World Health Organization

Discussion Paper:
Proposed global targets for 2030 on integrated people-centred eye care

13 October 2020

This discussion paper was developed for the web-based consultation as a part of the process of preparing global targets in implementation of Paragraph 4 of resolution WHA73.4 requested the WHO Director-General "to prepare, in consultation with Member States, recommendations on feasible global targets for 2030 on integrated people-centred eye care, focusing on effective coverage of refractive error and effective coverage of cataract surgery, for consideration by the Seventy-fourth World Health Assembly in 2021, through the 148th session of the Executive Board".

Contents

1. Purpose

Resolution WHA73.4 ('Integrated people-centered eye care, including preventable vision impairment and blindness') requests WHO to prepare, in consultation with Member States, recommendations on feasible global targets for 2030 on integrated people-centred eye care, focusing on effective coverage of refractive error and effective coverage of cataract surgery, for consideration by the Seventy-fourth World Health Assembly.

The purpose of this discussion paper is to:

(1) Provide a background and rationale for the selection of the two global indicators of effective coverage of refractive error and effective coverage of cataract surgery;
(2) Describe the proposed process for developing a monitoring framework for periodic reporting of the two indicators; and
(3) Provide an overview of proposed global targets for the two indicators, to be achieved by 2030, including key considerations and the methodology undertaken for setting these targets.

2. Background

In October 2019, WHO launched the first World Report on Vision (WHO 2019) to draw attention to the increasing need for eye care globally. The report highlights the role of eye care in contributing to the Sustainable Development Goals (SDGs), and calls for coordinated and concerted global action towards strengthening eye care in health systems. A key recommendation of the report is to make eye care an integral part of Universal Health Coverage (UHC) in order to address the inequities in access to, and provision of, eye care services across the population. Integrated people-centred eye care (IPEC) is outlined as the framework for action to achieve this.

Monitoring of strategies and actions for eye care provision is essential for the effective planning of quality eye care services as part of UHC and to track progress at country level. To this end, work is currently underway at WHO to define input, output and outcome indicators to monitor the quality of eye care at the national level. However, in order to track availability and accessibility of eye care services at the global level, it is essential to identify tracer indicators that :

- Can serve as a reasonable proxy for the overall status of eye care services
- Cover different sections of populations (across the life course)
- Can be used to assess the effective coverage of eye care interventions
- Align with the recommendations made within the World Report on Vision
- Are based on effective interventions with clearly outlined steps for improving their coverage
- Can realistically be monitored in a large number of countries
- Are not be exclusively dependent on Member State reporting
- Are appropriate for setting targets and accompanied by some baseline information
- Are suitable to monitor UHC

Globally, more than 800 million people have distance impairment (i.e. myopia and hypermetropia) or near vision impairment (i.e. presbyopia) that could be addressed with an appropriate pair of spectacles, while an estimated 100 million people have moderate-to-severe distance vision impairment or blindness that could be corrected through access to cataract surgery (WHO, 2019). These figures are expected to increase since presbyopia and cataract development are an inevitable part of ageing, while projected increases in myopia in the younger population will be driven largely by environmental factors.

Interventions that address the needs associated with uncorrected refractive error and unoperated cataract are some are among the most cost-effective and feasible of all health care interventions to implement (WHO, 2019). Key challenges in meeting the growing demand in these services include the ability to provide services for underserved populations and ensuring quality service delivery over time.

Given the unmet need for care associated with unoperated cataract and uncorrected refractive error, coupled with the fact that highly cost-effective interventions exist, **effective cataract surgical coverage (eCSC)** and **effective refractive error coverage (eREC)** serve as ideal proxy indicators to track changes in the availability, accessibility and quality of eye care services at the global level. These indicators not only capture the magnitude of coverage, but also the concept of "effective" coverage to ensure that people who need health services receive them with sufficient quality to produce the desired gain in vision. An overview of the definitions and specifications for both indicators can be found in Annex 1. The two indicators are currently being considered for inclusion as global tracer indicators within WHO's framework for monitoring progress towards UHC, and within WHO's next General Programme of Work.

In June 2020, WHO formed an expert working group comprised of individuals in the field of eye care in the areas of epidemiology, public health and health economics, to provide technical input to WHO throughout the process of setting feasible targets for eCSC and eREC.

