



Global Citizenship Development Education meets Ophthalmology

An Educational Resource for University Medical Educators

Authors: Dr Rene Gonzales & Dr Gertrude Cotter

Principal Investigator: Dr Gertrude Cotter

September 2024



Title page

Title:

Global Citizenship Education meets Ophthalmology:
An educational resource for university medical educators

Authors: Dr Rene Gonzales & Dr Gertrude Cotter.

Principal Investigator: Dr Gertrude Cotter.

Date: August 2024.

Contents

Global Citizenship Development Education meets Ophthalmology.....	1
Title page	2
Contents.....	3
Copyright and Acknowledgements	11
Copyright	11
Acknowledgements.....	11
Introduction to the resource	11
Purpose of the resource.....	12
Aim of the resource.....	13
Intended audience.	14
Overview of the resource	14
Module components and resources.....	16
Module 1. Introduction to GCDE and Ophthalmology	17
Overview	17
Introduction to the module	17
1.1 Defining GCDE	18
Praxis Project Definition of GCDE	18
1.2 Irish Development Education Association (IDEA) code of good practice).....	19
1.3 Defining Ophthalmology.....	20
1.4 Integration of GCDE into Ophthalmology	21
Global Health Disparities.....	22
Learning objectives	22
1.5 The State of the World's Global Eye Health	24
World Health Organisation statistics and action plan	24
1.6 The Sustainable Development Goals (SDGs)	28
SDG target 4.7 and Global Citizenship, and Sustainable Development.....	29

SDG target 3.8 and Ophthalmology.....	30
1.7 GCDE Teaching Methodologies in Ophthalmology	36
Active Learning Methodologies	36
The role of educators in GCDE	39
Applying GCDE methodologies in ophthalmology modules	39
1.8 Asking for feedback	40
1.9 Learning objectives	42
Module 2. Global health and ophthalmology.....	43
Overview	43
Introduction to Global health and ophthalmology	43
2.1 The global burden of eye disease	44
Definition of global eye health	44
Global Overview of Visual Impairment.....	44
2.2 Status and forecast of global eye health	45
2.3 Understanding eye conditions of global relevance	49
Causes of visual impairment	49
Comprehensive overview of causes of visual impairment.....	50
Social justice, human rights, and access to eye care.....	55
2.4 Global management of eye conditions	57
2.5 Case studies of success stories in Global Eye Health.....	58
Case Study 1: India's National Programme for control of blindness.....	58
Case Study 2: India's Global Sight Initiative (GSI).....	59
Case Study 3: Rwanda's Vision 2020 Program	61
2.6 Reflective assessment and feedback.....	64
2.7 Additional resources	64
Using multimedia resources	64
Online resources	66
Module 3. Ethical considerations in Global Ophthalmology	67
Overview	67
Introduction to Ethical considerations in Global Ophthalmology	67

3.1 Defining Ethics and Global Ophthalmology	68
3.2 Key ethical principles	68
3.3 Global Citizenship and Development Education in Ophthalmology	68
Case Study: The Doha declaration and access to medications	69
Responsibility of wealthier nations.....	69
3.4 Ethical engagement in Global Ophthalmology.....	72
Skills Sharing and Partnerships.....	72
Volunteerism: A critical perspective.....	72
3.5 Ethical guidelines in Global Ophthalmology	74
Ethical Considerations in Global Ophthalmology.....	74
Best practices in Global Ophthalmology.....	75
Accessibility in educational resources	76
Classroom methodologies.....	78
3.6 Additional resources	86
Module 4. Social determinants of eye health through a GCDE lens.....	87
Overview	87
Introduction to Social determinants of eye health.....	87
4.1 What do we mean by “Social Determinants of Eye Health”?	88
4.1.1 Poverty	88
4.1.2 Education	89
4.1.3 Access to healthcare	90
4.1.4 Nutrition.....	92
Integration into the Module	93
4.2 Malnutrition, Diabetes and Eye Health: Global challenges	94
Nutritional recommendations for a healthy lifestyle.....	95
Interactive activity.....	97
4.3 Theoretical frameworks.....	98
4.3.1 Freirean pedagogy	99
4.3.2 Transformative education	100
4.3.3 Post-colonial theory.....	101

4.3.4 Eco-feminism	102
4.3.5 Social justice	104
4.3.6 Anti-racism	105
4.3.7 Human rights framework in GCDE.....	108
Module 5. The wider socio-economic and political contexts of eye health	113
Overview	113
Introduction to the wider socio-economic and political context of eye health	113
5.1 Global trade policies	113
5.2 Food subsidies.....	114
5.3 Corporate practices.....	114
5.4 Case study: The global impact of corn subsidies	115
5.5 Interactive activity	116
Module 6. Skills for global ophthalmology through the GCDE lens	118
Overview	118
Introduction to Skills for global ophthalmology	118
6.1 Identifying key skills and knowledge	118
6.1.1 Cultural competence.....	119
6.1.2 Advocacy and social justice.....	119
6.1.3 Ethical global engagement	119
6.1.4 Global ophthalmology clinical competence	119
6.1.5 Public health knowledge.....	120
6.1.6 Research skills	120
6.2 GCDE at different stages of an ophthalmologist's career	121
Early career: Global ophthalmology as training and service	121
Mid-career: Expanding the scope of practice.....	121
6.3 Educator's strategies for developing GCDE skills	122
6.4 Training and education in global ophthalmology	123
Specialised training programmes	124
Module 7. Community engagement and international partnerships in eye health	125
Overview	125

Introduction to Community engagement and international partnerships in eye health	125
7.1 Community engagement in eye health	125
7.1.1 Community eye care services in Ireland	127
7.1.2 Conducting needs assessments	128
7.1.3 Community-based education	129
7.1.4 Culturally-relevant communication	131
7.2 Global engagement in eye health	132
7.3 Building equitable international partnerships	133
7.4 Educator's strategy for partnership building activities	133
7.5 Global partnership case studies	136
7.6 Community project toolkits	138
Module 8. Sustainable practices in ophthalmology	140
Overview	140
Introduction to Sustainable practices in ophthalmology	140
8.1 Eye health and the Sustainable Development Goals	141
8.2 Health care carbon footprint	143
8.3 Sustainable practices in hospitals and surgery	146
8.4 Sustainable practices in ophthalmology	148
Sustainability in eye health in Ireland	149
8.5 Infographics of health-care waste segregation	150
8.6 Group project on sustainable ophthalmology	150
Module 9. Advocacy and policy in ophthalmology within the framework of GCDE	151
Overview	151
Introduction to Advocacy and policy in ophthalmology	151
9.1 Understanding advocacy and policy in ophthalmology	152
9.2 Key messages for policy makers	153
9.3 GCDE and advocacy in ophthalmology	155
9.4 The role of educators and students in advocacy	156
9.5 Critical engagement with global policies	156
9.6 Building advocacy skills	157

9.7 Evaluating advocacy efforts	157
9.8 Advocacy in the community	158
Module 10. Research for global eye health through a GCDE lens	159
Overview	159
Introduction to Research for global eye health	159
10.1 Research approach and methods in global eye health	160
Positivist approach: Quantitative method.....	160
Interpretivist approach: Qualitative method	162
Integrating research approaches in GCDE	163
10.2 Funding for eye health research.....	164
Government funding.....	164
Philanthropic and charity funding.....	166
Private sector and industry funding	166
International collaborations in global health funding	167
Challenges and opportunities in funding allocation.....	168
Educator strategy	169
10.3 Gathering evidence from research	171
Module 11. Assessments and feedback though a GCDE lens	172
Overview	172
Introduction to Assessment and feedback.....	172
11.1 Assessment for learning in a GCDE context	173
11.2 Reflective journals as a tool for GCDE	174
11.3 Peer assessment to foster collaborative learning and global perspectives	174
11.4 The Peak Project: Integrating GCDE and ophthalmology.....	175
Module 12. Empowering global eye health through GCDE	176
Recap of Core Principles.....	176
Reflection on the Role of Educators	177
Challenges and Opportunities	177
Call to Action.....	177
Acknowledgments and Resources	178

Final Thought	178
Appendices	179
Appendix 1a – Definitions of Global Citizenship Education	179
Appendix 1b – Definitions of GCDE: National and International Perspectives.....	182
Irish Aid Definition of Global Citizenship Education	182
WorldWise Global Schools	182
The United Nations Educational, Scientific and Cultural Organization (UNESCO) definition of Global Citizenship	184
Heyes and Hadley	184
Appendix 1c – Academic literature on GCDE.....	186
Appendix 1d – IDEA’s code of good practice	191
Appendix 1e – Principles of effective pedagogy	195
Appendix 2a – WHO estimates of causes of visual impairment.....	196
Appendix 2b – Myopia prevalence in the world: 2000 and 2050 (maps).....	197
Appendix 2c – Age-related Macular Degeneration prevalence in the world: 2014 and 2040 (maps).	198
Appendix 2d – Eye conditions that lead to visual impairment.	199
Appendix 2e – Eye conditions without visual impairment.	200
Appendix 3a – Ethical guidelines and best practice in detail	201
1 of 10. Act in the best interest of the patient and local community.....	201
2 of 10. Ensure appropriate training and knowledge.....	201
3 of 10. Global ophthalmic care should benefit all parties	202
4 of 10. Ensure competency to perform procedures	202
5 of 10. Ensure liability coverage for international engagements	203
6 of 10. Assess local infrastructure and technology	204
7 of 10. Pre- and Post-operative care	204
8 of 10. Ethical research practice	204
9 of 10. Avoid conflicts of interest and ensure transparency	204
10 of 10. Manage expectations and maintain standards	204
Appendix 4 – Types of fat for healthy eating.	205
Appendix 6 – Overlapping and own GCDE and Global Ophthalmology skills.....	206

Appendix 7a – Key considerations for global partnership in ophthalmology	207
Appendix 7b – Skill building in global eye-health for ophthalmologists	208
Appendix 7c - Partnerships for global eye health	210
Appendix 10a – Effective use of funding in eye health research	212
Appendix 10b - Who benefits from medical research?	213
Appendix 10c – Key issues of concern in research funding	214
REFERENCES.....	215

Copyright and Acknowledgements

Copyright



Except where otherwise noted, this work is licensed under:

<https://creativecommons.org/licenses/by/4.0/>

CC BY = Attribution alone: Must mention the creator. Free to share, adapt, transform for any purpose, even commercial.

Design and Layout

Document & website layout, design and edit: Dr Rene Gonzales.

Cover and content images: Dr Rene Gonzales (except where specified), generated and edited in Adobe Apps by (R Gonzales, Adobe, 2024).

Logos: Praxis (designed by Dr Rene Gonzales). All other logos by respective institutions.

Acknowledgements

We would like to express our thanks to the medical students at UCC who volunteered to review this resource and offer their suggestions.

Our thanks too to UCC for its ongoing support of the Praxis Project and particularly to the staff at the School of Education.

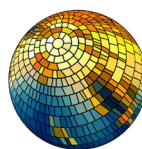
The work of the Praxis Project would not be possible without the support of a funding grant from Irish Aid for which we are very grateful.

Dr Rene Gonzales & Dr Gertrude Cotter.



Irish Aid

An Roinn Gnóthaí Eachtracha agus Trádála
Department of Foreign Affairs and Trade



PRAXIS

Development and
Global Citizenship
Education Project, UCC



UCC

University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

School of
Education



UCC

University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Introduction to the resource

Purpose of the resource.

The Praxis Project at University College Cork (UCC) was established with a clear and ambitious mission: to foster a culture of Global Citizenship and Development Education (GCDE) across all academic disciplines, with a particular emphasis on social justice and human rights. This initiative is rooted in the belief that universities play a crucial role in shaping future leaders who are not only knowledgeable in their fields but also committed to creating a more just and equitable world. The Praxis Project seeks to embed GCDE into the fabric of UCC's educational offerings, promoting interdisciplinary collaboration and the integration of global justice perspectives across the university community.

This resource is a key output of the Praxis Project, focusing specifically on the integration of GCDE into the field of Ophthalmology. It serves as both a guide and a toolkit for university medical educators who are interested in incorporating global citizenship principles into their teaching. The resource highlights the interconnectedness of global health issues and the critical role that ophthalmologists can play in addressing disparities in eye health worldwide.

By focusing on Ophthalmology, this resource aims to demonstrate how GCDE can be seamlessly integrated into medical education, providing students with the tools and knowledge they need to become globally conscious healthcare professionals. It underscores the importance of understanding global health disparities, promoting equity in healthcare, and adopting sustainable practices within the field of Ophthalmology.

Ultimately, the purpose of this resource is to support educators in equipping their students with the skills, values, and knowledge necessary to act as global citizens in their professional practice. By doing so, it aligns with the broader mission of the Praxis Project to advance global justice and transformative societal change through education.

“The aim of the Praxis Project is to support the UCC community to engage with Critical Global Citizenship and Development Education, from a Social Justice and Human Rights Perspective. Its mission is to foster a Global Justice culture across all disciplines, develop strategic partnerships, and encourage interdisciplinary collaboration at UCC.”

- Praxis.

Aim of the resource.

The primary aim of this resource is to provide academic and practical support for integrating Global Citizenship and Development Education (GCDE) into ophthalmology education. This resource is designed to help medical educators incorporate global perspectives, social justice, and ethical considerations into their teaching, thereby enriching the learning experience for students and preparing them to be more effective and compassionate healthcare professionals.

Integrating GCDE into ophthalmology is crucial for several reasons. First, it highlights the global disparities in eye health and the social determinants that contribute to these inequities. By understanding the broader context in which eye diseases occur, students can better appreciate the challenges faced by different populations around the world and develop more effective, culturally sensitive approaches to care.

Second, this resource emphasises the ethical dimensions of ophthalmology, encouraging students to think critically about their responsibilities as healthcare providers in a global context. This includes understanding the implications of their work on vulnerable populations, considering the sustainability of their practices, and advocating for policies that promote health equity.

Finally, the resource aims to cultivate a sense of global citizenship among ophthalmology students, empowering them to contribute to global efforts in reducing blindness and visual impairment. By integrating GCDE into their education, students will be better equipped to address the complex challenges of global eye health and to make meaningful contributions to the communities they serve.

In summary, the purpose of this resource is to ensure that ophthalmology education at UCC and beyond is not only about clinical excellence but also about fostering a deep commitment to global justice, ethical practice, and the well-being of all people, regardless of their location or circumstances.

The aim of this resource is to provide academic support for integrating GCDE approaches, themes, methodologies, and skills into ophthalmology courses. By developing resources that highlight global health disparities, social determinants of health, ethical considerations, and the role of ophthalmologists as global citizens, we can foster a comprehensive understanding of these crucial issues. This resource outlines how these elements can be seamlessly woven into ophthalmology education to cultivate a well-rounded, globally conscious healthcare professional (Dr G. Cotter).

Intended audience.

This resource is designed to serve a diverse audience within the medical, healthcare, and development education communities, with a particular focus on the field of ophthalmology. The primary audience includes:

Medical Educators: This resource provides valuable tools and methodologies for integrating Global Citizenship and Development Education (GCDE) principles into ophthalmology curricula. Educators can utilize the content to enrich their teaching practices, foster critical thinking, and prepare students to address global health challenges with a focus on social justice and equity.

Medical Students and Ophthalmology Trainees: Students and trainees in ophthalmology will benefit from this resource by gaining a deeper understanding of the social determinants of eye health, global health disparities, and ethical considerations in their practice. The resource equips them with the knowledge and skills necessary to become globally conscious healthcare professionals.

Healthcare Professionals: Practicing ophthalmologists and other healthcare professionals will find this resource useful for broadening their perspective on global health issues related to eye care. It provides insights into sustainable practices, community engagement, and policy advocacy, which are essential for delivering equitable and effective care in diverse settings.

Researchers and Policy Makers: For those involved in global health research and policymaking, this resource offers a framework for understanding the impact of social, economic, and environmental factors on eye health. It encourages evidence-based practice and provides strategies for influencing health policies that promote global equity in eye care.

GCDE and Development Professionals: Professionals working in global citizenship, development education, and international development will find this resource valuable for understanding how GCDE principles can be applied to the field of ophthalmology. It offers a comprehensive view of how global health challenges intersect with issues of social justice, human rights, and sustainable development, providing a foundation for collaborative initiatives that aim to improve eye health worldwide.

Overview of the resource

This resource is designed to guide university medical educators in integrating Global Citizenship and Development Education (GCDE) into ophthalmology education. It provides a comprehensive framework for teaching ophthalmology that not only addresses the clinical and technical aspects of eye care but also emphasises the importance of global health, social justice, and ethical considerations.

GCDE emphasise the importance of understanding and addressing global issues, fostering a sense of interconnectedness, and promoting responsible and informed citizenship. When applied to ophthalmology, these concepts can have a significant impact on healthcare practices, education, and research.

The integration of GCDE principles into ophthalmology is not just beneficial but necessary. Understanding global interdependencies, social justice, diversity, sustainability, and participatory democracy, finds a unique application in ophthalmology as this field has a direct impacting on the global burden of vision impairment and blindness.

The health aspect of vision is deeply intertwined with global challenges such as poverty, education, and access to healthcare. Ophthalmologists equipped with an understanding of GCDE principles are better positioned to help address these challenges in a holistic and sustainable manner. They can contribute to global efforts in reducing inequalities in eye care, advocating for systemic changes, and promoting practices that are ethical and environmentally sustainable. Their participation can go beyond Sustainable Development Goal 3 on good health and well-being and include SDG 4, quality education, 10, reduced inequalities, 12, responsible consumption and production and 13, climate action.

This collection of resources aims at bridging the gap between GCDE and visual health care, promoting the function of ophthalmologists as global citizens and contributing positively to their local and global communities.

This document is structured into twelve modules, each offering a distinct focus that collectively contributes to a well-rounded, globally informed ophthalmology curriculum. These sections provide a combination of theoretical insights, practical activities, case studies, and methodological approaches to help educators effectively integrate GCDE into their teaching.

