed not only on diagnosis, treatment and rehabilitation care, but also on the importance of advocacy, awareness raising among families and communities, and ensuring adequate training for all individuals working with people with visual impairment, whether at the clinical or rehabilitation areas or within the wider context. The relevance of data collection and analysis for ensuring an evidence-based approach at all levels is also emphasized, along with the importance of research and development.

The standards aim to help governments provide a quality of care and support for persons with visual impairment to maximize their participation at home, work, education and leisure to enhance quality of life and well-being and optimize their potential within society, thus reducing the burden of comorbidities, such as depression, dependency, accidents and fall-related injuries.

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Annex 1

WHO International Consensus Conference Committees

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Christian CORBÉ	France	Scientific Committee
Susanne TRAUZETTEL-KLOSINSKI	Germany	Scientific Committee
Simona TURCO	Italy	Scientific Committee
Cristina MARTINOLI	Italy	Working Group
Susanne TREFZER	Switzerland	Working Group
Jorgen GUSTAFSSON	Sweden	Scientific Committee
Bahran BODAGHI	France	Working Group
Gérard DUPEYRON	France	Working Group
Klaus ROHRSCHNEIDER	Germany	Working Group
Ger VAN RENS	Holland	Working Group
Ludmilla A. KATARGINA	Russia	Working Group
Vladimir NEROEV	Russia	Working Group
Barbara KREJČI PIRY	Slovenia	Working Group
Kirwan ASSELINEAU	Lithuania	Working Group
Antonio MACEDO	Portugal	Working Group

WHO EASTERN MEDITERRANEAN REGION Scientific Committee:

NAME	COUNTRY	WHO-ICC ROLE
Ahmed TRABELSI	Tunisia	CHAIR
Boshra EL BAYOUMI	Egypt	Scientific Committee
Hedia FARAH	Tunisia	Working Group
Hasan MINTO	Pakistan	Scientific Committee

WHO WESTERN PACIFIC REGION Scientific Committee:

NAME	COUNTRY	WHO-ICC ROLE
Jill KEEFFE	Australia	CHAIR
Peggy Pei-Chia CHIANG	Singapore	Scientific Committee
Tomoshige HAYASHI	Japan	Scientific Committee
Marie MIWA	Japan	Scientific Committee
Ching-Ju HSIEH	Taiwan	Working Group
Danial BOHAN	Singapore	Working Group
Hu ALIAN	China Tongren	Working Group
He CHUAN	China CDPF	Working Group

Annex 2

International Consensus Conference on Vision Rehabilitation Standards "ICC Rome2015" Rome, ITALY, 9-12 December 2015

Final list of partecipants

Core Scientific Committee

Dr Filippo AMORE, Chief Medical Officer, Ophthalmologist, WHO Collaborating Centre for Vision rehabilitation, Rome, Italy
Dr Mary Lou JACKSON, Clinical Assistant Professor, University of British Columbia, Ophthalmology and Visual Sciences, Faculty of Medicine, Vancouver, BC, Canada
Professor Jill KEEFFE, Faculty Professor, LV Prasad Eye Institute, Hyderabad, India
Dr Silvio Paolo MARIOTTI, Prevention of Blindness and Deafness, World Health Organization, Geneva, Switzerland

WHO Regional Chairs

Mrs Zahra Aly RASHID, Optometrist & Low Vision Consultant, Nairobi, Kenya
Dr Mary Lou JACKSON, Clinical Assistant Professor, University of British Columbia, Ophthalmology and Visual Sciences, Faculty of Medicine, Vancouver, BC, Canada
Professor Saman SENANAYAKE, Consultant Ophthalmologist, Department Of Ophthalmology, Centre for Sight, Teaching Hospital, Kandy, Sri Lanka
Professor Pierre-Yves ROBERT, Head of Department, Ophthalmology CHU Limoges, Limoges Faculty of Medicine, Limoges, France
Professor Ahmed TRABELSI, Chairman, Clinique Ophtalmologique de Tunis, President Nadi Al Bassar, Tunis, Tunisia
Professor JILL KEEFFE, Faculty Professor, LV Prasad Eye Institute, Hyderabad, India