The following sections provide an overview of the proposed process for developing a monitoring framework for periodic reporting of the two indicators, the proposed global targets for the two indicators and the next steps.

Reference: World report on vision. Geneva: World Health Organization; 2019.

3. Monitoring framework

The proposed indicators will need to be accompanied by a well-funded monitoring system that does not rely solely on Member State reporting. The monitoring framework must ensure that the progress towards the targets can be measured and regularly reported on. The framework should:

- Monitor the status in all WHO regions
- Provide data at the global and regional level at least, and if possible, indicate national-level coverage
- Enable disaggregation by different sociodemographic groups
- Be practical and implementable
- Be financially viable

Being able to collect a large volume of data, periodically, with a good geographical distribution will be critical to ensure (i) robust monitoring of progress towards achieving the indicator targets and (ii) that these indicators are considered for inclusion within WHO frameworks for monitoring UHC.

Both, cataract and refractive errors, are commonly assessed as part of eye health surveys. Hence, a significant amount of data for the two indicators is currently generated from rapid assessment and comprehensive population-based eye health surveys undertaken by researchers in the field. To this end, sub-national or national population-based data is available from 76 countries, over the past 10 years. WHO is currently working with academic partners to analyze existing population-based survey data to establish baselines for the two indicators.

However, it is noted that there are some geographical gaps (i.e. more data is required from upper-middle and high-income countries) and age-group gaps (i.e. more data is required from school-aged children) that exist in this data. Thus, the following measures will be employed in order to achieve more widespread data collection on these two indicators:

1) A vision module will be incorporated within exiting WHO health surveys, including the STEPS and the Child Health Measurement Surveys
2) WHO will lead a funding dialogue in quarter 1 of 2021 and funds raised will support the conduct of additional country-level population-based eye health surveys to ensure a good degree of geographical coverage at the 2025 and 2030 time points.

4. Global targets

Approach

The approach for setting the proposed global targets for eCSC and eREC to be achieved by 2030 was based on:

1. Available evidence on:
   a. The baseline status and historical time trends of eCSC and eREC
   b. Cost-effectiveness of interventions that address cataract and uncorrected refractive error
   c. Disease projections

2. Consensus among Expert Working Group members. During these discussions, both WHO and the expert working group recognized the importance of:
   a. Setting global targets that are realistic but ambitious
   b. Considering equity in the narrative of setting global targets. To this end, data will need to be collected, analyzed, and reported in a stratified manner when calculating baseline estimates and for monitoring.

A summary of the status of current evidence can be found in Annex 2. Based on the current available evidence, coupled with expert consensus, the following targets are proposed:

Effective coverage of cataract surgery
A 30% percentage point increase in effective coverage of cataract surgery, by 2030. • Countries with baseline effective coverage rates 70% or higher, strive for universal coverage. • Countries should aim to achieve an equal increase effective coverage of cataract surgery in all population sub-groups, independent of baseline estimates.

Effective coverage of refractive error
A 40% percentage point increase in effective coverage of refractive error, by 2030* • Countries with baseline effective coverage rates 60% or higher, strive for universal coverage. • Countries should aim to achieve an equal increase in near and distance effective coverage of refractive errors, and in all population sub-groups, independent of baseline estimates.

*A higher target has been proposed for eREC when compared to eCSC in acknowledgement that (1) the cost per case of correcting refractive error with spectacles is notably lower and (2) there is greater human resource availability to manage refractive error.

5. Next steps

- WHO to consult Member States on the proposed global targets for eREC and eCSC to be achieved by 2030 for consideration by the Seventy-fourth World Health Assembly (October-November 2020).
- WHO to finalize analysis of evidence to establish baseline estimates for eCSC and eREC, in collaboration with academic partners (Q4 2020).
- WHO, including NCD/SMR and Health Services Data team, and in collaboration with academic partners, to develop a monitoring framework including:
    1. Outlining the data collection process, including a methodology to integrate vision specific tests and survey content into wider health surveys, including STEPS and the Child Health Measurement surveys (Q1 2021)
    2. Developing relevant monitoring tools (Q1 2021)
- WHO to lead a funding dialogue in support of additional country-level population-based eye health survey data collection (Q1 2021)
- WHO will develop a tool to assist countries in planning and costing towards increasing eCSC and eREC. The tool will be linked to the relevant components of the Package of Eye Care Interventions and the WHO OneHealth tool. The importance of linking country planning to these tools was emphasized in order to promote integration of interventions for cataract and refractive error within the health system to ensure sustainability (Q1 2021).