The Appendices present extended details and examples that clarify the concepts explained in the text. They are numbered according to the module that they illustrate.

The References section corresponds to the in-text citations that support the arguments presented in the document. This comprehensive list may be considered as an additional resource because it provides the reader multiple avenues to explore sources that may be useful to contribute to the learner's own analysis and conclusions.

Module components and resources

- **Module 1. Introduction to GCDE and Ophthalmology:** Offers definitions of GCDE and Ophthalmology and how they integrate. A review on the state of the world from the WHO and UN points of view, and a review on teaching methods.
- **Module 2. Global health and ophthalmology:** Exploring the global burden of eye diseases and the role of ophthalmologists in addressing them.
- **Module 3. Ethical considerations in global ophthalmology:** Navigating ethical dilemmas specific to ophthalmology in a global context.
- **Module 4. Social determinants of eye health through the GCDE lens:** Understanding how socioeconomic factors affect eye health and strategies to mitigate these effects.
- **Module 5. The wider socio-economic and political contexts of eye health:** A view on food security and corporate practices that affect eye health.
- **Module 6. Skills for global ophthalmology through the GCDE lens:** Building key skills for cultural competency and their relevance at various stages of the specialist's career.
- **Module 7. Community engagement and international partnership in eye health:** Techniques for effective community involvement and to build up international partnerships.
- **Module 8. Sustainable practices in ophthalmology:** An analysis and exploration of sustainable, and environmentally conscious practices in eye care.
- **Module 9. Advocacy and policy in ophthalmology within the framework of GCDE:** Analysing policies impacting eye health and strategies for effective advocacy.
- **Module 10. Research for global eye health through a GCDE lens:** Developing research methodologies tailored to global ophthalmology.
- **Module 11. Assessment and feedback through a GCDE lens:** Exploring methods of learner assessment and feedback in education.
- **Module 12. Empowering global eye health through GCDE:** Closes the resource with a recapitulation of core principles, reflection, challenges and call to action.

Each section of this resource is designed to be adaptable, allowing educators to tailor the content to their specific teaching contexts and the needs of their students. By integrating GCDE into ophthalmology education, this resource aims to produce healthcare professionals who are not only skilled clinicians, but also informed and compassionate global citizens committed to promoting health equity and social justice in their practice.

Module 1. Introduction to GCDE and Ophthalmology

Overview

- 1.1 Defining GCDE
- 1.2 Irish Development Education Association (IDEA) code of good practice
- 1.3 Defining Ophthalmology
- 1.4 Integration of GCDE with Ophthalmology
- 1.5 The State of the World's Global Eye Health
- 1.6 The Sustainable Development Goals (SDGs)
- 1.7 GCDE Teaching Methodologies in Ophthalmology
- 1.8 Asking for feedback

Introduction to the module

Global Citizenship and Development Education (GCDE) is a critical pedagogical approach that emphasises the interconnectedness of global issues, human rights, and social justice. In the field of ophthalmology, these principles are particularly relevant because eye health is not only a medical concern but also a critical component of global health equity. Vision impairment, eye-disease and blindness disproportionately affect marginalised communities worldwide, often due to systemic inequities in access to healthcare, education, and resources.

This resource aims to integrate the principles of GCDE into ophthalmology education, providing future ophthalmologists with the tools and perspectives needed to address these global challenges. By embedding global justice into the curriculum, this resource seeks to foster a deeper understanding of the social determinants of health, promote ethical and sustainable practices, and encourage active engagement with communities. Ultimately, this approach aims to prepare healthcare professionals who are not only skilled in clinical practice but also committed to advocating for and contributing to global health equity in their work.

1.1 Defining GCDE

Global Citizenship and Development Education (GCDE) is a transformative approach to education that seeks to equip learners with the knowledge, skills, and values needed to engage with complex global issues. Rooted in the principles of justice, human rights, and equity, GCDE has evolved alongside the rapidly changing dynamics of our globalised world. It encourages learners to critically examine the causes and consequences of global challenges, such as poverty, inequality, and environmental degradation, and to take informed, responsible action in their communities and beyond. As societies become increasingly interconnected, the relevance of GCDE continues to grow, fostering a sense of shared responsibility and a commitment to global justice.

Praxis Project Definition of GCDE

At the Praxis Project, Global Citizenship and Development Education (GCDE) is defined as:

“a critical pedagogical approach that focuses on development and human rights issues at both local and global levels. It emphasizes the importance of linking local and international matters, exploring individual and collective responsibilities, and promoting values, understandings, abilities, and skills that contribute to justice and transformative societal change”

(PRAXIS, 2024).

GCDE, as defined by the Praxis Project, is deeply rooted in Freire's concept of praxis, which encourages critical reflection and action. This approach actively supports public inquiry, debate, and the development of action-oriented initiatives aimed at fostering greater justice and human rights. The Praxis Project's definition highlights the importance of integrating educational theory and practice, encouraging experiential learning, participatory methodologies, and a focus on concrete action for societal change.

For further information about the Praxis Project's understanding of GCDE can be found at: www.praxisucc.ie



For more in-depth information on GCDE definitions and meanings, please refer to the following appendices:

Appendix 1a provides introductory and more in-depth videos and podcasts that educators can use to deepen their understanding of GCDE.

Appendix 1b provides additional information about definitions used by various national and international agencies such as Irish Aid and UNESCO.

Appendix 1c provides a short list of references on academic literature which explains more about GCDE.

1.2 Irish Development Education Association (IDEA) code of good practice)

IDEA, the Irish Development Education Association, has developed a useful Code of Good Practice in the field of Development Education which is available at: <https://www.ideaonline.ie/Code-of-good-practice-development-education>

The Principles of the Code of Good Practice are listed below. **Appendix 1d** shows this list expanded to show Indicators for each principle (IDEA, 2024) :

- 01 Contribute to **Knowledge** about global development in Ireland.
- 02 Explore the **Root Causes** of local and global injustices and inequalities in our interdependent world.
- 03 Be explicit about the **Ethos of Development Education**, global solidarity, empathy and partnership, and challenging unequal power relations across all issues we work on.
- 04 Encourage **Critical Thinking** in our exploration of local and global justice issues and seeking of solutions.
- 05 Use **Participatory and Creative** approaches in our educational practice.
- 06 Produce and use **Quality Resources** and **Materials**, based on continuous learning.
- 07 Build **Knowledge, Skills** and **Attitudes** for **Informed** action that is collective in nature.
- 08 **Imagine** and **Explore Solutions** for a better world.

- 09 Actively and consistently **Reflect** and **Learn** from our own Development Education practice and participants' feedback.
- 10 Have a clear **Development Education Strategy** and **Action Plan** and be clear how it fits into and is supported by our organisation.
- 11 Reflect the **Key Values** of Development Education: Equality, diversity, sustainability and human rights, and responsibilities, and challenging unequal and unjust power relations across
- 12 **Advocate** for **Quality Development Education** for all learners on the island of Ireland which is adequately funded and in line with Sustainable Development Goal target 4.7.

1.3 Defining Ophthalmology

Ophthalmology is the medical specialty concerned with the study of the eye, its diseases and the corrections to the quality of vision (Farlex, 2012). It focuses on preventing, diagnosing, and treating eye disorders with the goal of preserving and restoring vision, which is crucial for a good quality of life.

Vision is the most dominant of our senses and plays a critical role in every aspect of our lives. Without vision we struggle to move, walk, read, learn, participate in society and work. A visual impairment results from a health condition that affects the visual system and its functions, leading to serious consequences that can be mitigated if there is timely access to quality eye care and rehabilitation.

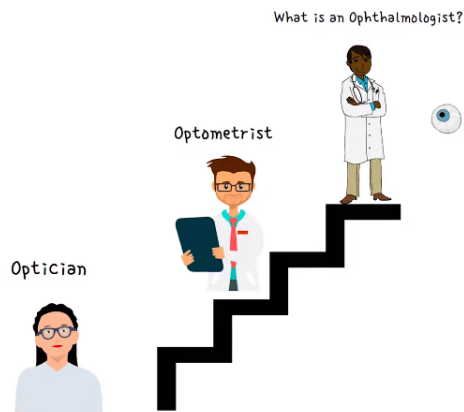
Prevention focuses mainly on eye conditions that can cause visual impairment and blindness, and that can be mitigated or corrected with a known method of action, e.g., cataract, glaucoma, trachoma, and refractive error. Ageing is the primary risk factor for many of these eye conditions, but lifestyle behaviours may also contribute, e.g., smoking is a risk factor in the development of macular degeneration and cataract (Thornton et al., 2005; Ye et al., 2024).

Eye conditions that do not cause vision impairment cannot be underestimated because they also interfere with normal life and work due to pain, discomfort and diminished performance and constitute the main reason of clinical attendance. Some of these conditions can cause visual impairment if left untreated, resulting in ulcers, and scars that obstruct vision.

The eye health team is composed of various types of professionals that have some overlap in their roles. The professions involved in this field have similar names and can be easy to confuse. In essence, there are three types of occupations dealing with eye healthcare: The physician or medical doctor who specialises in medical aspects of eyes, diagnoses and treats diseases, and some perform surgery of the eyes (ophthalmologist); the health carer who examines the eyes, diagnoses and prescribe glasses and contact lenses (optometrist); and the technician who designs, fits and adjust glasses, frames and contact lenses and sells those and related products in a shop (optician). The following video explains those differences.



Video



Video 7: Ophthalmologist vs Optometrist vs Optician

Publisher / date: Optometry Case, 2021.

Length: 3 min.

Description: What do eye health care professionals do and how to distinguish them? What is the difference between Ophthalmologist, Optometrist and Optician?

Link: https://www.youtube.com/watch?v=On42TuQ_eVE

Ophthalmology is not just a clinical field but also a critical component of global health. Vision impairments and blindness disproportionately affect vulnerable populations worldwide, making equitable access to eye care a significant global challenge. Understanding the global burden of eye diseases and integrating this knowledge into ophthalmology education can help address these disparities.

1.4 Integration of GCDE into Ophthalmology

Global Citizenship and Development Education (GCDE) offers a powerful framework for integrating social justice, ethical responsibility, and global awareness into the field of ophthalmology. The integration of GCDE into ophthalmology education is not just about expanding the scope of clinical knowledge; it's about fostering a broad understanding of the global challenges related to eye health and the role of ophthalmologists in addressing these issues.

Ophthalmologists equipped with an understanding of GCDE principles are better positioned to help address these challenges in a holistic and sustainable manner. They can contribute to global efforts in reducing inequalities in eye care, advocating for systemic changes, and promoting practices that are ethical and environmentally sustainable.

Global Health Disparities

Ophthalmology is a field deeply impacted by global health disparities. Conditions like cataracts, glaucoma, and trachoma disproportionately affect populations in low- and middle-income countries, where access to eye care services is often limited. Integrating GCDE into ophthalmology education encourages future eye care professionals to understand these disparities and explore strategies to mitigate them. This includes analysing the socio-economic, political, and environmental factors that contribute to unequal access to eye care and working towards more equitable healthcare delivery globally.

Learning objectives

The following learning objectives, grouped by topic, aim to guide the integration of GCDE into ophthalmology, ensuring that students are well-equipped to tackle global health challenges:

1. Global Health Disparities

- Develop a comprehensive understanding of the global distribution of ophthalmologic conditions and the factors that contribute to health disparities.
- Identify strategies to address and reduce these disparities through clinical practice, research, and policy engagement.

2. Equity in Eye Care

- Equip students with the knowledge and skills to provide equitable eye care, ensuring that all patients receive the highest standard of care regardless of their socio-economic or geographic background.

3. Sustainable Practices

- Promote the adoption of sustainable practices in ophthalmology, including environmental stewardship, resource conservation, and the development of long-term, sustainable healthcare solutions.

4. Ethical Mindfulness

- Foster ethical awareness and decision-making in the practice of ophthalmology, with a focus on respecting patient rights, cultural sensitivities, and the ethical challenges of global health work.

5. Community Engagement

- Enhance skills in community engagement, emphasizing the importance of working collaboratively with communities to improve eye health outcomes and ensuring that interventions are culturally relevant and sustainable.

6. Research and Policy Advocacy

- Empower students to engage in research that addresses global eye health challenges and to advocate for policies that support equitable and sustainable eye care systems worldwide.

By achieving these learning objectives, future ophthalmologists will be better equipped to address the complex global challenges related to eye health, contribute to more just and equitable healthcare systems, and play an active role in advancing global health and development goals.



Further reading

In 2015, UNESCO released the report “**Global Citizenship Education: Topics and learning objectives**”, which covers recommended learning objectives for a more generic educator audience interested in teaching GCE (UNESCO, 2015). The article is available at:

<<https://www.unesco.org/en/articles/global-citizenship-education-topics-and-learning-objectives>>

1.5 The State of the World's Global Eye Health

World Health Organisation statistics and action plan

The World Health Organisation (WHO) indicates:

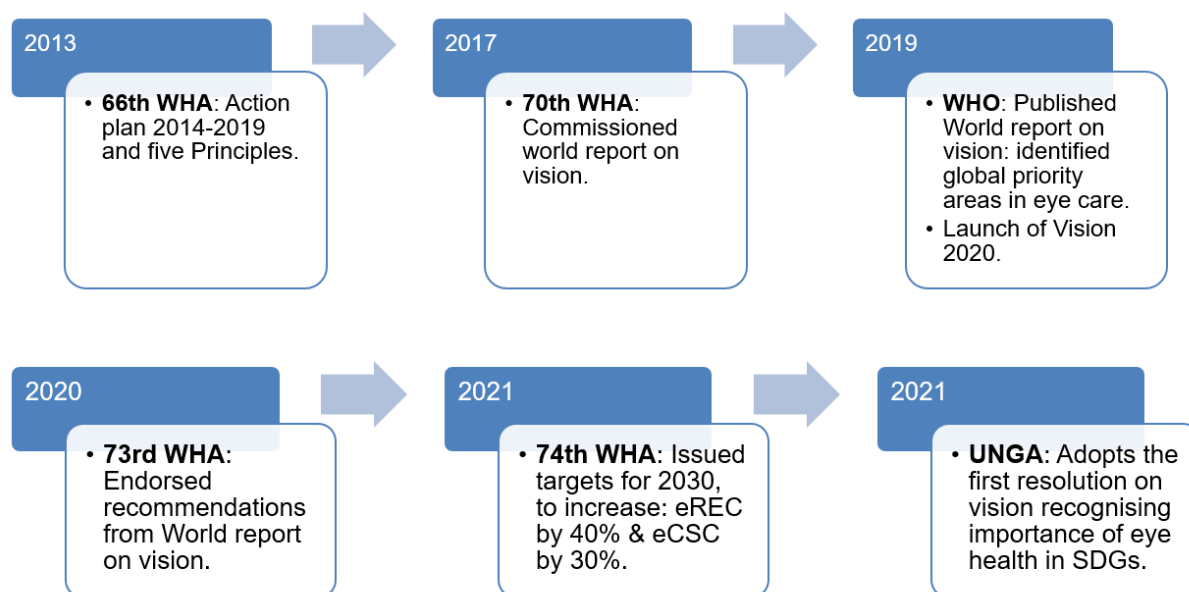
“at least 2.2 billion people around the world have a vision impairment, in half of whom, this impairment could have been prevented or is yet to be addressed.”

Inequalities in the coverage, quality of prevention, treatment and rehabilitation services, a poor integration into health systems and other eye-care deficiencies constitute the challenges that the world needs to address to improve the eye care of the population (WHO, 2019).

The 66th World Health Assembly (WHA) in 2013 endorsed the Universal eye health: a global action plan 2014–2019, drawing five principles to improve eye health globally: universal access and equity, human rights, evidence-based practice, a life-course approach and empowerment of people with visual impairment (WHO, 2016). Emerging from the 70th WHA in 2017, the WHO published the “World report on vision” in 2019, with the support of experts from around the world. This report provides evidence of the magnitude of eye conditions and vision impairment globally, and proposes the provision of Integrated, People-Centred Eye Care (IPCEC) services that all countries should provide to their population throughout their lives. Member States could use this report to reduce the burden of eye conditions and visual loss and work towards Universal Health Coverage (UHC), the aim of the United Nations’ Sustainable Development Goal (SDG) 3.8 (WHO, 2019). Also in 2019, the WHO launched the initiative “Vision 2020: The Right to Sight” to accelerate activities to reduce avoidable blindness. At the 73rd WHA in 2020, member states adopted the resolution titled “Integrated people-centred eye care, including preventable vision impairment and blindness”. The 74th WHA in 2021 made recommendations on targets for 2030 focusing in two areas: effective refractive error coverage and effective cataract surgery coverage; the targets were to increase coverage by 40% and 30% respectively (Keel & Cieza, 2022; WHO, 2019).

In July 2021, the first United Nations General Assembly (UNGA) resolution on vision was adopted by member states following growing evidence that eye health and vision impairment directly or indirectly contribute to the achievement of many Sustainable Development Goals (SDG), including goals on good health and well-being (SDG3), quality education (SDG4), gender equity (SDG5), decent work and economic growth (SDG8) and reduced inequities (SDG10) (Figure 2) (Keel & Cieza, 2022).

Figure 3. Timeline of world efforts to tackle eye conditions since 2013.



WHA = World Health Assembly; WHO = World Health Organisation; eREC = Effective refractive error coverage; eCSC = Effective cataract surgery coverage; UNGA = United Nations General Assembly

The burden of eye conditions and vision impairment is greater in low and middle-income countries and underserved populations, such as women, migrants, indigenous people, rural communities and the disabled. It is expected that with population growth and ageing, visual impairment and blindness will increase in coming decades.

Following changes in world demographics, eye care needs are expected to increase. Planning will be difficult because data of these services are not being collected, which will delay the much-needed integration of eye care into health systems.

The WHO Report on Vision recommended five actions:

1. Integrate eye care into the universal health coverage.
2. Implement Integrated people-centred eye care in health systems.
3. Promote high-quality research to complement evidence for effective eye care interventions.
4. Monitor trends and evaluate progress towards implementation of IPCEC.
5. Raise awareness of eye care needs within communities engaging and empowering people.