Technical Experts in Vision rehabilitation from WHO Regions

Dr Charles O. BEKIBELE, Department of Ophthalmology, College of Medicine, University of Ibadan & University College Hospital, Ibadan, Nigeria
Dr Bahram BODAGHI, DHU Vision and Handicaps, Pierre and Marie Curie University, Hôpital Pitié-Salpêtrière, Paris, France
Dr Vanessa BOSCH, Chief, Ophthalmology Service, Instituto Nacional de Pediatría, Mexico D.F., Mexico
Dr Anasaini Tinairatuki CAMA, Prevention of Blindness Coordinator Pacific Sub Region, IAPB, Suva, Fiji

Dr Georges CHALLE, Vision Institute, Department Vision Handicap, Paris, France
Dr Ekaterina DENISOVA, WHO Collaborating Centre for the Prevention of Blindness, Department of Infectious & Allergic Eye Diseases, Helmoltz Institute of Ophthalmology, Ministry of Health and Social Development, Moscow, Russia
Dr Anne EBRI, Brien Holden Vision Institute, West Africa Office, Calabar, Nigeria
Dr Kapila EDUSSURIYA, Medical Officer, Centre for Sight, Teaching Hospital Kandy, Sri Lanka
Professor Boshra EL BAYOUMI, The Research Institute of Ophthalmology, Cairo, Egypt
Dr Hedia FARAH, Nadi Al Bassar, Tunis, Tunisia
Dr Luciene FERNANDES, Federal University of Minas Gerais Santa Efigênia, Belo Horizonte, Brazil
Mrs Melanie GAUTHIER, French Association of Orientation and Mobility Instructors AILDV, Grenoble, France
Ms Yuko HAGA, International Association for The Visually Impaired, Tokyo, Japan
Dr Jaouad HAMMOU, Head of the Service of Ocular and Ontological Diseases Epidemiology and Disease Control Directorate, Ministry of Health, Rabat, Kingdom of Morocco
Dr Ching-Ju HSIEH, MD Dep. of Ophthalmology, National Taiwan University Hospital, Taipei Taiwan
Dr Ailian HU, Beijing TongRen Eye Center and Low Vision Center, Beijing TongRen Hospital, Capital Medical University, Beijing, China
Dr Ilango KRISHNAMURTHY, Aravind Eye Hospitals, Aravind, India
Dr Linda LAWRENCE, Pediatric Ophthalmologist, Member of the International Council of Ophthalmology and of The American Academy of Ophthalmology, Private Practice, Salina, Kansas, USA
Dr Cristina MARTINOLI, Scientific Director, Visually Impaired Institute “David Chiossone Onlus” Genoa, Italy
Dr Claire MEYNIEL, Neurologist, Association Francophone des Professionnels de Basse Vision, Vincennes, France
Dr Marie MIWA, Head Orthoptist, Department of Rehabilitation, Low Vision Training Hospital, National Rehabilitation Centre for Persons with Disabilities, Tokorozawa, Japan
Dr Michael NDIFON, Ophthalmology Department, Regional Hospital Limbe Fako Division, South West Region, Cameroon
Dr Simona TURCO, Ophthalmologist, WHO Collaborating Centre for Vision rehabilitation, Rome, Italy
Dr Tracy WILLIAMS, Spectrios Institute for Low Vision at Deicke House, Illinois, USA

Additional Technical Experts from other Organizations/Institutions working in the Area of Vision rehabilitation

Dr Filippo CRUCIANI, Scientific Coordinator, Ophthalmologist, WHO Collaborating Centre for Vision rehabilitation, Rome, Italy
Dr Romina FASCIANI, Ophthalmologist, Policlinico Agostino Gemelli Foundation, Rome, Italy
Mrs Kay Alicyn FERRELL, Regional Chair, International Council on Education of Persons with Visual Impairments, USA

Mrs Stefania FORTINI, Psychologisyt/Psychotherapist, WHO Collaborating Centre for Vision rehabilitation, Rome, Italy
Professor Lea HYVÄRINEN, Honorary Professor in Rehabilitation Science at the Technical University of Dortmund, Germany
Dr John KELLY, Association for Education and Rehabilitation of the Blind and Visually Impaired, USA
Mrs Barbara KREJČI PIRY, Coordinator of European Blind Union (EBU) Low Vision Network, Ljubljana, Slovenia
Mrs Unn LJONER-HAGEN, President of the Norwegian Association of the Blind and Member of the Executive Committee of the World Blind, Norway
Mrs Reidun NYGAARD, World Blind Union, Accompanying Person, Norway
Dr Daniela RICCI, Pediatric Neurologist, WHO Collaborating Centre for Vision rehabilitation, Rome, Italy