6. Annexes

Annex 1. Indicator definitions and specifications

Indicators Name	Effective cataract surgical coverage (eCSC)
Definition	The proportion of people who have received cataract surgery and have a resultant good quality outcome relative to the number of people in need of cataract surgery.
Method of calculation	$(\frac{a+b}{c+d+e}) \times 100$ a = individuals with unilateral operated cataract achieving presenting visual acuity (PVA) ≥6/12 in the operated eye and have best-corrected visual acuity (BCVA) <6/12 with cataract as the main cause of vision impairment or blindness in the other eye*; b = individuals with bilateral operated cataract achieving PVA ≥6/12 in at least one eye; c = individuals with unilateral operated cataract and BCVA <6/12 with cataract as the main cause of vision impairment or blindness in the other eye; d = individuals with bilateral operated cataract, regardless of visual acuity; e = individuals with BCVA <6/12 with cataract as the main cause of vision impairment or blindness in both eyes PVA = presenting visual acuity (i.e. if spectacles or contact lenses are worn to the assessment, visual acuity is measured with the person wearing them); BCVA = best corrected visual acuity (pinhole or refraction)
Data source	Population-based surveys
Disaggregation	Age, gender, socio-economic status, geography and other relevant sociodemographic stratifiers where available
Expected frequency of data collection	Every 5 years

* While the population in need of cataract surgery will be defined as BCVA <6/12 with cataract as the main cause of vision impairment or blindness, effective coverage estimates will also be available at lower thresholds of BCVA (i.e. <6/18 and <6/60 with cataract as the main cause of vision impairment or blindness).

Indicators Name	Effective refractive error coverage (eREC)
Definition	The proportion of people who have received refractive error services (i.e. spectacles, contact lenses or surgery) and have a resultant good quality outcome relative to the number of people in need of refractive error services.
Method of calculation	eREC for distance refractive error and near vision impairment due to presbyopia* should be measured and reported separately. ***Distance eREC*** $(\frac{a\ +\ b}{a\ +\ b\ +\ c\ +d}) \times 100$ a = Individuals with UCVA <6/12 in the better eye who present with spectacles or contact lenses for distance and whose PVA is ≥6/12 in the better eye (Met Need); b = Individuals with a history of refractive surgery whose UCVA is ≥6/12 in the better eye (Met Need); c = Individuals with UCVA <6/12 in the better eye who present with spectacles or contact lenses for distance or a history of refractive surgery and a PVA of <6/12 in the better eye, but who improve to ≥6/12 on BCVA (Undermet Need); d = Individuals with UCVA <6/12 in the better eye who do not have distance correction and who improve to ≥6/12 on BCVA (Unmet Need) ***Near eREC*** $(\frac{a}{a\ +\ b\ +\ c}) \times 100$ a = Individuals with UCVA <N6 at 40cms in the better eye who present with spectacles for near and whose PVA is ≥N6 in the better eye (Met Need); b = Individuals with distance BCVA of ≥6/12 in at least one eye who present with spectacles for near and whose PVA was <N6 in the better eye (Undermet Need); c = Individuals with distance BCVA of ≥6/12 in at least one eye who do not have correction for near and whose UCVA was <N6 in the better eye (Unmet Need)

	PVA = presenting visual acuity; UCVA = uncorrected visual acuity; BCVA = best corrected visual acuity (pinhole or refraction)
Data source	Population-based surveys
Disaggregation	Age, gender, socio-economic status, geography and other relevant sociodemographic stratifiers where available
Expected frequency of data collection	Every 5 years

*Given the well-established impact of near vision impairment quality of life and global productivity, WHO and the expert working group propose that both, spectacle coverage for distance refractive error and near vision impairment due to presbyopia, should be considered when monitoring eREC.