The proposed Integrated people-centred eye care (IPCEC) will address those challenges at country level by engaging and empowering people and communities, promoting an eye care model with strong primary care, coordinating services and including eye care in national strategic plans that will shape the eye care workforce based on population needs (WHO, 2019).



Further reading

The World Health Organisation's "**World report on vision**" is available at: <https://www.who.int/publications/i/item/9789241516570>

The WHO's report on the global impact of vision impairment and the importance of integrated eye care, are the topics of the article "**Global burden of eye disease**", available at: <https://www.who.int/publications/i/item/world-report-on-vision>

Reflective discussion

The statistics presented by the World Health Organization highlight the significant global burden of vision impairment and the stark disparities in access to eye care. These figures are not just numbers; they represent millions of individuals whose quality of life is profoundly affected by preventable or treatable eye conditions. The fact that half of the 2.2 billion people with vision impairment could have been prevented or addressed underscores the critical need for equitable and accessible eye care services worldwide.

As future ophthalmologists, healthcare professionals, or educators, these statistics challenge us to reflect on our role in addressing these global health disparities. How can we contribute to reducing these inequalities in our own practice or through our teaching? What strategies can we implement to ensure that our work promotes justice and accessibility in eye care, particularly for underserved populations?



Reflective question

Given the global disparities in eye health highlighted by these statistics, how might you, as a healthcare professional or educator, integrate the principles of global health equity into your practice or teaching? What specific actions can you take to address the barriers to eye care in underserved communities, both locally and globally?

1.6 The Sustainable Development Goals (SDGs)



In 2015, the United Nations Member States adopted the “2030 Agenda for Sustainable Development”, which provides a blueprint for peace and prosperity for people on the planet. The agenda is based on 17 Sustainable Development Goals (SDGs), which are an urgent call for action in a global partnership. Member states recognize that ending poverty and other deprivations must include

strategies that improve health and education, reduce inequality, and enhance economic growth while controlling climate change and working to preserve oceans and forests. The target date to meet these goals is 31 Dec. 2030 (UN, 2024).

1. **No Poverty:** Access to basic human needs of health, education, sanitation.
2. **Zero Hunger:** Providing food and humanitarian relief, establishing sustainable food production.
3. **Good Health and Wellbeing:** Better, more accessible health systems to increase life-expectancy.
4. **Quality Education:** Inclusive education to enable upward social mobility and end poverty.
5. **Gender Equality:** Education regardless of gender, advancement of equality laws, fairer representation of women.
6. **Clean Water and Sanitation:** Improving access for billions of people who lack these basic facilities.
7. **Affordable and Clean Energy:** Access to renewable, safe, and widely available energy sources for all.
8. **Decent Work and Economic Growth:** Creating jobs for all to improve living standards, providing sustainable economic growth.
9. **Industry, Innovation, and Infrastructure:** Generating employment and income through innovation.
10. **Reduced Inequalities:** Reducing income and other inequalities, within and between countries.
11. **Sustainable Cities and Communities:** Making cities safe, inclusive, resilient, and sustainable.
12. **Responsible Consumption and Production:** Reversing current consumption trends and promoting a more sustainable future.
13. **Climate Action:** Regulating and reducing emissions and promoting renewable energy.
14. **Life Below Water:** Conservation, promoting marine diversity and regulating fishing practices.
15. **Life on Land:** Reversing man-made deforestation and desertification to sustain all life on earth.
16. **Peace, Justice, and Strong Institutions:** Inclusive societies, strong institutions, and equal access to justice.
17. **Partnerships for the Goals:** Revitalize strong global partnerships for sustainable development.



Further reading

Details on the United Nations (UN) Sustainable Development Goals (SDGs) is available at: <https://sdgs.un.org/goals>

Recognising that all the SDGs are interlinked, this resource plays particular attention to the goals more closely related to Global Citizenship and Ophthalmology, SDG 4.7 and 3.8 respectively.

SDG target 4.7 and Global Citizenship, and Sustainable Development

Target 4.7: Sustainable development and global citizenship

By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

UNESCO's Global Education Monitoring Report (GEM, 2024).

The Council of Europe (COE) monitors the educational activities implemented in the region that will lead to the fulfilment of Target 4.7 of the SDGs. The Department of Education promotes the COE's core values and states (COE, 2024):

"Education is increasingly seen as a defence against the rise of violence, racism, extremism, xenophobia, discrimination and intolerance"
(COE, 2024).

The COE presents a list of Educational Activities in the region and monitors their implementation through the Global Education Monitoring Report (GEM) (COE, 2024; GEM, 2018). The report on COE's educational activities is available at: <https://www.coe.int/en/web/education/4.7-education-for-sustainable-development-and-global-citizenship>

SDG target 3.8 and Ophthalmology



Good health and wellbeing (SDG 3) are most directly related to eye health.

Sustainable Development Goal 3 refers to “ensure healthy lives and promote well-being for all at all ages.” One of the core targets is SDG 3.8 Universal Health Coverage (UHC), which includes financial risk protection, access to quality essential health-care services and access to safe, effective, and affordable essential medicines and vaccines for all (WHO, 2024a).

The WHO uses the following indicators to monitor progress in the achievement of SDG 3.8:

1. Universal Health Coverage (UHC) service coverage index (SDG 3.8.1).

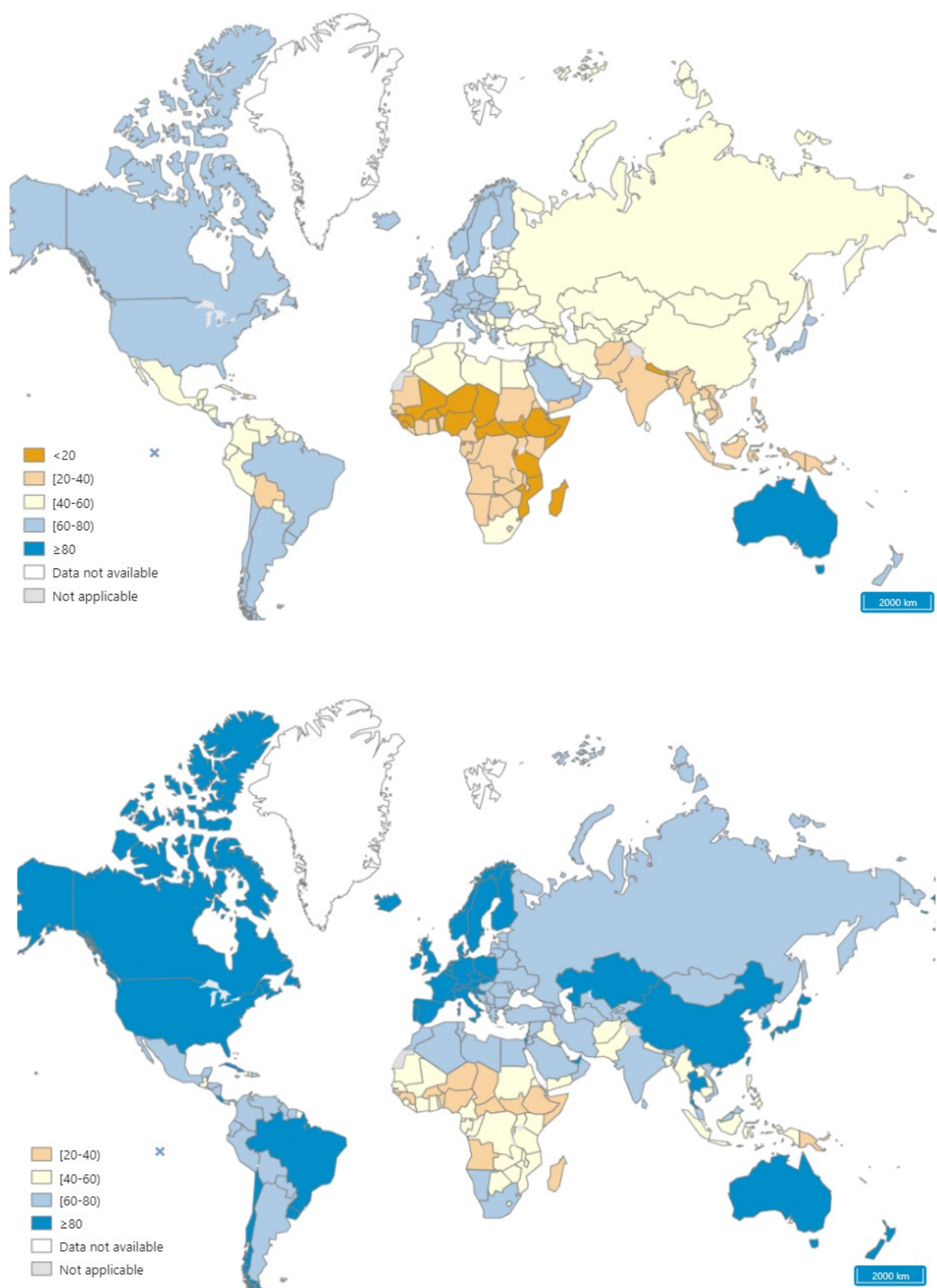
The latest report from 2023 indicates the achievement of UHC varies greatly in each area of the world, with clusters of lower values from 30 to 50% in regions of Africa, from 40 to 60% in Western Pacific and South-East Asia and between 70 to 90% in regions of Europe, the Americas, and Eastern Mediterranean.

Comparing UHC service coverage between global reports from 2000 and 2021, most high-income countries have increased their coverage to more than 80%, while moderate income countries have reached 60-80%, and the lowest income countries to 20 to 40%. A few countries in the Middle East, Eastern Europe, Australasia, and Africa had no change in coverage in those 20 years. In the later report there were no countries with service coverage below 20% (Figure 3).

Progress towards UHC is too slow to reach UN goal 3 in time. The World Economic Forum suggests that community health care is essential to make health systems resilient, reduce health inequalities and improve wellbeing, and they reiterate that Primary Health Care (PHC) is the engine for UHC and the key to an efficient delivery of health services. Countries should focus more on improving PHC and address the obstacles in implementation, one of which is the lack of health workers, which according to the WHO, was estimated to be of 18 million globally. This is a constraint even in high income countries and there are no easy solutions as the health care profession is plagued by mental health problems and poor compensation and management (WEF, 2021).

The following maps show how the world-wide coverage of UHC has changed in 20 years starting in 2000.

Figure 1. UHC service coverage index map (SDG 3.8.1) in 2000 and 2021 (WHO, 2021b).



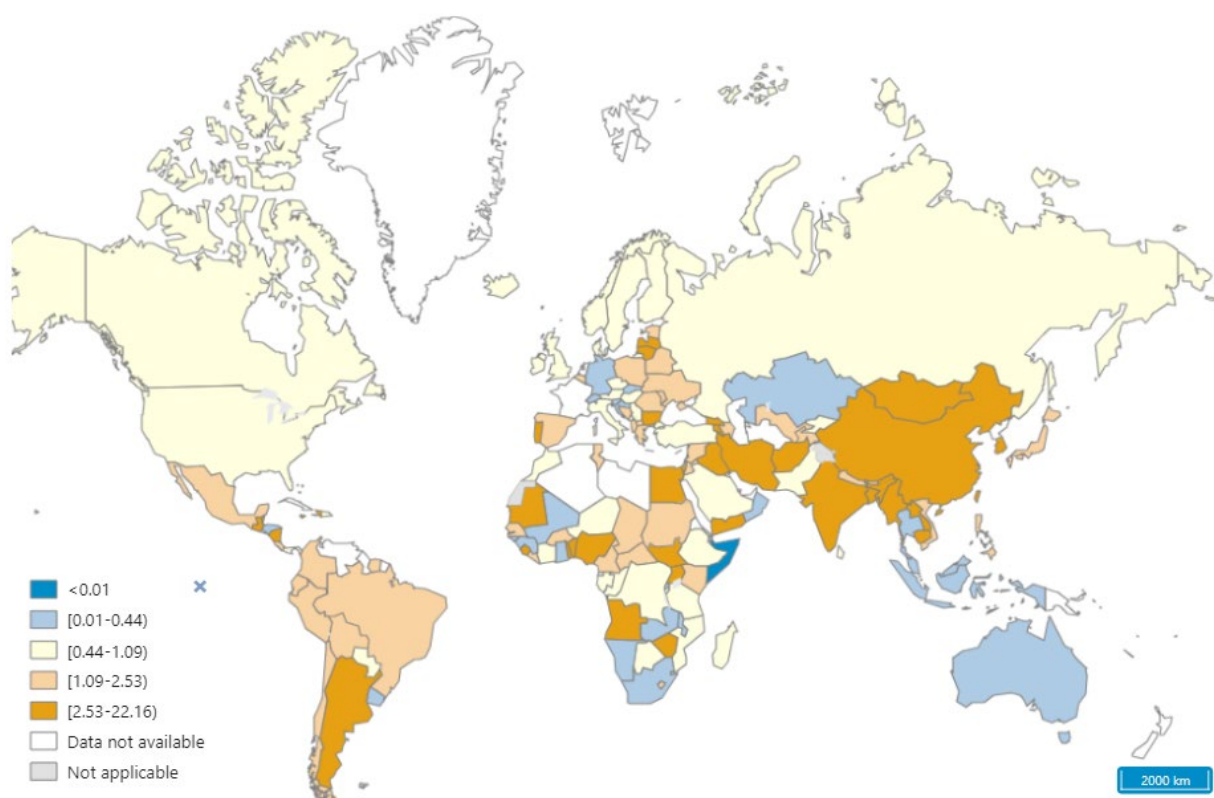
The maps show that Universal Health Coverage has increased between 2000 (top) and 2021 (bottom). The values indicate the percentage of population receiving essential health services in the country.

2. Populations with household expenditure on health greater than 10% and 25% of their total income (SDG 3.8.2).

An indicator of universal health is the need to spend a percentage of the family's income in health. Data was gathered for households that spend more than 10% and more evidently, those that spend more than 25%, showing areas where the health systems is insufficient in the provision of affordable access to care.

Few countries have a small population that spend more than 25% of their income in health, meaning that access to health care is easily affordable, and these include some Australasian countries, South Africa, Namibia, Mali and some neighbouring countries in Africa, Germany and a few countries in Europe and Kazakhstan. Most of the large countries have up to 1 % of their population spending a quarter of their income in health, whereas a few countries have an expensive health care system, like in areas of central Africa, most of South America, and Eastern Europe. Households spend more in health in more densely populated nations like India and China, parts of the Middle east and Africa (WHO, 2024a).

Figure 2. UHC: Households that spend more than 25% of their income in health (SDG 3.8.2) (WHO, 2021b).

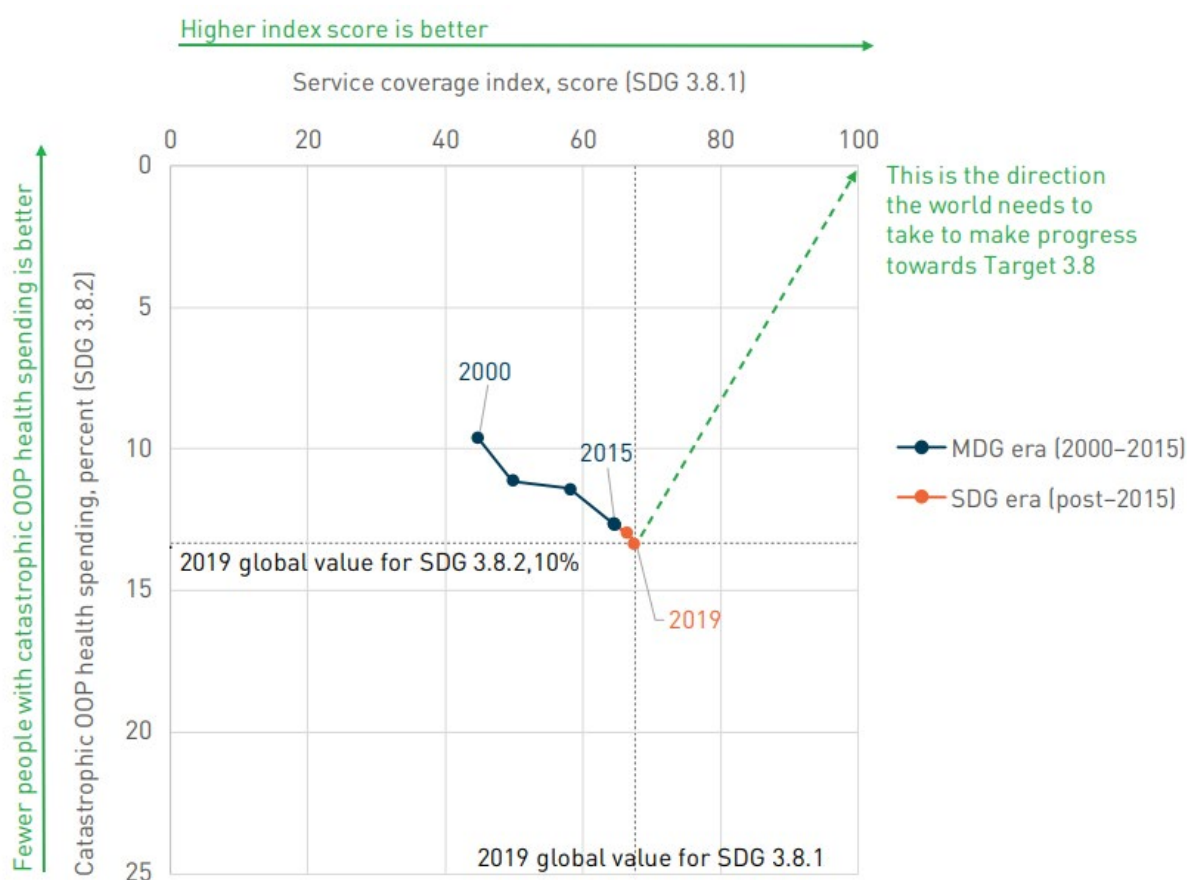


Despite this increase in UHC, in the Global Monitoring Report 2023, the WHO recognises that “The world is off track to make significant progress towards universal health coverage by

2030”, as stipulated by SDG 3.8. Improvements to UHC have stagnated when compared to the increasing population that is most in need (WHO, 2023b).