Observers
Mrs Marie Anne SLIWINSKI, Lions Clubs International, Accompanying Person, USA
Mrs Debra WASSERMAN, Past International Director, Lions Clubs International, USA

Annex 3

Summary tables of international standards for vision rehabilitation

Essential services at primary level

STANDARD

PRIMARY			
WHAT (Services)	**HOW (Equipment)**	**WHO (Workforce)**	**WHERE (Place where services are provided)**
ASSESSMENT			
Vision screening for adults and children including distance and near visual acuity and confrontation visual field assuring that eye care is available	Simplified visual acuity charts (distance and near, adult and pediatric), pen torch. The WHO Low Vision Kit can be used	Primary eye and health care workers, community workers, teachers, or others trained to measure visual acuity and confrontation visual field	Community and other settings that provide services such as primary health centres, CBR centres, maternal and child centres, eye and health centres, schools and community centres
Assessment of individual needs of adults' and children's goals and personal risks. Assessment of functional vision (how the individual uses their vision)	Functional vision assessment such as doing daily tasks that are important to the individual or using WHO Low Vision Kit	Primary eye and health care workers, community workers, teachers, or others trained to assess personal needs and environment	Community and other settings that provide services such as primary health centres, CBR centres, maternal and child centres, eye and health centres, schools and community centres
REHABILITATION			
Provision of non-optical devices, training in activities of daily living, basic mobility and modifications of the environment	Non-optical devices such as writing instruments, bold pens, activities of daily living equipment, reading stands, lamps, high contrast items, filters, increased contrast toys. Instruction such as sighted guide technique or basic protection technique	Primary eye and health care workers, community workers, teachers, or others with the capacity to provide basic rehabilitation methods for adults and children with visual impairment	Community and other settings that provide services such as primary health centres, CBR centres, maternal and child centres, eye and health centres, schools and community centres
Information and referrals for adults and children such as referrals for comprehensive eye examination, other levels of rehabilitation, general health care, aged care, early childhood services, social and education services	Specific referral contacts	Primary eye and health care workers, community workers, teachers, or others with an understanding of needs for referral to vision rehabilitation, eye care, general health care, aged care, early childhood services, social and education services	Community and other settings that provide services such as primary health centres, CBR centres, maternal and child centres, eye and health centres, schools and community centres

STANDARD	Follow up to use of rehabilitation services as needed	Evaluation/contact as required	Primary eye and health care workers, community workers, teachers, or others with knowledge of vision rehabilitation, eye care, health care, aged care, early childhood services, social and education services	Community and other settings that provide services such as primary health centres, CBR centres, maternal and child centres, eye and health centres, schools and community centres
	AWARENESS			
	Information for adults and children with low vision or blindness and the wider community to raise awareness of vision loss and the benefit or rehabilitation and early intervention	Through effective communication instruments and promotional campaign. With awareness and access to education/ information material	CBR, volunteers, primary health care workers and vision technicians or others with knowledge of eye disease, knowledge of the vision rehabilitation process and visual milestones	Community and other settings that provide services such as primary health centres, CBR centres, maternal and child centres, eye and health centres, schools and community centres
	DATA COLLECTION			
	Data collection	Indicators such as numbers and details regarding individuals served	Primary eye and health care workers, community workers, teachers or others with a knowledge of data collection	Settings that provide services such as primary health centres, CBR centres, maternal and child centres, eye and health centres, schools and community centres

Primary "Plus" services

STANDARD	PRIMARY			
	WHAT (Services)	**HOW (Equipment)**	**WHO (Workforce)**	**WHERE (Place where services are provided)**
	ASSESSMENT			
	Refraction, reading evaluation	Refraction equipment, reading tests	Ophthalmologists, optometrists, orthoptists, vision technicians, ophthalmic technologists or other personnel trained in refraction	Community and other settings that provide services such as primary health centres, CBR centres, maternal and child centres, eye and health centres, schools and community centres
	REHABILITATION			
	Support for persons with visual impairment and families such as information, counselling and peer support groups	Access to information and services such as self-help organizations	Primary eye and health care workers, community workers, teachers, or others with knowledge of information and services	Community and other settings that provide services such as primary health centres, CBR centres, maternal and child centres, eye and health centres, schools and community centres
	Prescription, provision and training with low vision devices for adults and children	Distance and near devices, adaptive devices, filters, accessible cell phones, audio book players, ADL devices * **	Eye care practitioners such as orthoptists, optometrists, ophthalmologists, vision technicians (refractionists), rehabilitation workers, itinerant or school-based teachers, CBR workers, social welfare staff	Eye care and rehabilitation centres and schools
	Basic rehabilitation for adults and children including training in the use of optical low vision devices	Devices identified as most useful to satisfy the personal needs, recommendations on how to best manage daily activities and recommendations on how to best modify their environment (domestic, school and work) and conduct sighted guide	Primary eye and health care workers, community workers, teachers	Community and other settings aiming that provide services such as primary health centres, CBR locations, maternal and child centres, eye and health centres, schools and community centres
	Telephone/internet communication for consultations with adults and children in remote areas or with distant consultant	Early intervention, education and rehabilitation advice	Any individual involved in vision rehabilitation	Primary, secondary or tertiary services