Annex 2. Summary of current evidence

1. Current coverage and trends

A summary of available evidence on the current coverage, trends and inequities in **eCSC** are provided below:

- A preliminary analysis (unpublished) of 47 population-based surveys from 11 countries (n=5 LIC/LMIC, n=4 UMIC, n=2 HIC) revealed a significant range in eCSC between countries, from 2.8% to 88.5%. Data from repeated population-based surveys within four low- or middle-income countries revealed an average annual percentage point increase in eCSC of 1.1% (range = 0.8%-1.4%).
- Lower cataract surgical coverage and associated higher prevalence of cataract has been reported in rural areas of many countries. In addition, gender inequities in eCSC have been reported: it is estimated that globally women were 1.21 times more likely to have cataract visual impairment compared to men and the average level of inequality amongst women in eCSC is 4.6% (Flaxman 2017 & Ramke 2017). Lower rates of eCSC have been reported amongst indigenous peoples and ethnic minorities. Australia (2015) provides an example of this, whereby in 2015 eCSC was estimated at 88.5% in non-Indigenous Australians while Indigenous Australians are substantially worse off with eCSC estimated at 51.6% (Keel 2018).

A summary of available evidence on the current coverage, trends and inequities in **eREC** are provided below:

- A preliminary analysis (unpublished) of population-based data from 25 countries (LIC/LMIC n=13, UMIC/HIC n=13) conducted after 2010 estimated the mean and range for effective coverage of distance refractive error (i.e. myopia, hypermetropia, astigmatism) to be 55% and 1.7%-93.5%, respectively.
- The greatest burden of uncorrected near vision impairment due to presbyopia occurs in low- or middle-income countries. For example, rates of effective coverage of near vision impairment due to presbyopia is estimated to be lower than 20% in western, eastern and central sub-Saharan Africa, while comparative rates in high-income regions of North America, Australasia, Western Europe, and of Asia-Pacific are reported to be higher than 90% (Fricke 2018).

2. The cost-effectiveness of interventions for cataract and refractive error

The eye care sector is well positioned to engage in an evidence-based dialogue to scale up efforts for eCSC and eREC given that eye care interventions to address the needs associated with uncorrected refractive error and unoperated cataract are among the most feasible and cost-effective of all health care interventions to implement.

Cataract surgery has been identified as one of only a select few surgical interventions that cost less than $200 per disability-adjusted life years (DALYs) averted (Horton 2017). A previous analysis estimated that providing extra-capsular cataract surgery to 95% of those who need it (95% coverage level) would avert over 3.5 million disability-adjusted life years (DALYs) per year globally (Baltussen 2004).

Annual global productivity losses associated with vision impairment from uncorrected myopia and presbyopia are estimated to be US$ 244 billion and US$ 25.4 billion, respectively (Naidoo 2019 and Frick 2018). These estimates of potential global productivity loss associated with uncorrected refractive error are more than an order of magnitude larger than this cost of addressing uncorrected refractive error through the provision of spectacles (i.e. both custom-made and ready-made), highlighting a strong economic case for prioritizing the management of uncorrected refractive error.

3. Disease projections

By 2030, the number of people worldwide aged 65 years and over is estimated to increase from 703 million (2019) to 998 million (2019 to 2030 = 42% increase vs. 2010-2019 = 34% increase). As a large proportion of people over the age of 65 will develop cataract, the number with this condition is expected to increase in the coming decade. Similarly, the number with near vision impairment due to presbyopia is also projected to increase from 1.9 billion in 2020, to 2.1 billion in 2030 (Fricke 2018). However, it is worth noting that this expected rate of change in the number of people with near vision impairment due to presbyopia between 2020 and 2030 (approximately 10% increase), is modestly lower than the estimated change that occurred between 2010 and 2020 (approximately 12% increase).

Reduced time spent outdoors, increased near work and increased rates of urbanization, among other factors, may contribute towards a substantial increase globally in the number of people with refractive error caused by myopia. However, similar to presbyopia, this expected rate of change in the number of people with myopia between 2020 and 2030 (approximately 28% increase), is modestly lower than the estimated change that occurred between 2010 and 2020 (approximately 34% increase).

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