Note that the global UHC is an index of essential services available to the global population, where higher values mean more coverage; while Catastrophic Out of Pocket (OOP) health spending refers to expenditure exceeding 10% of the household budget, and lower values are better. A major reason of financial hardship is OOP spending on medicines. The following figure shows that the global trend is not following the desired direction (WHO, 2023b).

Figure 3. Estimates of UHC service coverage index (SDG 3.8.1) and catastrophic out-of-pocket health spending (SDG 3.8.2, 10% threshold), 2000–2019 (WHO, 2023b).



MDG = Millennium Development Goals; SDG = Sustainable Development Goals; OOP = Out of pocket.

Status of SDG targets in 2024

The realisation of Universal Health Care depends on political will and economic and human resource management, without adequate financing, health care reforms cannot happen. In line with its global strategy for health, nutrition and population, the World Bank Group supports countries' efforts to achieve UHC through a stronger primary health system and affordable quality health services. This issue was discussed in a public meeting in Washington DC, USA, on 18 April 2024 "Transforming Challenge into Action: Expanding Health Coverage for All". It was acknowledged that 4.5 billion people lack access to health services and more than 2 billion face financial hardship when paying for services they need, and this is compounded by growing risks of climate change, pandemics, fragility, and conflicts.

Panellists at the meeting discussed the importance of political will, affordability, country ownership, partnerships with the private sector and the need for more financing in reaching universal health coverage for all. Dr Tedros Adhanom Ghebreyesus, Director General of the World Health Organisation recognised that the world is off track in meeting SDG 3, and the World Bank Group president Ajay Banga announced a plan to support countries in providing affordable health services to 1.5 billion people by 2030 (WBG, 2024).

More details about the relationships between the SDGs and eye health are discussed in section "Sustainable eye health" below.



Video



Video 8: Transforming Challenge into Action: Expanding Health Coverage for All | 2024 Spring Meetings

Publisher / date: World Bank, 2024.

Length: 2 min.

Description: Affordable accessible health care can unlock human capital and economic dividends for countries. Over half of the world's population (around 4.5 billion people) lack access to essential health services. And two billion people face financial hardships due to health-related expenses. Experts address challenges and help ensure more people across the world have greater access to high quality and affordable health care.

Link: https://www.youtube.com/watch?v=_caCRrH4Qpc



Case study

Addressing Trachoma in Rural Communities

Trachoma, a preventable infectious disease, is the leading cause of blindness in many low-income regions, particularly in sub-Saharan Africa. This disease thrives in conditions of poverty, with inadequate access to clean water and sanitation, factors closely linked to SDG 3.8, which seeks to ensure good health and well-being for all.

A targeted ophthalmology initiative, in partnership with local governments and international organizations, implemented a multi-faceted approach to eliminate trachoma in several rural communities. The strategy included (WHO, 2021b):

Environmental improvements to ensure access to clean water and proper sanitation, align with both, health, and SDGs.

Facial cleanliness campaigns to teach proper hygiene practices and reduce transmissions.

Antibiotics made readily available to health care workers to treat infected cases, and therefore reduce the bacterial load in the community.

Surgery to correct advanced cases and reduce loss of vision.

Educational programs were introduced in local schools to teach children about hygiene practices and the importance of preventing trachoma. These programmes improved health outcomes, empowered young people to become active participants in improving their communities, fostering a sense of global citizenship and responsibility, and aligned with SDG 4.7. The incidence of trachoma was reduced by more than 70% in the participating regions, aligning with SDG 3.8.

By integrating eye care with broader public health and education strategies, ophthalmology can contribute to universal health coverage and sustainable development.



Reflective question

How can the principles and strategies used in this trachoma initiative be applied to other areas of ophthalmology to further the progress toward achieving SDG 4.7 and SDG 3.8? What role can you play in developing or supporting similar initiatives in your professional practice or community?



Further reading

The WHO provides detailed information about neglected tropical diseases like trachoma and discusses strategies and case studies aimed at eliminating them, which aligns with the Sustainable Development Goals.

The document **"Ending the neglect to attain the Sustainable Development Goals: A road map for neglected tropical diseases 2021–2030"** from 2021 is available at: [<https://www.who.int/publications/i/item/9789240010352>](https://www.who.int/publications/i/item/9789240010352)

1.7 GCDE Teaching Methodologies in Ophthalmology

Global Citizenship and Development Education (GCDE) offers a framework for teaching that emphasises critical thinking, ethical awareness, and the development of skills necessary to engage with global justice issues. When applied to the field of ophthalmology, GCDE encourages learners to understand the global context of eye health, the social determinants of health, and the ethical implications of their practice as future ophthalmologists.

Active Learning Methodologies

Active learning methodologies are central to effective GCDE. These approaches engage students meaningfully in the learning process, transforming them from passive recipients of knowledge into active participants in their education. This shift is particularly important in higher education, where students are preparing for professional roles that require critical thinking, problem-solving, and a deep understanding of global justice.

In the context of ophthalmology, active learning methodologies can help students connect clinical practice with broader global issues, such as health inequities, access to care, and the impact of social determinants on eye health. By engaging with these issues through active learning, students can develop the knowledge, skills, and values necessary to become globally conscious healthcare professionals.

Key methodologies for GCDE in Ophthalmology

1. Problem-Based Learning (PBL)

PBL is an effective methodology for GCDE as it encourages students to engage with complex, real-world problems. In ophthalmology, students can work on case studies that involve global health challenges, such as addressing preventable blindness in low-resource settings. This approach fosters critical thinking and the application of theoretical knowledge to practical scenarios.

Example Activity: Students could be presented with a case where they must develop a plan to improve eye care delivery in a remote community with limited resources, considering factors such as local healthcare infrastructure, cultural norms, and economic constraints.

2. Collaborative Learning

Collaborative learning emphasises the importance of social processes in education. By working together, students can share diverse perspectives and co-construct knowledge. This is particularly relevant in a global context, where understanding different cultural and social perspectives is crucial.

Example Activity: Group projects could involve students researching eye health disparities in different regions and proposing collaborative international initiatives to address these issues. This activity would not only build teamwork skills but also deepen their understanding of global health inequities.

3. Reflective Practice

Reflective practice is a key component of GCDE, encouraging students to critically evaluate their own beliefs, assumptions, and biases. In ophthalmology, this could involve reflecting on the ethical dimensions of patient care in diverse cultural contexts and the role of the healthcare provider in advocating for social justice.

Example Activity: Assign reflective journals where students analyse their experiences in clinical placements, focusing on how they navigated cultural differences and addressed ethical challenges in patient care.

4. Experiential Learning

Experiential learning involves learning through direct experience, which is particularly powerful in medical education. GCDE can be integrated into ophthalmology education through service-learning projects, international electives, or community-based learning, where students engage with underserved populations and global health issues first hand.

Example Activity: Organise international electives where students work in eye clinics in low-income countries, allowing them to experience the challenges of global health delivery and the importance of cultural competence in healthcare.

5. Critical Pedagogy

Critical pedagogy is an approach that encourages students to question and challenge existing power structures and inequalities. In the context of ophthalmology, this could involve examining how global trade policies, economic inequalities, and social determinants impact access to eye care and health outcomes.

Example Activity: Facilitate discussions on the ethical implications of medical tourism in ophthalmology, where students critically analyse the impact of short-term medical missions on local healthcare systems and explore more sustainable alternatives.

Pedagogy principles



Pedagogy. Teaching healthcare workers
(R Gonzales, Adobe, 2024).

Extensive research on educational methods for an audience of adult learners can be summarised in a set of **Principles of Effective Pedagogy**.

The Economic & Social Research Council (ESRC) Teaching and Learning Research Programme (TLRP) agrees that pedagogy, or the provision of education, can be made more effective through the synergy of three elements linked to teaching and learning: 1. Economic productivity, 2. Social cohesion and inclusion in a diverse community environment, and 3. Personal development, fulfilment and expression related to wellbeing

(James & Pollard, 2011).

Users need to judge how best to implement and adapt those principles to their contexts. The principles cover four areas:

1. Educational values and purposes.
2. Curriculum, pedagogy, and assessment.
3. Personal and social processes and relationships.
4. Teachers and policies.

In 2011, James & Pollard provided a detailed explanation of the origin and meaning of each principle (James & Pollard, 2011), and later, Nind & Lewthwaite from the University of Southampton, produced a concise document based on the above, which is further synthesised in **Appendix 1e** (Nind & Lewthwaite, 2015).

The role of educators in GCDE

In a GCDE framework, educators act as facilitators rather than traditional transmitters of knowledge. This approach shifts the focus from a teacher-centred to a learner-centred environment, where students are empowered to take responsibility for their own learning. Educators guide students in exploring global issues, supporting them as they develop the skills and values necessary to address these challenges effectively.

Transition in teaching and learning dynamics

From Teacher-Centred to Learner-Centred

In a GCDE approach, the classroom becomes a space where students are encouraged to explore, question, and engage with the material actively. This shift supports the development of critical thinking and problem-solving skills, which are essential for addressing global health challenges in ophthalmology.

From Product-Centred to Process-Centred Learning

The emphasis in GCDE is on the learning process rather than just the end result. This means fostering an environment where students can experiment, reflect, and learn from their experiences, leading to deeper understanding and long-term retention of knowledge.

Applying GCDE methodologies in ophthalmology modules

The following sections of the toolkit provide specific examples and suggested approaches for incorporating GCDE methodologies into ophthalmology education. These include practical activities, case studies, and projects designed to engage students with global health issues and prepare them to be socially conscious practitioners.

By integrating these methodologies, educators can create a dynamic and inclusive learning environment that not only imparts clinical knowledge but also instils a deep commitment to global justice and ethical responsibility in future ophthalmologists.

Assessment Strategies for GCDE in Ophthalmology

To effectively integrate GCDE into ophthalmology education, educators must also consider how to assess the impact of these methodologies. Assessment strategies should align with the goals of GCDE and focus on evaluating not just knowledge acquisition but also the development of critical thinking, ethical reasoning, and global awareness.

Formative Assessment

Use ongoing formative assessments, such as reflective journals, group presentations, and peer evaluations, to monitor students' progress in understanding and applying GCDE principles.

Provide timely feedback that encourages further reflection and growth, helping students to develop a deeper understanding of global health issues.

Summative Assessment

Design summative assessments that require students to synthesize their learning and demonstrate their ability to apply GCDE principles in practical contexts. This might include research projects, case study analyses, or comprehensive exams that address global health challenges.

Include components that assess students' ability to think critically, reflect on their ethical responsibilities, and propose solutions to real-world problems in ophthalmology.

Reflective Practices for Educators

Educators should also engage in reflective practice, regularly evaluating the effectiveness of their teaching methodologies and the impact on student learning. This could involve self-assessment, peer observations, and feedback from students.

Consider conducting action research or participating in professional development opportunities focused on GCDE and global health education to continuously improve teaching strategies and outcomes.

1.8 Asking for feedback

As educators, it's essential to foster an environment where ongoing discussion and feedback are integral to the learning process. Encouraging students to share their thoughts and

reflections not only enhances their learning experience but also allows you to adapt and improve your teaching methods.

To ensure that feedback is a continuous and valuable part of your course, consider the following strategies:

Incorporate Regular Check-ins

Schedule brief check-ins at the end of each session where students can share what they've learned, ask questions, or voice concerns. This can be done through quick surveys, exit tickets, or open discussions.

Use Reflective Journals

Encourage students to maintain reflective journals where they document their thoughts and learning experiences. Periodically review these journals to gauge their understanding and identify areas where further clarification may be needed.

Facilitate Peer Feedback

Create opportunities for students to engage in peer feedback. This not only helps them learn from one another but also fosters a collaborative learning environment.

Host Anonymous Feedback Sessions

Allow students to provide feedback anonymously. This can be particularly useful for gathering honest opinions on sensitive topics or areas where students may feel uncomfortable speaking up.

Leverage Technology

Utilize online platforms or tools that allow for real-time feedback, such as polling apps, discussion boards, or dedicated feedback forms.

1.9 Learning objectives

The objectives of this set of resources focus on global health, equity, and sustainable practice.

- ❖ **Foster an understanding of global health disparities:** Highlight the varying prevalence of ophthalmologic conditions worldwide and the factors contributing to these disparities.
- ❖ **Promote equity in eye care:** Equip future ophthalmologists with the knowledge and skills to provide equitable eye care services, irrespective of patients' geographic or socioeconomic status.
- ❖ **Encourage sustainable practices:** Advocate for sustainable, environmentally friendly ophthalmologic practices that minimise waste and carbon footprint.
- ❖ **Cultivate ethical mindfulness:** Encourage ethical decision-making in global ophthalmology settings, considering the complexities of cross-cultural interactions and resource limitations.
- ❖ **Enhance community engagement:** Develop skills for effective community engagement and education to improve eye health outcomes.
- ❖ **Strengthen research and policy advocacy:** Empower students with the tools to conduct meaningful research and advocate for policies that improve global eye health.

Module 2. Global health and ophthalmology

Overview

- 2.1 The global burden of eye disease
- 2.2 Status and forecast of Global Eye Health
- 2.3 Understanding eye conditions of global relevance
- 2.4 Causes and management of eye conditions
- 2.5 Case studies: Success stories in Global Eye Health
- 2.6 Reflective assessment and feedback
- 2.7 Additional resources

Introduction to Global health and ophthalmology

This module examines the global landscape of eye health, highlighting the significant disparities in access to eye care across various regions and populations. As future ophthalmologists and educators, it's important to understand the global burden of eye diseases and the role that healthcare professionals can play in promoting health equity. This module provides educators with comprehensive resources and strategies to effectively teach these concepts, offering a blend of theoretical knowledge and practical examples to engage learners.

2.1 The global burden of eye disease

Definition of global eye health

Global eye health is more than eye disease and visual loss, it involves human, social and geographical aspects and was initially defined by the Lancet Global Health Commission on Global Eye Health, and extended by Ramke et al. in 2021:

"Eye health is the state in which vision, ocular health, and functional ability is maximised, thereby contributing to overall health and well-being, social inclusion, and quality of life for everyone, everywhere" (Burton et al., 2021; Ramke et al., 2021).

This definition emphasises the interconnectedness of eye health with overall well-being and social inclusion, making it a critical component of global health.

Global Overview of Visual Impairment

Visual impairment is a widespread issue, affecting 2.2 billion people globally, with nearly half of these cases being preventable or unaddressed. This statistic underscores the urgent need for equitable access to eye care, particularly in low- and middle-income countries where the burden is most severe. Educators should emphasise that in most cases, visual impairment and blindness can be prevented with a timely detection and treatment, e.g., cataract; They should highlight disparities in access to eye care using statistics and visual aids to illustrate the global distribution of eye diseases.

Key indicators of visual impairment

2.2 billion people live with visual impairment globally.

1 billion cases could be prevented or are yet to be addressed.

Women and individuals in middle- and low-income countries are disproportionately affected.

Regional disparities

To effectively teach about global eye health, it's important to highlight the regional disparities in the prevalence of eye diseases. For example, regions such as Africa and South Asia experience significantly higher rates of visual impairment compared to Europe and North America. Educators can utilise interactive maps and visual tools to demonstrate these disparities, facilitating discussions on the socioeconomic and geographic factors that contribute to these differences.



Reflective question

How do global disparities in eye health affect the delivery of care in low-resource settings, and what strategies can be implemented to address these inequities?

2.2 Status and forecast of global eye health

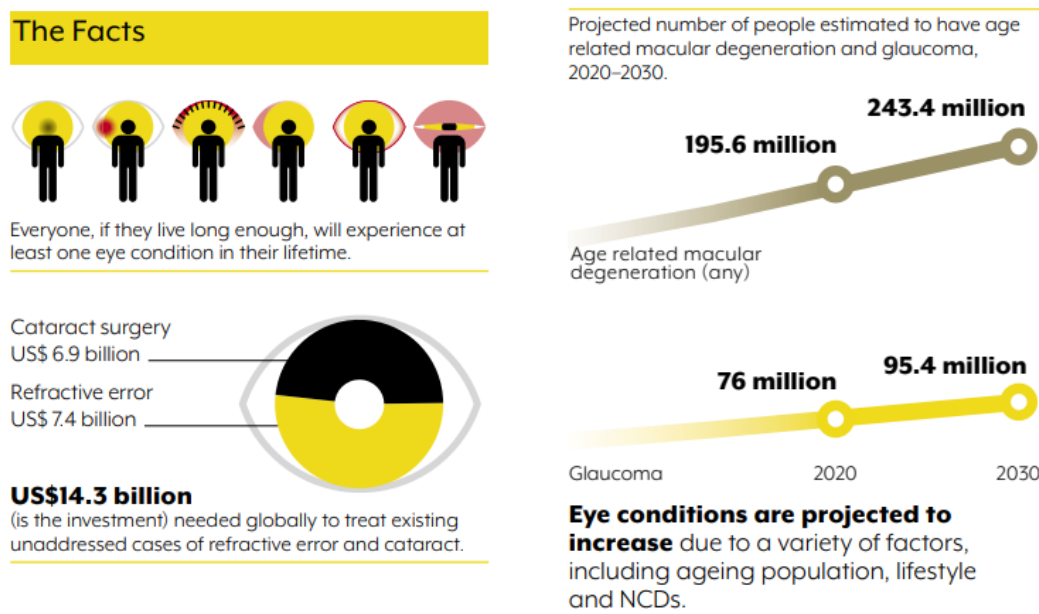
The World Report on Vision published by the World Health Organisation in 2019 is an excellent reference document to prepare teaching material for lay and health-care learners. The report is available at: <<https://www.who.int/publications/i/item/9789241516570>>.