* Refer to the WHO GATE list
** Standard list of devices for primary level (Annex 4)

Essential services at secondary level

STANDARD	SECONDARY			
	WHAT (Services)	**HOW (Equipment)**	**WHO (Workforce)**	**WHERE (Place where services are provided)**
	ASSESSMENT			
	Record individual history, goals, comorbidities, needs, living situation, etc.	Interview	Eye and health care workers, ophthalmic nurses, teachers, social workers, rehabilitation staff or others with knowledge of causes of vision loss and vision rehabilitation process	Settings such as schools, community settings, secondary eye and health centres, district hospitals and rehabilitation centres
	Assessment of residual visual functions (visual acuity, contrast sensitivity, depth perception, color vision, light and dark adaptation, central/ peripheral visual field as indicated) and refraction. Discussion and education with patient and family. Repeated as necessary at follow up visits	List of vision assessment equipment, ophthalmic equipment	Eye care providers such as ophthalmologists, optometrists, ophthalmic clinical officers, ophthalmic technicians or orthoptists	Health settings providing a low vision rehabilitation service, schools, optometry clinics, orthoptic clinics, eye care or refraction centres, ophthalmology clinics, homes
	Assessment of functional vision and ability to carry out activities of daily living requiring vision (such as reading, writing or using a computer), assessment of vision for mobility	Assess use of vision by adults and children to complete a range of tasks such as reading, using a computer, ambulating, etc.	Eye health professionals, allied health professionals, rehabilitation specialists, orientation and mobility specialists, education specialists	Settings such as schools, community settings, secondary eye and health centres, district hospitals, homes and rehabilitation centres
	REHABILITATION			
	Prescription and provision of low vision aids	Trial devices for demonstration and prescription for use by people with low vision or blindness*	Eye care providers such as orthoptists, optometrists, ophthalmic clinical officers, ophthalmologists	Health settings providing a low vision rehabilitation service, schools, optometry clinics, orthoptic clinics, eye care or refraction centres, homes, ophthalmology clinics

STANDARD				
	Rehabilitation including training in the use of vision with and without low vision devices, activities of daily living, orientation and mobility, visual and alternative strategies and senses, Braille and modifications to the environment	Distance and near devices, activities of daily living and mobility devices, filters, resources regarding sighted guide techniques	Eye health professionals, allied health professionals, rehabilitation specialists, orientation and mobility instructors, education specialists	Settings such as secondary eye and health centres, district hospitals and rehabilitation centres, schools and community or home settings
	Training with assistive technologies, audio, Braille, GPS, etc.	Appropriate technologies for patients goals e.g. cell phones, tablets, computers	Rehabilitation specialists, orientation and mobility specialists, educational specialists	Settings such as secondary eye and health centres, district hospitals, rehabilitation centres, schools, homes and community settings
	Psychosocial support such as counselling and peer support groups for persons with visual impairment and their families	Individual and group interaction	Psychologists, counsellors, self-help organizations, social workers, teachers, rehabilitation staff	Settings such as schools, community, secondary eye and health centres, district hospitals and rehabilitation centres
	Case management and ongoing care	Supervision of vision rehabilitation process, monitoring clinical status	Rehabilitation staff	Settings such as secondary eye and health centres, district hospitals, rehabilitation centres, schools, community centres and homes
	Telephone/internet communication with adults and children in remote areas or with distant consultants	Early intervention, education and rehabilitation advice	Any individual involved in vision rehabilitation	Educational and rehabilitation resource centres
	Referral to other levels of vision rehabilitation, eye care, health care, aged care, pediatric and education services	Specific referral letter	Eye health professionals, allied health professionals, rehabilitation specialists, orientation and mobility instructors, education specialists	Settings such as secondary eye and health centres, district hospitals, rehabilitation centres, schools, homes and community settings
	AWARENESS			
	Awareness of information for adults and children with low vision or blindness and the wider community to raise awareness of vision loss, benefit of rehabilitation and early intervention	Through effective communication instruments and promotional campaigns with awareness and access to education/ information material	Eye and health care workers, ophthalmic nurses, teachers, social workers, rehabilitation staff or others with knowledge of causes of vision loss, vision rehabilitation process and visual milestones	Wide range of communities and settings aiming to provide broad coverage and accessibility in settings such as schools, community, secondary eye and health care centres, district hospitals and rehabilitation centres
	DATA COLLECTION			
	Data collection	Questionnaires QoL, structured interviews for specific purposes	Eye care and rehabilitation staff	Eye care, low vision clinics and rehabilitation centres