The report mentions that visual impairment at global level is common. The WHO estimates that 2.2 billion people in the world live with a visual impairment, half of whom have a visual condition that can be prevented, is more common in females, and most of the affected live in

middle and low-income countries (IAPB, 2024). This value is equivalent to 27% of the World population of 8.1 billion (Worldometers, 2024).

An infographic of a summary of the World Report on vision is available here: <https://cdn.who.int/media/docs/default-source/infographics-pdf/world-vision-infographic-final.pdf>

Figure 4. World Report on Vision – Sample of the Infographic by WHO (WHO, 2019).



There is an evident human cost that refers to human suffering and loss of quality of life of those inflicted with poor eye health, their families, and their community. Visual impairment has economic repercussions that exacerbate the impact on human life.

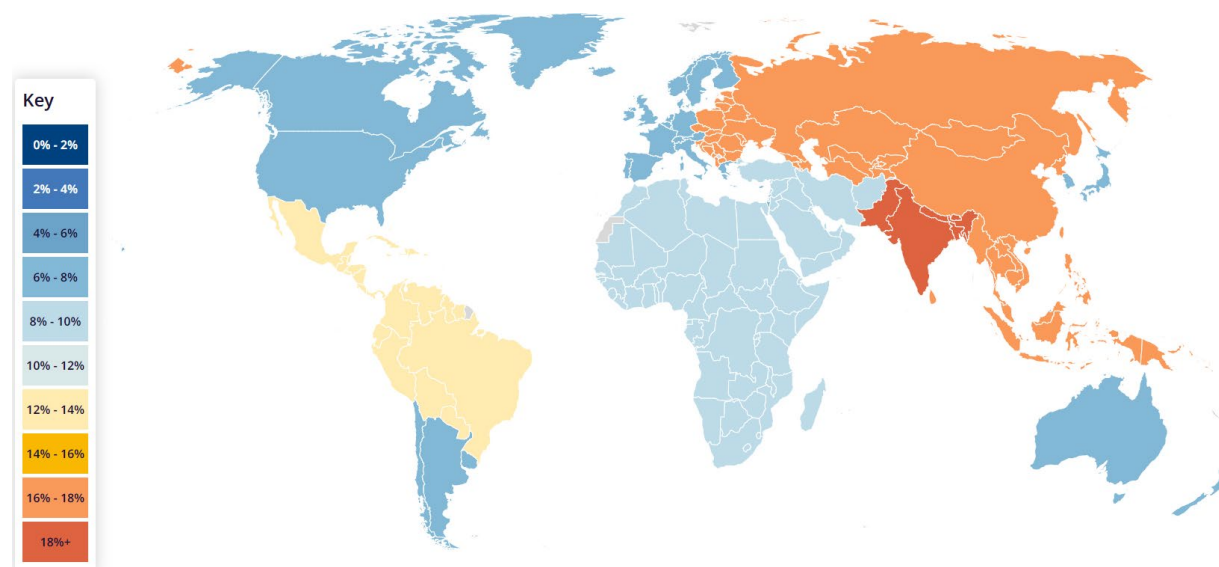
Preventing eye conditions and vision impairment can lead to improved productivity and a reduction in intangible costs. The estimated loss of productivity due to Myopia is US\$244 billion, and due to Presbyopia \$ 25.4 billion, and to address the coverage gap globally would cost \$24.8 billion (WHS, 2021). This estimation has increased from \$ 14.3 billion in 2019, excluding additional investment needed to strengthen health systems and infrastructure. An estimated 11.9 million people globally have a visual impairment that could have been prevented at a cost of 5.8 billion US dollars, representing a missed opportunity from which we need to learn (WHO, 2019).

An update based on systematic literature reviews reported by the Lancet commission on Global Eye Health in 2021, showed that the global potential annual productivity loss due to visual impairment was US\$411 billion Purchasing Power Parity (PPP), the highest loss found in Asia, followed by North Africa, the Middle East and high-income North America and Western Europe (Burton et al., 2021).

In 2013, the World Health Assembly adopted resolution 66.4: *Towards universal eye health: a global action plan 2014–2019* (WHO, 2013). The plan stipulated a global target of reduction of

the prevalence of avoidable vision impairment of 25% by 2019 from the baseline in 2010. This target has not been met: In 2010 this prevalence was 3.92%, while in 2020 it was 4.34%, an increase of 10% from the 2010 base. Findings show that considering that the population of the world increased from 6.9 billion in 2010 to 7.79 billion in 2020, blindness increased from 37 to 43.3 million in that period, while moderate to severe visual impairment increased from 233.5 to 295 million (Figure 7). In all cases, 55% of the population was female (Bourne et al., 2020).

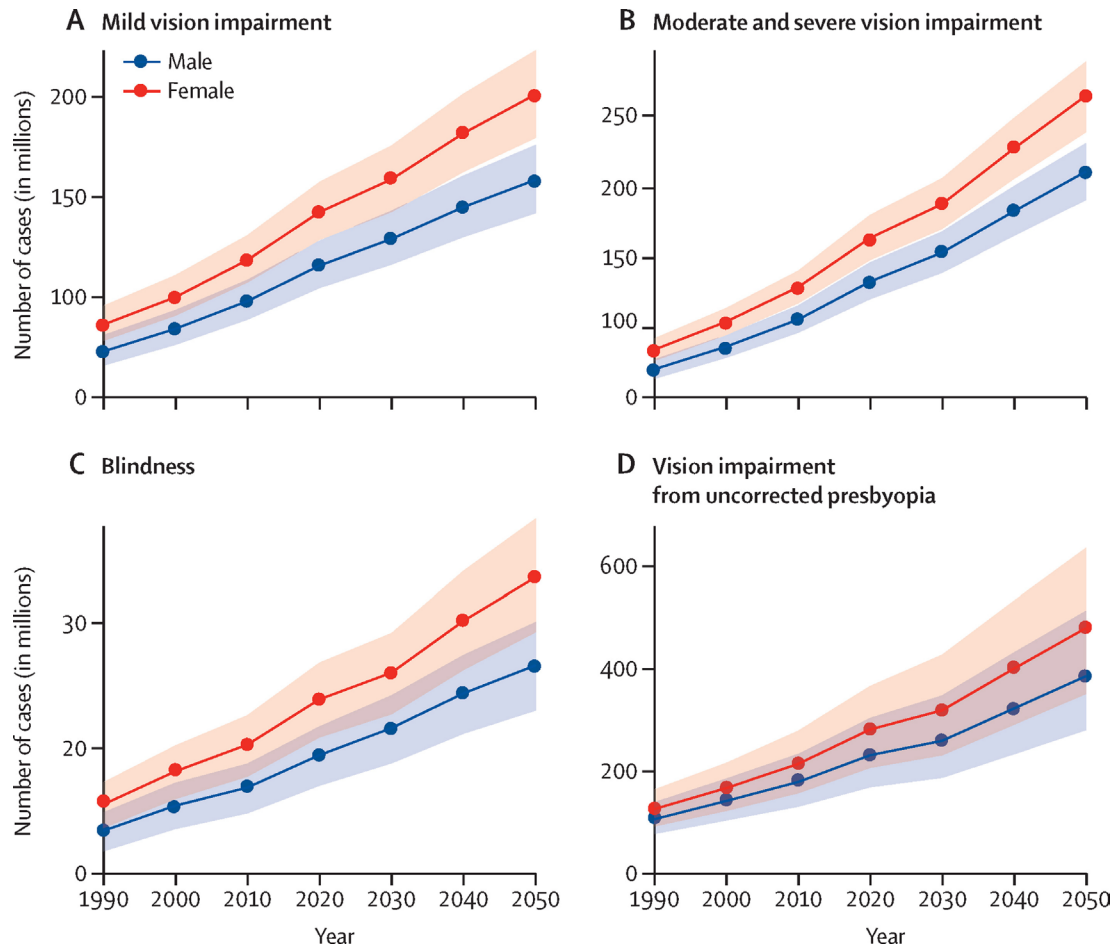
Figure 5. World map of prevalence of all types of vision loss in in 2020 (IAPB, 2024).



Note: The key denotes prevalence of all types of visual impairment and blindness, e.g., 6% of the population was affected in Europe and most high-income countries, while Africa reported a prevalence of 10% and South Asia of 18%. Source: Data from Vision Loss Expert Group (VLEG) & Global Burden of Disease (GBD) study 2020 model, accessed via The International Agency for the Prevention of Blindness (IAPB) Vision Atlas (Bourne et al., 2020; IAPB, 2024).

Estimates for 2050 predict that 61 million will be blind, 474 million will have moderate to severe vision impairment, 360 million will have mild vision impairment and 866 million will have presbyopia (blurred vision at close distance) (Figure 8) (Bourne et al., 2020).

Figure 6. Forecast of number of people affected by mild vision impairment (A), Moderate and severe vision impairment (B), blindness (C), and vision impairment from uncorrected presbyopia (D), all ages by sex, 1990-2050 (Bourne et al., 2020).



Reflective Question

Given the projected increase in visual impairment by 2050, what role can emerging technologies and global health initiatives play in mitigating this trend?

2.3 Understanding eye conditions of global relevance

Causes of visual impairment

Eye health is influenced by a variety of conditions, some of which are prevalent globally and contribute significantly to visual impairment. Educators should ensure that students understand the most common eye conditions and their impact on global health.

Vision depends primarily on the function of the eyes and is measured by the ability to see detail at distance and near (visual acuity). At full function, a person can see as much detail as the average person and is said to have full visual acuity. Vision impairment is the diminished capacity to see detail when compared to the average person. Someone with a mild visual impairment can see about half the detail than the average; one third with a moderate impairment, and about a tenth with a severe impairment, below which is considered blindness.

Common global eye health causes of visual impairment

Refractive Errors, including myopia and presbyopia, are among the most common causes of visual impairment. Myopia is on the rise globally, with projections indicating that by 2050, 66.4% of the population in Asia may be affected.

Cataract is a cloudiness in the lens of the eye that leads to increasingly blurred vision and blindness. More frequent in older adults.

Age-Related Macular Degeneration (AMD) is another major cause of visual impairment, particularly in older adults. The global prevalence of AMD is expected to increase, with the highest rates in Asia and Europe.

Glaucoma affects millions globally, with a significant number of cases in Asia and Africa. It is more common among people of African descent and those living in urban areas.

Diabetic retinopathy: Damage to blood vessels in the retina which become leaky or blocked. Vision loss due to swelling in the central part of the retina. Abnormal blood vessels in the retina, which can bleed or cause scarring and blindness.

Trachoma, a bacterial infection, is a leading cause of blindness in children, particularly in regions with poor sanitation. Global efforts have reduced its prevalence, but ongoing research and intervention are necessary to eradicate the disease completely.

Retinopathy of Prematurity (ROP) occurs due to exposure to oxygen at an early age, disrupting the normal development of the retina and leading to blindness. This condition is a consequence of improved healthcare that enables the survival of extremely premature infants but increases their risk of ROP.

Retinoblastoma is a life-threatening tumour that develops in the eyes of newborns and young children. It can be lethal if left untreated, and its diagnosis and treatment may be delayed in areas with poor access to specialists. This condition is a significant concern for the WHO in its efforts to increase childhood cancer survival rates globally.

Comprehensive overview of causes of visual impairment

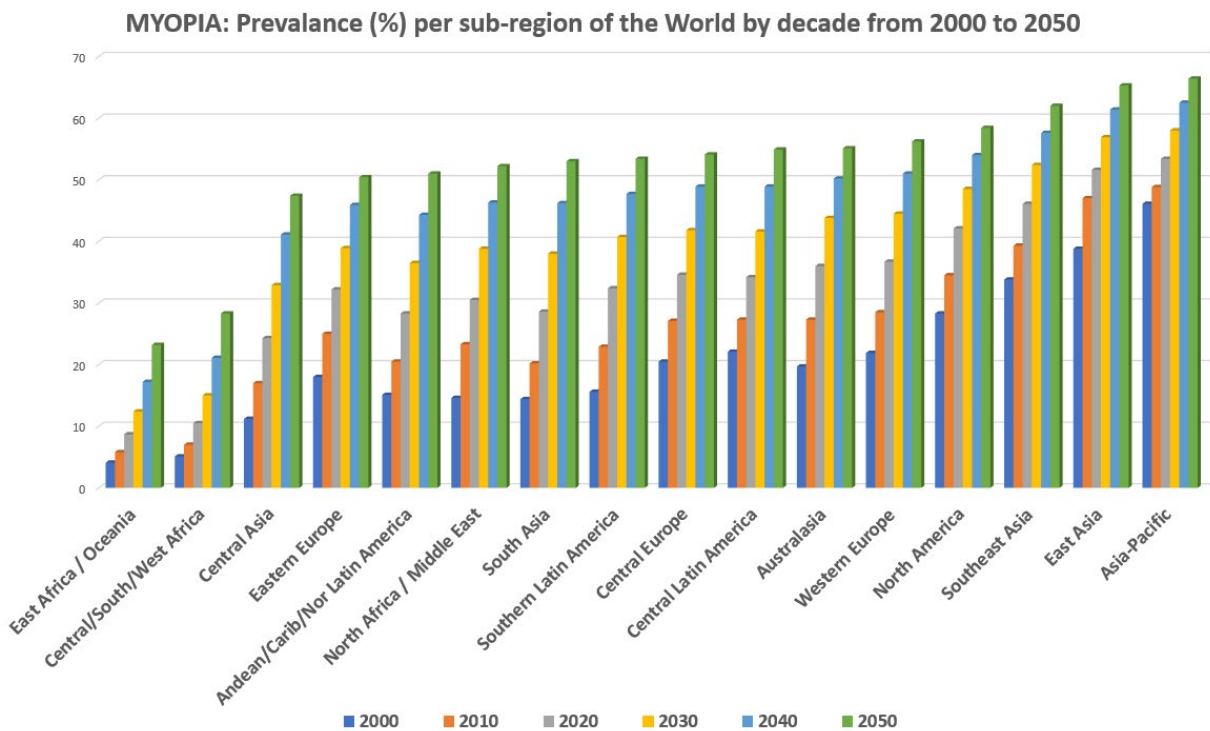
Visual impairment arises from a multitude of eye conditions, each influenced by a complex interplay of biological, environmental, and social factors. Understanding these causes is pivotal in formulating effective prevention and intervention strategies. Below is an integrated overview of the primary causes of visual impairment globally.

Refractive errors

Refractive errors, notably myopia (near sightedness) and presbyopia (age-related difficulty in focusing on close objects), are prevalent causes of visual impairment. These conditions are not diseases and result from the eye's inability to properly focus light, leading to blurred vision. Corrective measures, such as prescription glasses, can effectively restore sharp vision, therefore resolving the impairment, and improving the person's quality of life.

Myopia trends: One of the most frequent types of refractive errors is myopia. The incidence of myopia is notably escalating worldwide, with a pronounced increase in Asian populations. Studies project that by 2050, approximately 66.4% of the population in Asia will be affected, up from 49% in recent years. Figure 9 illustrates these regional trends, emphasizing the need for targeted interventions in areas with rising prevalence. Appendix 4 shows this change in world maps (Holden et al., 2016).

Figure 7. Percentage of the population (prevalence) affected by Myopia by region of the World; estimates from 2000 to 2050. Adapted from Holden (Holden et al., 2016).



Note that although myopia is expected to increase in all regions by 2050 (green bars), Asian countries will have the highest rates, followed by North America.



Additional information

Appendix 2a presents the WHO estimates of the global prevalence (total number of people affected) of eye conditions with a potential to cause visual impairment (Table 1) and those with visual impairment resulting from a given eye condition (Table 2).

Appendix 2b depicts a prevalence forecast of Myopia by region the world up to 2050.

Age-related Macular Degeneration (AMD)

Although the refractive errors mentioned above result from characteristics of the shape of the eyes, other causes of visual impairment affect the inside of the eyes, e.g., macular degeneration and glaucoma.

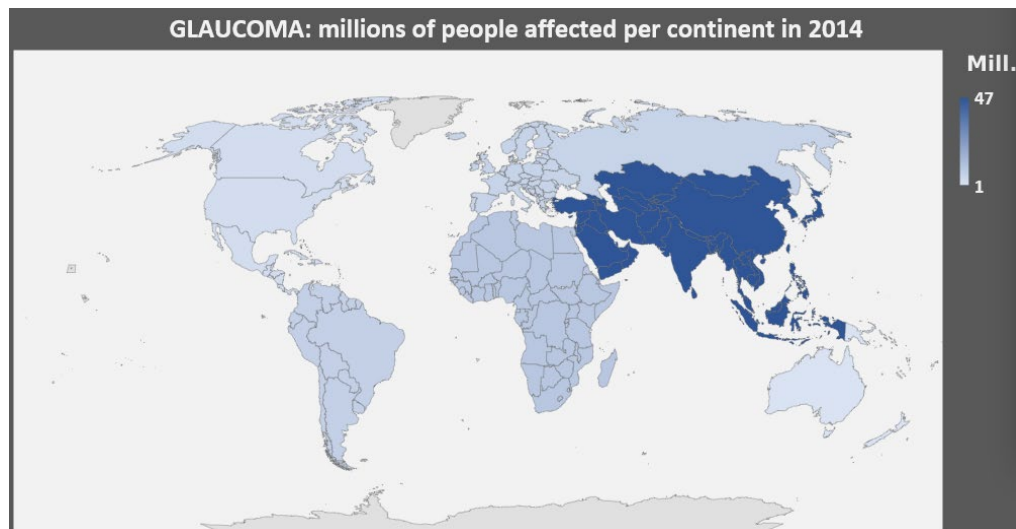
Of the estimated 196 million people globally with age-related macular degeneration, 5.3% (10 million) have moderate to severe vision impairment or blindness. Appendix 2c shows a comparison on the areas of the world affected in 2014 and those predicted for 2040. Like in Myopia, Asian countries show the highest numbers (Wong et al., 2014).

Appendix 2c shows a prevalence forecast of AMD by region the world up to 2040.

Glaucoma

It is estimated that 64 million people were affected with glaucoma in 2014, 10% had the more severe form that leads to visual impairment or blindness. That total number will increase to 111 million by 2040. Glaucoma affects more people in Asia (47 million) and Africa (10 million) than anywhere else in the world (Figure 10). People of African ancestry are 2.8 times more likely to have glaucoma than those of European ancestry, and people who live in cities are 1.5 times more likely to be affected than those living in rural areas (Tham et al., 2014; WHO, 2019; Williams et al., 2020).

Figure 8. Number of people (incidence) affected by Glaucoma by continent in 2014. Adapted from WHO and Tham (Tham et al., 2014; WHO, 2019).



Trachoma

Trachoma, a bacterial infection exacerbated by inadequate sanitation and hygiene, remains a significant cause of blindness, particularly among children in impoverished regions. The infection causes persistent eyelid inflammation leading to scarring that rubs and damages the cornea, forming scars that block the vision. While global initiatives have reduced trachoma cases from 7.6 million to 2.5 million between 2012 and 2019, sustained efforts in education, sanitation infrastructure, and access to clean water are vital for eradication (Williams et al., 2020).

In addition, some parasitic infections are also related to poor living conditions and may lead to visual impairment and blindness. For example: Toxoplasmosis and Onchocerciasis.

Retinopathy of Prematurity (ROP)

Retinopathy of Prematurity arises in premature infants exposed to high oxygen levels, disrupting retinal development, and potentially leading to blindness. While advancements in neonatal care have improved survival rates for premature infants, they inadvertently increase the risk of ROP. Addressing this necessitates balancing oxygen therapy with vigilant monitoring to prevent retinal damage.

Retinoblastoma

Retinoblastoma is a malignant tumour that develops inside the eyes of newborns and young children that is lethal if left untreated. Challenges in regions with limited access to specialized healthcare exacerbate the mortality rates associated with this condition. The World Health Organization emphasizes the importance of improving healthcare access and specialist training to enhance survival rates among affected children (Williams et al., 2020).

Appendix 2d presents short descriptions of eye conditions that lead to visual impairment.

Eye conditions that do not lead to visual impairment

Some common conditions that affect the surface of the eyes, do not typically lead to visual impairment, but affect a person's quality of life if left untreated and are therefore important to detect and manage, e.g., conjunctivitis, dry eye.

Appendix 2e lists and briefly describes conditions that do not typically lead to visual impairment.

Social and medical factors that affect vision

Understanding the multifaceted causes of visual impairment, especially the interplay between medical factors and social determinants, is essential in crafting comprehensive strategies aimed at prevention, treatment, and equitable access to eye care services worldwide.

Early recognition, diagnosis and treatment of adverse eye conditions can prevent visual impairment.

Ageing and Genetics

Aging is the primary risk for conditions like presbyopia, cataract, glaucoma, and AMD. Genetic predisposition plays a role in conditions like glaucoma, refractive error, and retinal degenerative diseases like retinitis pigmentosa.

Lifestyle and Environmental factors

Smoking amplifies the risk of AMD and cataract. Nutritional deficiencies, often stemming from socioeconomic disparities, can lead to conditions like vitamin A deficiency and subsequent corneal opacities. Occupational hazards and certain recreational activities increase the likelihood of eye injuries.

Systemic disorders and medicines

Disorders that affect the whole body may also involve the eyes, most notably, diabetes, rheumatoid arthritis, multiple sclerosis, and pre-term birth. Prolonged use of some medications such as steroids, may precipitate glaucoma and cataract.

Social justice and Access to care

Communities with limited resources often face challenges in maintaining proper hygiene, accessing clean water, and receiving timely medical interventions. Combined with poor education, lack of awareness, and the acceptance of bad vision as part of ageing, constitute risk factors of progression of eye conditions.

These disparities underscore the critical need for policies and programs that address not just medical treatment but also the broader social inequities contributing to visual impairment.

Social justice, human rights, and access to eye care

Social Justice and Human Rights

Social justice refers to the fair and equitable distribution of resources, opportunities, and privileges within a society. It is closely linked to the concept of human rights, which are the fundamental rights and freedoms to which all individuals are entitled. In the context of healthcare, social justice emphasizes the right of every individual to access quality healthcare services, regardless of their socioeconomic status, geographic location, or cultural background.

The Impact on Eye Health

Access to eye care is not merely a medical issue but a matter of social justice. The disparities in eye health, particularly in underserved communities, are often rooted in broader social inequalities. Key factors include:

Inadequate Access to Quality Healthcare

Many communities, especially in low-income regions, lack access to basic healthcare services, including eye care. This results in delayed diagnoses and treatments, leading to preventable visual impairments and blindness.

Poor Education and Awareness

Education plays a crucial role in preventing eye conditions. Communities with limited access to education are less likely to be aware of the importance of eye health and the need for regular check-ups, exacerbating the prevalence of avoidable conditions.

Lack of Clean Water and Proper Sanitation

Eye conditions such as trachoma are closely linked to poor sanitation and lack of clean water. These social determinants highlight the intersection of healthcare and basic human rights, where the absence of fundamental resources leads to severe health outcomes.

The call for action

Addressing the root causes of visual impairment requires more than just medical interventions. It demands a comprehensive approach that includes:

Policy reforms

Governments and international organizations must prioritize policies that ensure equitable access to healthcare for all, with a focus on marginalised and underserved communities.

Educational programmes

Increasing awareness and education about eye health can empower communities to take preventive measures and seek timely care.

Infrastructure development

Improving access to clean water, sanitation, and healthcare facilities is essential in combating the social determinants that lead to eye conditions.

By integrating social justice into the conversation on eye health, we recognise that everyone has the right to quality eye care, and we commit to addressing the inequities that prevent many from accessing the care they need.

2.4 Global management of eye conditions

There is clear evidence that global efforts in improving eye health had a positive impact so far with a 27% reduction of prevalence of blindness between 1990 and 2020 and a substantial reduction of eye conditions caused by vitamin A deficiency and infectious disease (Keel & Cieza, 2022). But the burden continues and increases in ageing population and changes in lifestyle are generating increasing number of cases that call for continuous monitoring and management of eye conditions.

Although every eye condition has a specific method of management or treatment, ranging from medications to surgery and implants, from a global perspective, resources must be directed towards the most common conditions and treated with the most effective methods.

The World Health Organisation (WHO) recognised in 2021 that the largest causes of visual impairment that could be treated with the most cost-effective method were **Refractive Errors** and **Cataract**. The estimations indicate that approximately 800 million people globally had a refractive error causing visual impairment that could be corrected with prescription glasses.

Fricke reported a similar number (826 million) for presbyopia alone (loss of capacity to see detail at close distance), while visual impairment due to blurred vision at distance was estimated at 123.7 million. The study found that considering those who already have a correction, the total number of people with presbyopia globally reaches 1.8 billion. Adequate correction was mostly reported in urban areas of developed countries, while unmet needs were found in central and eastern Europe and to extremes in Africa and Asia (Fricke et al., 2018).

The WHO also reported that 100 million people globally have cataracts causing moderate to severe visual impairment. The World Health Assembly recommended global targets for the coverage of treatment of those conditions, setting a goal for 2030: 40% increase in coverage for refractive errors and 30% increase in coverage of cataract surgery, which were endorsed by ministers of health and heads of states to improve care and advance towards SDG 3.8 target of UHC (Keel & Cieza, 2022; WHO, 2021c; WHS, 2021).

These recommendations ask governments and health institutions to increase the coverage of eye care in regions where it is mostly needed, also providing a form of detection and management of other eye conditions. The WHO provides guidelines for the integration of eye care in health systems applicable to all member states that want to implement the recommendations of the World Report on Vision. The guide includes 1. The Eye care situation analysis Tool (ECSAT) to create a snapshot of the eye care sector for policy makers; 2. The Eye care indicator menu (ECIM) to monitor strategies and actions; 3. A Package of eye care

interventions (PECI) that includes material resources needed for implementation at all care levels for policy makers; 4. The Eye care competency framework (ECCF) for policy makers to plan and develop eye care workforce (WHO, 2022).

The case studies in the next section demonstrate how good leadership and collaborative effort can produce substantial positive outcomes.

2.5 Case studies of success stories in Global Eye Health



Case Study 1: India's National Programme for control of blindness



India's National Programme for Control of Blindness (NPCB) serves as a powerful example of how large-scale public health initiatives, grounded in the principles of social justice and human rights, can significantly reduce the prevalence of blindness. Initiated in 1976, this program has been instrumental in addressing cataract-related blindness, which accounts for 62-80% of blindness, mostly in women,

and cataract-related visual impairment that affects 10 million people in India (Dandona et al., 2001; Murthy et al., 2005).

India is home to one-quarter of the world's blind population, where cataract is the cause of 80% of blindness and the cause of visual impairment in 10 million people. The NPCB was launched in response to this crisis, with a clear understanding that access to vision is not just a health issue but a fundamental human right. The program began in 1963 after the Central Council of Health in India declared that **"one of the basic human rights is the right to see"**. This declaration underscores the belief that equitable access to eye care is essential for social justice.

The program's success is rooted in its multi-faceted approach, which includes technological advancements, extensive training of surgeons, and strong international collaborations. Initially supported by the 1980s and the World Bank in the 1990s, with later involvement of the private and NGO sectors. The NPCB facilitated over 15 million cataract surgeries with a success rates that grew from 75% in 1994 to 82% in 2002, leading to a 26% reduction in cataract-related blindness (Skolnik, 2016).

Despite significant challenges, including economic deprivation (22% of India's people lives below the poverty line), some Indian states have made remarkable progress in detecting and

treating refractive error. This progress is attributed to a long-standing tradition of government support for eye care, which began under Prime Minister Indira Gandhi in 1970s. The success of the NPCB demonstrates that with strong leadership and a commitment to social justice, Universal Health Care (UHC) in eye care is achievable, as championed by the World Health Organization (Rao, 2020).



Further reading

1. Murthy discusses the impact of the National Programme for Control of Blindness (NPCB) in India and provides data on a sample of 72,044 participants aged over 50y. It reflects on the possibility of the elimination of blindness (Murthy et al., 2005):

Murthy G (2005) Current estimates of blindness in India. The British Journal of Ophthalmology, vol 89, issue 3, pp 257–260. DOI: <https://doi.org/10.1136/bjo.2004.056937>.

2. Dandona reports on the Andhra Pradesh Eye Disease Study (APEDS) conducted in India to reduce blindness. The analysis of data from a sample of 11,786 participants suggests that increasing age, decreasing socioeconomic status, female gender, and rural area of residence were associated with higher risk of blindness (Dandona et al., 2001):

Dandona R (2001) Review of findings of the Andhra Pradesh eye disease study: Policy implications for eye-care services. Indian Journal of Ophthalmology, vol 49, issue 4, pp 215–234.



Case Study 2: India's Global Sight Initiative (GSI)



Seva Foundation and Global Sight Initiative (GSI) logos (seva.org, 2024).

The Global Sight Initiative (GSI) in India is another exemplary model of how community-based interventions can effectively improve eye health, particularly in underserved regions. The GSI, sponsored by the non-profit Seva Foundation, operates through a network of six mentor hospitals that collectively perform around 500,000 cataract surgeries per year. When

combined with the efforts of their mentee hospitals, the total reaches 1 million cataract surgeries annually, serving approximately 1.3 million outpatients (Khanna et al., 2020; SEVA, 2024a).

Central to the GSI's success are the Vision Centres (VCs), which are established in small, often rural, communities. These VCs serve as the first point of contact for eye care, managing basic visual complaints and referring more complex cases to larger hospitals. By coordinating transport, reducing the fear of surgery, and addressing a lack of awareness, these centres have successfully built trust within the community and improved health seeking behaviour.

The GSI also focuses on breaking down gender barriers by employing female technicians, which has encouraged more women to seek care. This approach not only improves eye health but also contributes to gender equity and economic growth by creating job opportunities within the community (Khanna et al., 2020; Williams et al., 2020).



Learning takeaways

Leadership and Collaboration: Effective public health initiatives require strong leadership and collaboration across government, international partners, and local communities.

Community Engagement: Engaging local communities and building trust are critical to the success of health programs, particularly in underserved areas.

Social Justice in Healthcare: Programs like NPCB and GSI highlight the importance of making eye care accessible and affordable, ensuring that even the most marginalized populations can protect and restore their vision.

These case studies demonstrate how a commitment to social justice and human rights can lead to significant improvements in global eye health, reducing the burden of visual impairment and promoting equity in healthcare.



Further reading

1. Khanna et al., describe how Primary Eye Care (PEC) is delivered in more than 300 Vision Centres (VCs) by six mentor hospitals in India under the Global Sight Initiative (GSI) (Khanna et al., 2020).

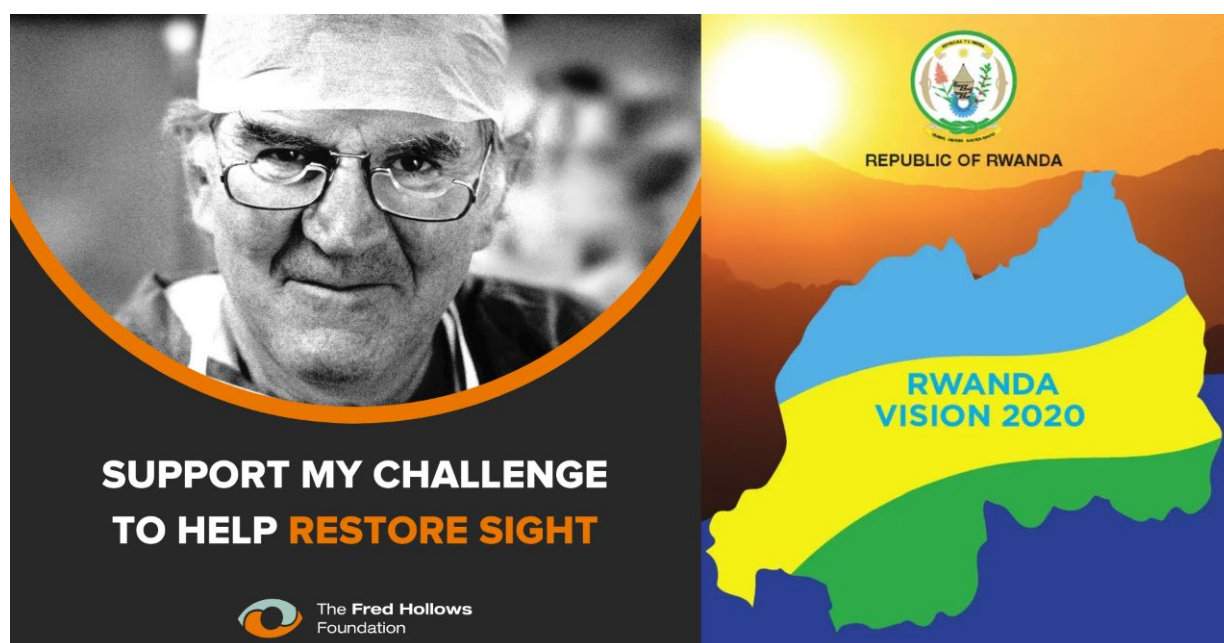
Khanna R (2020). Primary eye care in India – The vision centre model. Indian Journal of Ophthalmology, vol 68, issue 2, pp 333-339. PMID: PMC7003605.

2. In Kenya, Mathenge et al., evaluated the results of an eye health intervention in Nakuru, Kenya using a quick method of assessment, the Rapid Assessment for Avoidable Blindness (RAAB) to determine the magnitude of blindness. The study found RAAB easy to use and concluded that cataract was the main cause of blindness and visual impairment, and although there was a high cataract surgical coverage, those who were not operated were not aware of the service or found it too costly (Mathenge et al., 2007).

Mathenge W (2007) Rapid assessment of avoidable blindness in Nakuru district, Kenya. *Ophthalmology*, vol 114, issue 3, pp 599–605. DOI: <https://doi.org/10.1016/j.ophtha.2006.06.057>.



Case Study 3: Rwanda's Vision 2020 Program



The Fred Hollows Foundation and Rwanda Vision 2020 posters (www.hollows.org.nz, 2024).

Rwanda, a country in East Africa, has made significant strides in eye care through its Vision 2020 programme, an initiative launched in partnership with international organizations such as The Fred Hollows Foundation, the International Agency for the Prevention of Blindness (IAPB), and the Rwandan Ministry of Health. The programme is part of a broader national strategy to eliminate avoidable blindness by the year 2020, aligned with the global Vision 2020 initiative led by the World Health Organization (WHO) (FHF, 2024).

Rwanda's Vision 2020 program focuses on strengthening the country's eye health infrastructure, particularly in rural and underserved areas where access to healthcare is limited. The programme has established several key initiatives:

Training eye health professionals: Emphasis in training local ophthalmologists, ophthalmic nurses, and other eye care professionals to ensure the sustainability of the programme.

Development of infrastructure: Building regional eye care centres and mobile eye clinics to reach remote communities.

Community-based eye care: Integration of eye care services into the broader health system through training of community health workers in identifying common eye conditions and referring patients to specialised centres, thus increasing detection and treatment rates.

Public awareness campaigns: The programme conducted extensive public health campaigns to raise awareness about the importance of eye health, prevention of eye diseases, and the availability of eye care services. These campaigns have been essential in reducing stigma and encouraging people to seek care early.

The Vision 2020 programme in Rwanda has been highly successful in reducing the prevalence of avoidable blindness and visual impairment. It has increased the cataract surgery rate, reduced the incidence of trachoma, and improved the overall quality of eye care services in the country. This programme highlights the importance of equitable access to eye care as a matter of social justice and human rights. Through its initiatives, the programme has ensured that even the most marginalised populations have access to eye care and has underscored the need for a holistic approach that addresses medical and social determinants of health, particularly in low-resourced settings.



Following the success of this programme, the Rwandan government launched “Vision 2050” that proposes a development framework for 2020-2050, with regular reviews every 5 years.