* Standard list of devices for secondary level (Annex 4)

Secondary "Plus" services

STANDARD	SECONDARY			
	WHAT (Services)	**HOW (Equipment)**	**WHO (Workforce)**	**WHERE (Place where services are provided)**
	ASSESSMENT			
	Assessment of young children for early childhood intervention	Age appropriate visual function assessment	Pediatric ophthalmologists, optometrists, orthoptists, pediatric neurologists	Pediatric hospitals, schools, settings such as secondary eye and health centres, district hospitals, habilitation/rehabilitation centres and homes
	REHABILITATION			
	Psychological supports such as counselling	Clinical interviews, QoL questionnaires	Psychologists or trained personnel	Settings such as secondary eye and health care centres, district hospitals, rehabilitation centres, schools, homes and community settings
	Vocational counselling	Interviews, advice and information about retraining and employment	Vocational counsellor	Settings such as secondary eye and health care centres, district hospitals, rehabilitation centres, schools, homes, work and community settings
	Leisure programs for adults and children such as recreational camps and sport	Sports, summer camps, community programs	Rehabilitation staff, technical experts, occupational therapists	Communities, schools
	Rehabilitation through neurovisual interventions	Instruments for biofeedback stimulations, instruments aimed at enhancing residual visual functions such as fixation stability, retinal sensitivity, saccadic movements, etc.	Rehabilitation personnel, health care personnel, teachers	Health settings providing low vision rehabilitation services such as optometry clinics, orthoptic clinics, eye care or refraction centres, ophthalmology clinics
	Home and work environment evaluation	Home and work environment assessment and adaptation	Multi-disciplinary team including specialist teachers, eye and health care professionals	Home and work environment
	DATA COLLECTION			
	Data collection, analysis and reporting	Assessment tools and checklists	Statisticians, researchers, epidemiologists	Settings such as secondary eye health centres, district hospitals, rehabilitation centres, schools, university and research centres

Tertiary level services

TERTIARY			
WHAT (Services)	**HOW (Equipment)**	**WHO (Workforce)**	**WHERE (Place where services are provided)**
ASSESSMENT			
Assessment of cause of vision loss/eye examination	Complete ophthalmic assessment instruments	Ophthalmologists and optometrists	Clinical and hospital settings, low vision centres
Record individual history, goals, comorbidities, needs, living situation, etc.	Interviews, QoL questionnaires for specific purposes	Eye and health care workers, ophthalmic nurses, teachers, social workers, rehabilitation staff or others with knowledge of causes of vision loss and vision rehabilitation process	Settings such as tertiary and secondary eye and health centres, district hospitals, rehabilitation settings, schools and community settings
Assessment of visual function in children and adults (visual acuity, contrast sensitivity, fixation stability, retinal sensitivity, light and dark adaptation, depth perception, color vision, central/ peripheral visual field, refraction, and neurosensory evaluation)	Distance and near visual acuity charts (for adults and children), contrast sensitivity tests, tests for light and dark adaptation, depth perception, color vision, visual field assessment equipment, refraction equipment, electrophysiological instruments and ophthalmic diagnostic equipment	Eye care professionals, ophthalmic nurses or others with ability to perform ophthalmic examination and neurosensory assessment	Eye care settings providing a low vision rehabilitation service through a multi-disciplinary team, school or community
Assessment of functional vision and ability to carry out activities of daily living requiring vision (such as reading, writing, driving, using a computer) and assessment of mobility	Assess use of vision by adults and children to complete a range of tasks such as reading, using a computer, ambulating, etc.	Eye and health care professionals, allied health professionals, rehabilitation specialists, orientation and mobility specialists, educational specialists	Eye care settings providing a low vision rehabilitation service through a multi-disciplinary team, school or community
REHABILITATION			
Prescription and provision of low vision devices	Trial devices for demonstration; devices for prescription and use by people with low vision or blind (list of devices for tertiary centres)	Eye care providers such as orthoptists, optometrists, ophthalmic clinical officers, ophthalmologists	Eye care settings providing a low vision rehabilitation service through a multi-disciplinary team, school or community

Rehabilitation including training in visual skills, the use of simple and advanced low vision devices, activities of daily living, orientation and mobility, and modifying the environment	Distance and near devices, activities of daily living and mobility devices, filters, resources for mobility and use of sighted guide technique	Eye health professionals, allied health professionals, rehabilitation specialists, orientation and mobility instructors, education specialists	Eye care settings providing a low vision rehabilitation service through a multi-disciplinary team, school or community
Training with assistive technologies, audio, Braille, GPS, etc.	Appropriate technologies for patients goals e.g. cell phones, tablets, computers	Rehabilitation specialists, orientation and mobility specialists, educational specialists	Settings such as tertiary and secondary eye and health centres, district hospitals, rehabilitation centres, schools, homes and community settings
Psychological support such as counselling and peer support for adults, children and families	Counselling, self-help groups, clinical interviews, QoL questionnaires	Psychologists or trained personnel	Eye care settings providing a low vision rehabilitation service through a multi-disciplinary team, school or community
Vocational counselling	Interviews, advice and information about retraining and employment	Vocational counsellor	Settings such as tertiary eye and health centres, district hospitals, rehabilitation centres, schools, work settings, homes and community settings
Childhood specific assessment and services	Visual processing evaluation, learning media assessment, literacy instruction, assessment of neurodevelopment area (cognitive, visual and spatial perception), social relations (with family and peers), scholastic programs	Pediatric ophthalmologists, teachers, orthoptists, rehabilitation personnel, orientation and mobility specialists	Settings such as tertiary eye and health centres, district hospitals, rehabilitation centres, schools, home and community settings
Case management/ Ongoing care	Supervision of vision rehabilitation process, monitoring clinical status	Rehabilitation staff	National tertiary centre
Communication with and referral to other levels of vision rehabilitation, eye care, health care, aged care, early childhood services, social and education services	Specific referral contacts and information	All eye care, rehabilitation and education staff	Eye care, primary, secondary or tertiary rehabilitation centres or schools
TRAINING			
Training in rehabilitation for all cadres of rehabilitation teams	Curriculum, courses, fellowships, mentorships	Educators/trainers experienced in low vision, blindness and vision rehabilitation	National tertiary centre

AWARENESS AND ADVOCACY			
Networking with national, international and regional stakeholders and sub-specialty health care	Establish linkages and contacts	Vision 2020 committees, practitioners in low vision centres and trained national focal person. Stakeholders, researchers, administrators, people with low vision and families	National tertiary centre
Awareness and information for adults and children with low vision or blindness and the wider community	Through effective communication materials, promotional campaigns, media, outreach and education/information material, design and production of materials in national centres	Eye and health care workers, ophthalmic nurses, teachers, social workers, rehabilitation staff or others with knowledge of causes of vision loss, vision rehabilitation process and visual milestones	Rehabilitation, academic or health care settings
Advocacy on needs of people with irreversible vision loss, policies on development and sustainability of services	Multimedia, collaboration with stakeholders and National Eye Care Committee	Allied eye health and civil society groups	National tertiary centre
DATA COLLECTION AND RESEARCH			
Data collection, analysis and reporting	Questionnaires, QoL tools, structured interviews for specific purposes	Epidemiologists, data scientists	Primary, secondary and tertiary centres
Research (new technologies, novel treatments, outcome and impact of services), universal design of materials and environments	Establishing collaborative networks, investigation, analysis of data collected from service delivery levels	Researchers, clinicians, engineers, epidemiologists, health services researchers	National tertiary centre