Aiming for Economic growth and prosperity, and High-quality standards of life, the programme amplifies the initiatives described above. The government of Rwanda has considered global and regional targets and indicators, including The Sustainable Development Goals (SDGs), African Union (AU) Agenda 2063, East African Community (EAC) Vision 2050, and the Paris Agreement on

climate change among other instruments. The government hopes to increase the living standards to match middle income by 2035 and high income countries by 2050 (ROR, 2020).

The Republic of Rwanda's Vision 2050 programme is available at: https://www.minaloc.gov.rw/fileadmin/user_upload/Minaloc/Publications/Useful_Documents/English-Vision_2050_full_version_WEB_Final.pdf



Learning takeaways

The critical role of local capacity building in creating sustainable health care systems.

The importance of integrating eye care into the broader health system to ensure accessibility.

The value of public awareness campaigns in overcoming barriers to care and reducing the burden of preventable blindness.

This case study demonstrates how a concerted effort to address eye health at the national level, with a focus on equity and sustainability, can lead to significant improvements in health outcomes in a low-resource setting.



Further reading

1. **The Fred Hollows Foundation** is a charitable organisation that actively supported the eye health initiatives of the Vision 2020 programme in Rwanda. Further information is available at: <https://www.hollows.org/>
2. **The International Agency for the Prevention of Blindness (IAPB)** provides detailed reports and case studies on Vision 2020 initiatives in Rwanda and globally. Further information is available at: <https://www.iapb.org/>
3. **The WHO Vision 2020 initiative** reports on the global efforts of eliminating avoidable blindness, including those from Rwanda. Further information is available at: <https://www.who.int/blindness/partnerships/vision2020/en/>
4. **The Rwanda Ministry of Health** provides official reports and statistics on outcomes of the Vision 2020 programme within each country. Further information is available at: <https://www.moh.gov.rw/>

2.6 Reflective assessment and feedback

Assessment Strategies

Reflective practices such as journaling, case study analyses, and group discussions can be used to assess students' understanding of global health and ophthalmology. These methods encourage critical thinking and the application of theoretical knowledge to real-world scenarios.

Asking for Feedback

Ongoing feedback from students is essential to ensure the effectiveness of the teaching methods and the relevance of the content. Educators can gather feedback through surveys, discussion boards, or informal check-ins, fostering an environment of continuous improvement.

2.7 Additional resources

Using multimedia resources

Educators are encouraged to incorporate multimedia resources such as podcasts, videos, and interactive visual aids to enhance the learning experience in global eye health education. These resources can provide students with expert insights and real-world examples of the challenges and successes in the field of global ophthalmology, offering a learning experience for the audience.

Example

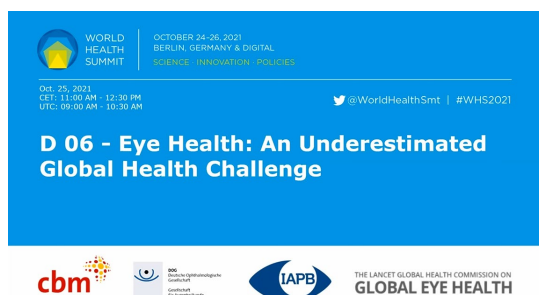
On 25 October 2021, at the World Health Summit (WHS) in Berlin, Germany, a panel discussed section D 06 “Eye health: An underestimated global health challenge” which was part of the Sciences and Innovation policies regarding the inclusion of eye health into the Universal Health Care plan. Dr Alarcos Cieza presented the WHO recommendations and targets for eye health, acknowledging the strengths of the Eye care sector:

1. Cost effective interventions
2. Public health tradition
3. Advocacy
4. Strong private sector that needs to be integrated
5. Technology and innovation
6. Technical tools to help this implementation:
 - a. Package of eye care interventions
 - b. Toolkit on how to implement the “mMyopia intervention.

Professor Matthew Burton presented “The Lancet global health commission on Global Eye Health”, published in 2021. Dr Andrew Bastawrous presented “The developments of Peek Vision, a visual acuity tool for mobile devices”. Dr Bibi Talpur talked about “Diabetic retinopathy”. The summit concluded with an educational discussion (WHS, 2021).



Videos



Video 9: D 06 - Eye Health: An Underestimated Global Health Challenge

Publisher / date: World Health Summit, 2021.

Length: 1hr, 30min.

Description: The session presents new findings of the WHO World Report on Vision and the Lancet Global Health Commission on Global Eye Health.

On this basis different international stakeholders from academia, politics, civil society, and industry. The expert panel discusses how this global challenge can be addressed not only within the health sector, and beyond.

Link: <<https://www.youtube.com/watch?v=2hqJxfEaM-s>>



Interactive maps and visual aids

Interactive maps and visual aids are powerful tools for illustrating global disparities in eye health. These resources can be integrated into lectures or used as independent study materials for students.

Example



International Agency for the Prevention of Blindness (IAPB)

Publisher / date: IAPB, 2020.

Description: 1.1 billion people experience vision loss primarily because they do not have access to eye care services¹. Over 90% of those with vision loss live in low- and middle-income countries. 74% of people with vision loss are over 50 years old. 55% of people with vision loss are women:

<<https://www.iapb.org/news/updated-vision-atlas-shows-1-1-billion-people-have-vision-loss/>>

Online resources

Eye health is a concern for everyone and interests in discussing or enquiring about conditions related to the eyes vary depending on age groups and specific topics. Discussion forums offer an opportunity to seek guidance and to learn more about eye health amongst people in the community. Some forums are open only to the public while others are monitored by health care teams that clarify concerns and give advice that may benefit everyone.



The “Patient” website is an online information hub that provides articles and forums on health care for the community and health care providers on several areas of health. Content is monitored by health professionals for accuracy and keeps standards following those of the National Health Service (NHS) in the UK: <<https://patient.info/>>.

The following examples of forums relate to eye health:

Eye problems: Generic eye problems, mostly related to vision difficulties of unknown cause.

<<https://patient.info/forums/discuss/browse/eye-problems-3343>>

Cataract: Specific topic on cataracts, mostly by those that underwent surgery.

<<https://patient.info/forums/discuss/browse/cataract-386>>

Module 3. Ethical considerations in Global Ophthalmology

Overview

- 3.1 Defining Ethics and Global Ophthalmology
- 3.2 Key ethical principles
- 3.3 Global Citizenship and Development Education in Ophthalmology
- 3.4 Ethical engagement in Global Ophthalmology
- 3.5 Ethical guidelines in Global Ophthalmology
- 3.6 Classroom methodologies
- 3.7 Suggested reading and additional resources

Introduction to Ethical considerations in Global Ophthalmology

Ethics in global ophthalmology encompasses a broad set of principles that guide the practice of eye care across diverse cultural, economic, and social contexts. These principles are not only about the immediate care of patients but also involve addressing broader issues such as social justice, human rights, and the structural inequalities that contribute to disparities in eye health. In the context of Global Citizenship and Development Education (GCDE), ethical ophthalmology goes beyond individual acts of care and extends to systemic change, advocacy for equitable healthcare, and the responsible sharing of knowledge and resources.

In this module, we will explore the ethical considerations that arise when ophthalmologists engage in global health initiatives. We will consider how these efforts can align with the principles of GCDE, focusing on long-term solutions, equitable partnerships, and the promotion of social justice.

3.1 Defining Ethics and Global Ophthalmology

Ethics in the GCDE context, in global ophthalmology, refers to the moral principles that govern the behaviour of ophthalmologists when they practice in different cultural and socio-economic settings. It includes the duty to respect the dignity and rights of all patients, regardless of where they live, and the responsibility to contribute to the development of sustainable, equitable eye care systems globally.

3.2 Key ethical principles

Respect for Human Rights

Ensuring that all patients have access to quality eye care and that their rights are upheld in all healthcare interactions.

Commitment to Social Justice

Addressing the root causes of eye health disparities, including poverty, lack of access to healthcare, and social inequalities.

Sustainability

Promoting practices that build local capacity and support the long-term improvement of eye health systems, rather than relying on short-term interventions.

Cultural Sensitivity

Understanding and respecting the cultural context in which ophthalmologists work, ensuring the care is culturally appropriate, and that local traditions and practices are respected.

3.3 Global Citizenship and Development Education in Ophthalmology

Incorporating GCDE into ophthalmology means recognising that health disparities are often rooted in broader social, economic, and political inequalities. Ethical ophthalmology, from a GCDE perspective, involves working towards systemic changes that address these underlying causes. This might involve advocating for policies that improve access to eye care, supporting the development of local healthcare infrastructure, and participating in partnerships that promote equitable healthcare delivery.

Example of broader ethical and political considerations:



Case Study: The Doha declaration and access to medications

The Doha Declaration on the Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) and Public Health, adopted by the World Trade Organisation (WTO) Ministerial Conference of 2001 in Doha, capital city of Qatar on 14 November 2001, allows countries to prioritize public health over intellectual property rights, enabling the production of generic medications in response to health crises (Correa & Matthews, 2011; WTO, 2001).

This case study explores the ethical and political implications of the declaration through a student activity.



Student activity

1. Research the impact of the Doha declaration on access to eye care medications in low-income countries.
2. Debate the ethical considerations of prioritising public health over intellectual property rights.
3. Propose strategies for ophthalmologists to advocate for access to affordable medications in their global work.

Responsibility of wealthier nations

Wealthier nations

Wealthier nations have a responsibility to address global health disparities through fair trade practices, equitable resource distribution, and investment in healthcare infrastructure. This includes advocating for policies that support sustainable development and health equity.

Example: The health equity pledge.

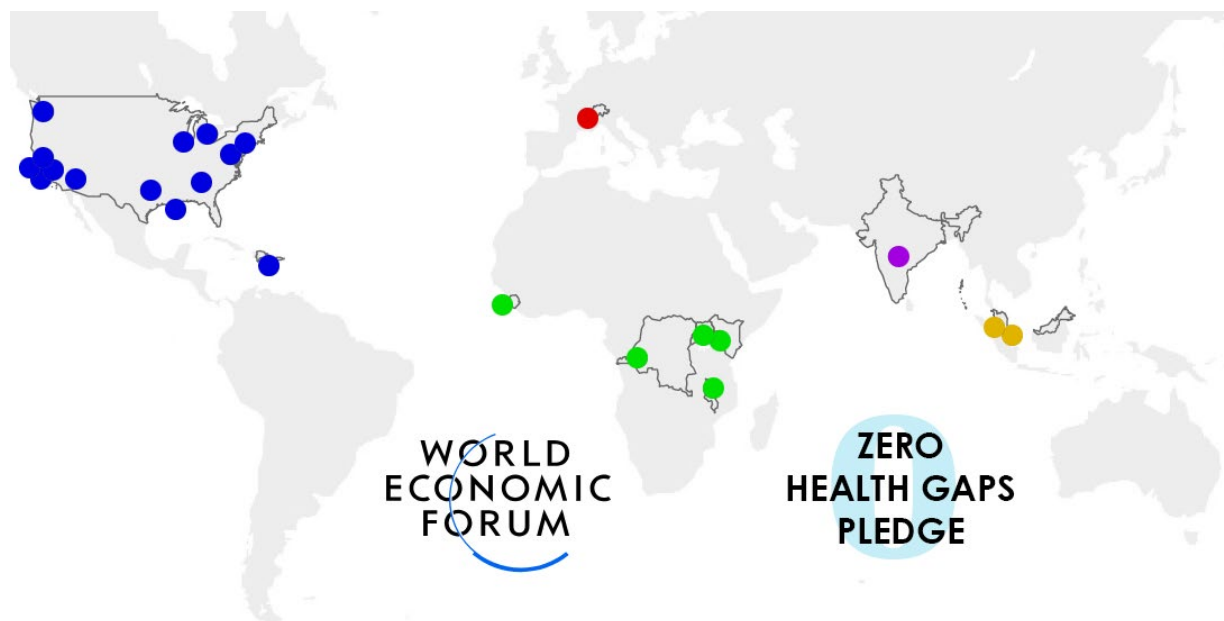


World Economic Forum, Davos (ABP, 2023).

In 2023, the World Economic Forum (WEF) launched the first-in-kind global health equity initiative, at the WEF Annual Meeting in Davos-Klosters, Switzerland, where the "Global Health Equity Network Zero Health Gaps Pledge" was signed by 39 private and public organisations from nine countries to advance a collective vision of zero health gaps, in line with the UN Sustainable Development Goals to take concerted action to advance health equity globally (WEF,

2023). The pledge consists of 10 key commitments to embed health equity principles throughout their operations, workforce, and guiding philosophies (ABP, 2023).

Figure 9. Location of 39 organisations that signed the Zero Health Gaps Pledge in 2023.



Nancy Brown, CEO, American Heart Association, commented: *"The need for health equity has come into sharp focus as public health crises have disproportionately impacted under-resourced and historically marginalized populations. The American Heart Association has long been committed to improving access to quality healthcare globally and we are proud to help close the health gaps as a supporter of the pledge".*

The "Global Health Equity Network Zero Health Gaps Pledge" is available at: <https://initiatives.weforum.org/global-health-equity-network/pledge>



Discussion question

How can ophthalmologists from wealthier nations contribute to global health equity through their professional practice and advocacy efforts?

3.4 Ethical engagement in Global Ophthalmology

Skills Sharing and Partnerships

When skills sharing and partnerships are incorporated into learning programmes it is important to emphasise collaboration with local healthcare providers, ensuring that knowledge transfer is a two-way process and that local communities are empowered to sustain their eye health services long after external support has ended.

Key considerations

Build local capacity

Focus on training and mentoring local healthcare professionals, so they are equipped to provide high-quality care independently.

Sustainable partnerships

Collaborate with local institutions in ways that strengthen their capacity and infrastructure, ensuring that the benefits of the partnership continue long-term.

Mutual respect

Partnerships should be based on mutual respect, with both parties contributing to and benefiting from the relationship.

Volunteerism: A critical perspective

While volunteerism has historically played a role in global health, it is important to approach it with a critical perspective. Volunteerism can sometimes perpetuate dependency and may not always lead to sustainable outcomes. From a GCDE standpoint, the focus should be on ethical volunteerism that prioritises the needs of the local community, promotes skills transfer, and avoids creating a cycle of dependency.

Ethical volunteerism

Criticism of medical volunteerism has been increasing in recent years. It is said that much of the international medical volunteerism is done for the wrong reasons, in that local people serve as means to meet volunteer's needs, or for the right reasons but ignorance and ill-preparedness harm the intended beneficiaries, often without volunteers' grasp of the damage caused. The way forward to improve this activity lies in attitude changes of the sending

organisations and with the individual who wants to go overseas. Sending organisations should require a thorough ethical examination of their reasons for these projects and a careful selection of volunteers, which would be extremely difficult for commercial placement agencies, while people who contemplate volunteering should honestly assess their motivations, abilities and limitations (Bauer, 2017).

All global short-term medical volunteer trips should develop their own statement of purpose geared toward global health equity and mutual caring, starting by addressing the following guides (DeCamp, 2011).

1. **Establishing a collaborative partnership** with the local community and amongst the team of volunteers is critical, not just for ensuring that short-term work is ethical but also for ensuring it is successful.
2. **Fairness in site selection** is a critical part of the ethical review of short-term work, just as it is for international research.
3. **Commit to benefit**, ensuring that the work is desired by the community, feasible and with social value.
4. **Ensure that education operates in both directions** by educating the local community and the volunteers.
5. **Build the capacity of local infrastructure** ensuring the programme does not interfere with the long-term goals of the local healthcare system.
6. **Be mindful of the potential for unintended negative consequences**, such as disrupting local healthcare practices or undermining local providers.
7. **Evaluate outcomes and engage in ethical reviews** to ensure it meets the ethical justification that initiated the trip.

Volunteers should examine their own intentions, find out if the programmes operate ethically and prepare adequately to understand and navigate the cultural context in which they will work. Global Brigades offer more information on ethical obligations of volunteers and how to determine if a volunteering opportunity is ethical and supports Global Citizenship (Alexa, 2023).

“Ethics of volunteering: Beyond good intentions” by Alexa, published by Global Brigades is available at: <<https://blog.globalbrigades.org/evaluating-the-ethics-of-volunteering>>

3.5 Ethical guidelines in Global Ophthalmology

Guidelines are best practice recommendations for ethical engagement in international eye health programs.

It is essential to maintain ophthalmology's high standards of quality of care and professionalism when providing care to patients in a global perspective and actions must always aim at serving the best interest of the patient or local community (AAO, 2020).

The following guidelines are adapted from various commonly accepted ethical principles in medical practice, such as those found in codes of ethics from the American Academy of Ophthalmology (AAO) and the International Council of Ophthalmology (ICO). The content is synthesised and adapted to fit the context of global ophthalmology and align with the goals of Global Citizenship and Development Education (GCDE) (AAO, 2020; ICO, 2024d).

Ethical Considerations in Global Ophthalmology.

- | | |
|---|--|
| 1. Act in the best interest of the patient and the local community. | 6. Assess local technology and infrastructure. |
| 2. Ensure appropriate training and knowledge of the health-care system. | 7. Secure pre-operative and post-operative care by specialists. |
| 3. Global ophthalmic care should benefit both, the host health care system, and the practitioner. | 8. Comply with ethical research practices and obtain local approval. |
| 4. Ophthalmologists should only perform procedures in which they are competent. | 9. Avoid conflicts of interest and ensure transparency. |
| 5. Determine liability and ensure coverage before planning international engagements. | 10. Manage expectations and maintain realistic standards. |



Appendix 3a expands on descriptions, considerations, and further resources for each point of the list of Ethical Considerations in Global Ophthalmology.

Best practices in Global Ophthalmology

In addition to ethical considerations of the specialty, the following desirable practices will help ophthalmologists practice in accordance with global citizenship views:

Cultural sensitivity

Always approach patient care with a deep respect for local customs, beliefs, and values. This includes understanding the cultural significance of certain medical practices and being open to integrating traditional medicine where appropriate.