Essential services at primary level for children

STANDARD

PRIMARY				
WHAT (Services)	**HOW (Equipment)**	**WHO (Workforce)**	**WHERE (Place where services are provided)**	**INDICATORS (What do we measure) DATA**
GENERAL: Child find				
Identification and detection Community-based screening of infants, toddlers, and children for visual impairment, or delayed development for any reason, parental concern	Posters and brochures of visual milestones, vision screening with emphasis on developmental milestones, education to nurses, doctors, teachers, family, community based workers, use developmental and medical history, milestones and visual behaviors	**Who has the child?** Primary eye and health care workers, community workers, teachers, others trained to work with early childhood, parents	**Where is the child?** Community and other settings that provide services such as primary health centers, CBR centers, maternal and child centers, eye and health centers, school and community centers	Number of children screened; proportion of children referred to secondary services. CBR gain knowledge to work with children with low vision
Birth-3 Years: Child Find				
Identification and detection, Community-based screening of infants, toddlers, and children for visual impairment, or delayed development for any reason	Posters and brochures of visual milestones and developmental milestones, eye contact/red reflex to detect ocular pathology, list of high risk diagnoses, observation of visual milestones and general developmental milestones including delayed use of vision for communication, education for parents in typical development of infant/toddler parental concerns	Trained health professionals, primary eye and health care workers, community workers, teachers, others trained to work with early childhood	Immunization clinics, maternal/child health clinics, CBR, pre/post natal clinics, local community health centers, day cares, preschools	Children referred for further assessment to secondary level
> 3 years: Child Find				
Identification and detection, community-based screening early school aged children with visual impairment, delayed development for any reason	Age-appropriate, culturally appropriate, near and distance charts, LEA symbols test, thorough visual assessment	Trained health professionals, primary eye and health care workers, community workers, teachers, others trained to work with early preschool and school aged children	Community and other settings that provide services such as primary health centers, CBR centers, maternal and child centers, eye and health centers, school and community centers	Children referred to secondary level services and back to community for rehabilitation

STANDARD					
	Habilitation/Rehabiitation Infant/Toddler				
	Promote childhood development and use of vision for learning, communication, mobility, access to information, and overall development	Education of parents and community based workers (nurses, teachers, other health care workers) with training courses, brochures, online resources	Trainers in early childhood development and use of vision	Train trainers at the local, community level	Number of high risk infants/toddlers seen and referred to community based services and to secondary and tertiary services
	Children in preschools				
	Teach children in use of available vision for school, independence and safety	Education of teachers in the early education school, community based workers	Community based rehabilitation workers, parent and trained teachers, community based workers trained in visual impairment and in use of available vision	Home, school and community	Enrolled in school, participation in community such as social, leisure

Primary "Plus" services for children

STANDARD PLUS	PRIMARY				
	WHAT (Services)	**HOW (Equipment)**	**WHO (Workforce)**	**WHERE (Place where services are provided)**	**INDICATORS (What do we measure) DATA**
	Early intervention services birth to school age	Develop early intervention services at the primary level by training local persons, secondary and tertiary centers provide the instruction and resources to the local community in order to develop early intervention programs	Trained teachers or CBR workers with instruction from secondary or tertiary centers, implementing on community level, orientation and mobility specialists, early assessment by trained early interventions specialists, teachers trained to use families daily routine in the intervention process	Local community provides the interventions	Family and child quality of life indicator questionnaires, developmental outcomes, number of children receiving early intervention services [annual growth]
	Comprehensive eye exam including cycloplegic refraction	Optotype test age, ability, and culturally appropriate, confrontational visual fields, contrast sensitivity, stereopsis, cycloplegic agents available, funduscopic exam	Ophthalmologist or optometrist trained to work with children with low vision	Community health clinics, schools, local community	Referral to secondary or tertiary level

Essential services at secondary level for children

STANDARD	SECONDARY				
	WHAT	**HOW**	**WHO**	**WHERE**	**INDICATORS**
	Access to diagnosis and further diagnostic evaluation	Professional readiness	Low vision professionals	Eye clinics, pediatric hospitals, schools, schools for the blind	Number of evaluations conducted
	Functional visual assessment	Age-appropriate, culturally appropriate near (standard increased crowding) and distance charts, color vision tests, contrast sensitivity test, visual field test, functional assessments of vision for learning, parent input, routine based assessment	Low vision professionals, specialist teachers and/or therapists	Eye clinics, pediatric hospitals, schools	Number of evaluations conducted
	Refraction	Refraction equipment: retinoscopy, loose lenses or sciascopy, or phoropter, evaluation of dynamic retinoscopy	Trained refractionist, eye care professionals	Eye clinics, pediatric hospitals	Number of refractions conducted
	Prescription and provision of corrective lenses				Corrective lenses prescribed and worn
	Prescription and provision of low vision devices				Low vision devices prescribed and used
	Orientation and mobility services	Evaluation of independence and safety in home and community settings and train families	Trained orientation and mobility specialists or the equivalent in other settings	Homes, community centers, schools	Ability to perform independently and safely in the environment
	Tele-medicine and tele-intervention	Use of cell phones or tablets to guide progress	Trained health and educational specialists	Homes, community centers, schools	Number of sessions per family, referral to tertiary services

Secondary "Plus" services for children

STANDARD PLUS	SECONDARY				
	WHAT	**HOW**	**WHO**	**WHERE**	**INDICATORS**
	Participation in research	Collecting and sharing data	Researchers, university personnel, ministry of health officials	Eye clinics or hospitals	Number of publications
	Early intervention assessment	Higher level assessment and intervention services from birth to school age with visual impairment	Multidisciplinary team including specialist teachers, eye and health care professionals	Pediatric hospitals, schools, centers for children with special needs	Number of families of children with vision impairment receiving services
	Leisure/ recreational programs for children with visual impairment	Sports, summer camps, community programs, integration into community programs	Health and education workers, specialist teachers	Community, schools, local settings	Number of children participating in community leisure and recreational programs

Tertiary level services for children

TERTIARY				
WHAT	**HOW**	**WHO**	**WHERE**	**INDICATORS**
Training for eye and health professionals	Workshops, courses, clinics, continuing education	Eye care professionals, interventionists and therapists who work with children	Eye clinics, hospitals, rehabilitation centers	Number of persons trained
Access to diagnosis and further diagnostic evaluation	Refraction equipment, age and culturally appropriate near (standard increased crowding) and distance chart, colour vision tests, stereopsis, visual field testing, functional visual assessment	Multidisciplinary team trained specifically for children with visual impairment, which may include: Low vision professionals, Psychologist, Specialist teachers, Therapists, Trained O&M specialists, Neuropsychologist, Pediatricians, Ophthalmologist, Speech Communication specialists, Early intervention specialists, Neurodevelopmental treatment specialists, Architects, Transportation, Planners		Number of low vision aids including glasses prescribed; number of referrals to early intervention and/or educational services
Comprehensive clinical low vision evaluation	Clinical Low vision specialist		Inclusive and specialized schools	
Visual processing evaluation	Assessment tools for visual processing			Low vision devices prescribed and being used
Functional visual assessment	Functional visual assessment			
Learning media assessment	Formal or informal learning media assessment to determine reading medium			
Refraction	Refraction equipment and expertise including retinoscopy, cycloplegic refraction, dynamic retinoscopy			
Prescription and provision of low vision devices	Clinical low vision evaluation			
Provision of orientation and mobility services	Orientation and mobility evaluation			Ability to move in the environment
Literacy instruction	Instruction in reading, provision of materials in large print, regular print, Braille		Inclusive and specialized schools	Child performance in schools, evidence of performance

	Tele-medicine and tele-intervention	Access technology to do teleconsultation and learning			
	Professional development and training	Train the trainers			
	Universal design of materials and environments				
	Research	Collecting and sharing data	Researchers, university personnel, ministry officials	Eye clinics or hospitals	Number of publications

Annex 4

Lists of devices required at primary, secondary and tertiary levels

GATE list of assistive devices and technology essential at primary level

1. Braille writer
2. Refreshable Braille display
3. White canes (folding, non-folding)
4. Screen readers
5. Talking/touching watches
6. Handheld digital magnifiers
7. Playback device for Daisy format content
8. Spectacle for low vision (short/long distance, filters, protection)
9. Optical magnification (readers, handhelds, telescopes)

Others

- Text to speech software
- Magnifying glasses
- Portable Braille note takers
- PC magnifiers
- Braille printers
- Automatic Speech Recognition software
- Talking calculator
- Braille translation software
- Bifocal spectacles/glasses
- GPS based devices
- Electronic magnifiers
- Character reading machines
- Sport equipment for the blind
- MP3/audio player
- Progressive spectacles/glasses
- Tactile drawing boards
- Wearable Obstacle Detection Systems
- Electronically augmented canes
- Optical scanner
- Assistive products for acoustic navigation
- Tactographs