Partnership and collaboration

Emphasise the importance of building equitable partnerships with local health professionals and institutions. Global engagements should focus on strengthening local systems rather than creating dependencies on foreign expertise.

Sustainability

Consider the long-term sustainability of any intervention or programme. Ensure that local communities can maintain and benefit from the projects after the foreign practitioners have left.

Human rights and social justice

Advocate for the inclusion of social justice principles in all global health engagements. This includes addressing the root causes of health disparities and working towards systemic changes that promote equity in access to healthcare.

Although legal and technical elements may be managed by additional personnel when working away from the home country, ophthalmologists need to be aware of the social and cultural aspects surrounding their patients and ensure patients are treated equally with integrity, honesty and dignity and always act in the best interest of the patient (ICO, 2024b). Global citizenship education attempts to address this needed awareness for better quality of care.

Accessibility in educational resources

Making educational resources accessible ensures that these materials are available to all learners, including those with disabilities like visual impairment and blindness. The following guidelines aim at helping educators broaden the reach of their resources to include diverse audiences with a variety of abilities and characteristics.

Language accessibility

To maximize the impact of educational materials, key resources should be translated into languages commonly spoken in the target communities. In the Eurasian continent, the largest and most populated country is Russia with 144 million people, making Russian the most widely spoken language of the continent. East of Russia, the most widely spoken languages are: English, German, French, Italian, Spanish, Polish and Dutch (see figure). Other European languages account for less than 4.7% of the population (Languageknowledge, 2024).

Figure 10. The seven most commonly spoken languages in Europe (east of Russia) (Languageknowledge, 2024).



7 top languages in Europe. Based on European Commission's report, 2012 (languageknowledge.eu, 2024).

Providing translations in these languages ensures that non-native speakers can access and understand the content, thereby broadening the audience for global health education.

Comprehension

Considering that many adults have low literacy levels, particularly in health-related topics, it is crucial to create content that is clear and easily understood. Educational materials should be written in an appropriate tone and style, avoiding jargon and complex technical terms. The National Health Service (NHS) in the UK, for example, produces health-related content designed to be understood by readers aged 9-14 (NHS, 2024). Tools like the Hemingway Editor can help writers assess the readability of their content and adjust it to suit the target audience's literacy level (Hemingway, 2024).



The **Hemingway editor** is available at: [<https://hemingwayapp.com/>](https://hemingwayapp.com/)

Readability and technological accessibility tools

Readability enhances text to make it easier to read for everyone, including those with difficulties. Technological features can enhance accessibility of educational resources, making them more inclusive. For learners with visual impairments, features such as variable text size, high-contrast visuals, and text-to-speech options can make a significant difference in their ability to engage with the material. These features are often dependent on the capabilities of the user's browser or display settings but should be considered and implemented wherever possible. Ensuring that online resources are compatible with screen readers and other assistive technologies is also crucial for making content accessible to those who are blind or have low vision (WAI, 2024).

Considerations for visual impairment

For learners with visual impairments or blindness, it is important to ensure that all visual content, including images, graphs, and videos, is accompanied by descriptive text or audio descriptions. This allows learners to access the information conveyed through visuals even if they cannot see them. Additionally, ensuring that all interactive elements on websites or e-learning platforms are navigable using keyboard commands can significantly enhance accessibility for those who rely on screen readers (WAI, 2024).



How **people with disabilities** use the web? Available at: [<https://www.w3.org/WAI/people-use-web/user-stories/>](https://www.w3.org/WAI/people-use-web/user-stories/)

Incorporating accessibility features into educational resources is not just a best practice, it is an ethical obligation to ensure that all learners, regardless of their abilities, have equal access to information. By considering language, readability, and technological accessibility, educators can create inclusive resources that cater to the diverse needs of global audiences.

Classroom methodologies

1. Case studies

Case studies are invaluable tools in the Global Citizenship and Development Education (GCDE) classroom, particularly in the field of global ophthalmology. They offer real-world examples that bring theoretical concepts to life, providing students with the opportunity to engage critically with complex issues. Through the exploration of these case studies, students can better understand the ethical challenges, social justice concerns, and human rights issues inherent in global health initiatives.

This structure ensures that students are not only absorbing knowledge but are also critically engaging with the ethical and practical challenges of global ophthalmology.

By working through case studies, students are encouraged to:

- **Develop critical thinking skills**, by analysing situations, weighing options, and considering implications of different actions.
- **Foster empathy and global awareness**, by understanding the lived experiences in different contexts, which helps them develop deeper empathy and awareness of global inequalities.
- **Explore ethical dilemmas and moral complexities** that emerge while providing care in resource-limited settings, balancing the needs of the local population with broader global health goals.
- **Enhance problem solving abilities**, by discussing and debating solutions, practicing collaborative analysis and work, a key skill in global health practice.

Educators can use case studies in this manner, implementing the following strategies:

a. Group work

Pairs or small groups of learners are assigned different case studies. After analysing and discussing the case, the groups present their findings and propose solutions.

Groups are given questions to guide discussion. For example:

- What are the key ethical challenges in this case?
- How do social justice and human rights play into the decisions made?
- What would you do differently and why?
- How could this initiative be improved to better serve the population?

b. Role-playing and simulations

Students can be assigned different roles, such as the ophthalmologist, a patient, a local healthcare worker or a government official, to play a simulated scenario. This allows students to experience the situation from their points of view and understand the complexities of decision making.

Simulated scenarios could depict a meeting where students must negotiate a plan of action, balancing the needs of the local community with available resources and ethical considerations.

c. Classroom debate

After the analysis of a case study, students can engage in a debate on a controversial aspect of the case, e.g., ethics of volunteerism, the role of foreign intervention in healthcare, or the prioritisation of resources.

d. Written reflections

Following group discussions or simulations, students can write a reflective essay on what they learned, the ethical dilemmas they encountered and how their views on global health and social justice have evolved.

Real world case studies in global ophthalmology

Case study 1. India's National Programme for Control of Blindness (NPCB)

The NPCB was a nationwide public health initiative that reduced cataract related blindness by 26% between 1976 and 2002. A concise description of the programme was given above as Case Study 1 in section 2.5 of this document (Dandona et al., 2001; Murthy et al., 2005; Skolnik, 2016).

Find more about NPCB reading Murthy's article: **Murthy G** (2005) Current estimates of blindness in India. The British Journal of Ophthalmology, vol 89, issue 3, pp 257–260. DOI: <https://doi.org/10.1136/bjo.2004.056937>.



Learning takeaways

The importance of sustained, government-supported initiatives in driving systemic change.

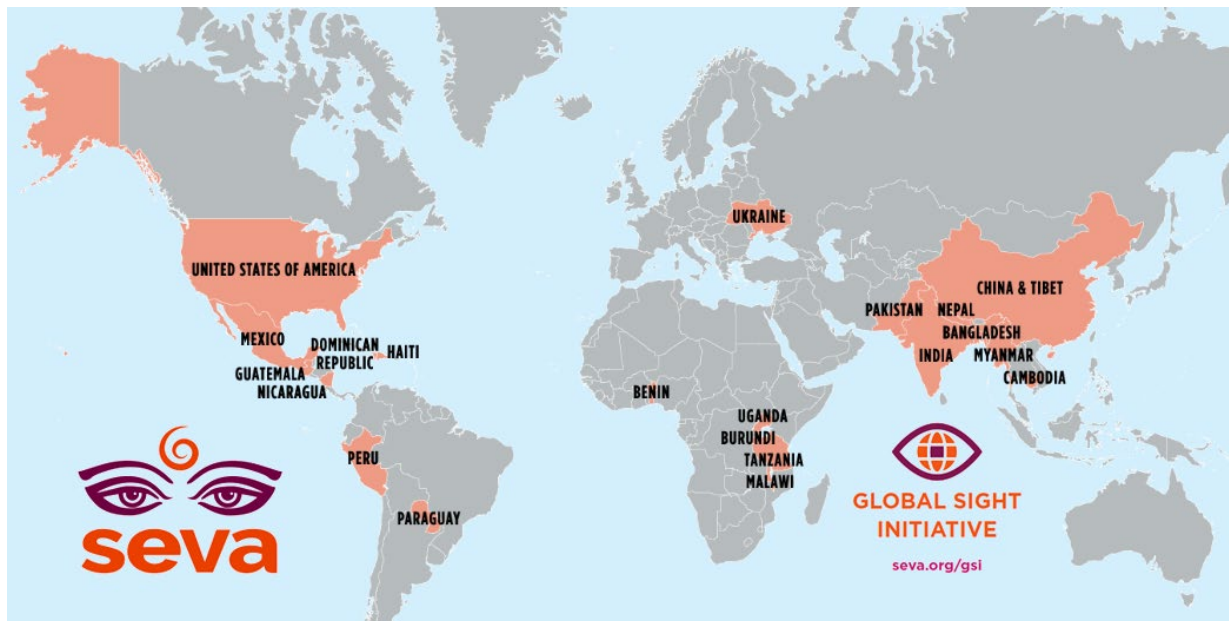
The role of policy in addressing widespread health issues and ensuring access to care for underserved populations.

Ethical considerations in prioritising resources and ensuring equitable access to treatment.

Case study 2. Kenya's Global Sight Initiative (GSI)

The Global Sight Initiative (GSI), sponsored by the non-profit Seva Foundation, launched in 2006, establishing vision centres in underserved areas of 20 countries, including India (see Case Study 2 in section 2.5), and various nations in Africa, South America, Asia, Europe and the USA. The initiative improved access to eye care, reduced treatment costs, and empowered local healthcare providers through training and support. (SEVA, 2024b).

Find more about SEVA's GSI at: <<https://www.seva.org/site/SPageServer/>>



Seva Foundation's vision centres around the world, part of the Global Sight Initiative (seva.org, 2023).

Case study 3: Myanmar cataracts by the Global Community Service Foundation (GCSF)



Volunteer with patient in Myanmar (GCSF).

An example of volunteering is a partnership of the university Wisconsin Academy of Ophthalmology and the Global Community Service Foundation (GCSF) that organised yearly medical missions for cataract surgery in Myanmar (Burma). Specialists performed free surgeries that would normally cost US\$5,000, benefitting between 100 to 300 people per week. International doctors donated time, skill, instruments, and airfare; US pharmaceutical companies donated medical supplies, and GCSF

coordinated logistics and accommodation locally. The successful programme run between 2013 and 2016, when it had to be cancelled because the political system in Burma became unstable and unsafe for participants (GCSF, 2014, 2016; Merritt, 2016).

Find more about GCSF at: <<https://globalcommunityservice.org/our-work/myanmar/>>



Learning takeaways

Effective partnerships focus on building local capacity and sustainability.

The role of community engagement in achieving lasting health outcomes.

Ethical challenges to balance external support while empowering local communities.

Case study 4. UK's NHS Highland's global ophthalmology engagement

The United Kingdom's National Health System (NHS) Highland implemented an innovative approach to global ophthalmology by allowing ophthalmologists to work both domestically and internationally. This model includes a schedule that balances service across diverse locations: Ophthalmologists are appointed to a 42-week work rotation: 16 weeks in Inverness, 12 weeks in the Orkney Islands, 4 weeks in the Western Isles, and 10 weeks in Tanzania (Fergusson & McFarlane, 2022).

Read Ferguson & McFarlane's article about NHS Highland global ophthalmology engagement at: <<https://www.sciencedirect.com/science/article/pii/S1479666X2100189X>>



Learning takeaways

The ethical implications of balancing local and global healthcare responsibilities.

The value of skills-transfer and sustainable, equitable partnerships in global health.

Social justice considerations in ensuring that healthcare resources are allocated fairly across different regions.

2. Simulation of ethical scenarios in global ophthalmology

Interactive learning tools, such as ethical simulation games and role-playing scenarios, are invaluable in helping students and practitioners navigate complex ethical dilemmas in global ophthalmology. These tools create a safe environment to explore the consequences of different actions and decisions, fostering critical thinking, ethical decision-making, and a deeper understanding of the global context of eye care.

By working through these simulations, students develop critical thinking skills, deepen their understanding of global health ethics, and learn to navigate challenging situations with cultural sensitivity and a commitment to social justice.

These exercises can be expanded into written reflections, group discussions, or presentations, providing multiple avenues for reinforcing the learning objectives. By integrating these scenarios into their teaching, educators can foster a more nuanced understanding of global ophthalmology and prepare students to address the ethical challenges they may face in their professional careers.

Scenario 1: Ethical dilemmas in low-resource settings

Scenario: You are an ophthalmologist volunteering in a low-resource setting where the local hospital has limited supplies. A patient requires a high-risk surgery, but the hospital lacks the usual support systems and advanced equipment you would typically rely on. How do you balance the potential benefits of the surgery against the significant risks, and how do you communicate your decision and its implications to the patient and their family?

Objective: This scenario encourages reflection on the ethical principles of doing good, avoiding harm, and patient autonomy. Students must also consider the broader social and cultural context, including the impact of their decision on the community and the hospital's limited resources.

Role-play: Students can role-play a consultation between the ophthalmologist and the patient's family, focusing on how to explain the risks and benefits of the surgery and how to handle questions or concerns. Afterward, the group can debrief to discuss what strategies worked well and where there were challenges.

Discussion Questions:

- How do you weigh the risks and benefits of performing surgery in a low-resource setting?
- What factors should influence your decision, and how would you prioritise them?
- How would you communicate the risks and benefits to the patient and their family respecting their autonomy and cultural context?
- What are the ethical implications of deciding to perform or not perform the surgery?

Scenario 2: Resource allocation and community ethics

Scenario: You are part of an international ophthalmology team providing eye care in a rural area of Sub-Saharan Africa. The community has a high prevalence of trachoma, but your team has a limited number of antibiotics and surgical kits. You must decide how to allocate these scarce resources. Do you prioritize children, who are more vulnerable to long-term damage, or adults, who are the primary workforce in the community? Additionally, local leaders suggest prioritizing certain families over others based on their status within the community.

Objective: This scenario challenges students to think about the ethics of resource allocation, equity, and justice. They must consider how to make fair decisions that benefit the whole community while navigating local power dynamics.

Role-play: Students can role-play a meeting between the ophthalmology team and local community leaders, where they must present their resource allocation plan and respond to questions or challenges from the leaders. This exercise helps students practice communicating difficult decisions in a culturally sensitive way.

Discussion Questions:

- What ethical principles should guide the allocation of limited medical resources?
- How do you ensure that decisions are made equitably, without bias or favouritism?
- How might cultural norms and local power structures influence your decisions, and how would you address these challenges?
- What strategies can you employ to communicate your decision-making process transparently to the community?

Scenario 3: Informed consent in a cultural context

Scenario: You are conducting a clinical trial for a new treatment for diabetic retinopathy in a low-income country in Southeast Asia. The trial requires informed consent from participants, but many of the patients have low literacy levels and are unfamiliar with the concept of clinical trials. Additionally, the local culture places significant trust in medical professionals, and patients may feel uncomfortable asking questions or declining participation. How do you ensure that patients fully understand the risks and benefits and that their consent is truly informed?

Objective: This scenario explores the ethical challenges of obtaining informed consent in cross-cultural contexts. It encourages students to think about the principles of respect for autonomy and the need for clear, culturally sensitive communication.

Role-play: Students can role-play the interactions between the ophthalmologist and patients during the informed consent process. One student plays the role of the ophthalmologist, another plays the patient, and others can observe or play roles such as a translator or community leader. After the role-play, the group can debrief, discussing what went well and what could be improved in the approach to obtaining informed consent.

Discussion Questions:

- What steps would you take to ensure that patients fully understand the information provided to them?
- How can you adapt the informed consent process to be more culturally appropriate and accessible to patients with low literacy?
- What are the ethical implications if patients consent to participate without fully understanding the trial?

- How might you engage with community leaders or other local stakeholders to support the informed consent process?

3. Interactive learning resources

Webinars on ethics in global ophthalmology

Webinars are an effective way to explore ethical challenges in global ophthalmology. They provide an interactive platform for discussion and learning. The following example is a webinar presented by the Health Unit and the Moran Eye Centre of the University of Utah at Salt Lake City, USA.



Webinar



Video: Ethics in Global Ophthalmology

Publisher / date: Moran CORE, 2022.

Length: 1 hr.

Description: Dr Nathaniel Gebhard and Dr Jay Jacobson discuss ethical challenges experienced by ophthalmologists working or training abroad. Moderated by Dr Eric Hansen.

Link: <https://www.youtube.com/watch?v=D2EzF9szm8>

4. Assessment and feedback

Reflective practice and continuous improvement

Encourage learners to engage in reflective practice throughout their training. For example, a reflective journal where students document their experiences, challenges, and lessons learned can be an effective tool.

Feedback

Continuous improvement depends on establishing a feedback method that is subsequently analysed to identify areas that need further consideration. Educators can implement their own form of feedback, for example:

- End of module surveys: Students reflect on what they learned about ethical considerations in global ophthalmology and how it might apply to their future practice.
- Discussion boards: Although more informal, online forums where students discuss ethical dilemmas and share insights with peers and instructors are useful for obtaining information about the teaching programme.

3.6 Additional resources

To deepen understanding, a curated list of readings and resources is provided, covering core ethical principles, global health policies, and case studies.



Further reading

The American Academy of Ophthalmology (AAO) provides a set of principles and rules of ethics, that apply to Global Ophthalmology (AAO, 2022):

AAO (2022) Code of Ethics - Global Ophthalmology. American Academy of Ophthalmology (AAO) available at: <<https://www.aao.org/education/ethics-detail/code-of-ethics--global-ophthalmology>>

The International Council of Ophthalmology (ICO) offers a summary of principles and detailed ethical principles and professional standards for ophthalmologists (ICO, 2024c):

ICO (2024) Eye care standards, ethics & research. International Council of Ophthalmology (ICO) available at: <<https://icoph.org/eye-care-delivery/eye-care-standards-ethics-research/>>

The Lancet Global Health Commission on Global Eye Health includes an analysis of global eye health including a discussion of ethical implications of Global Ophthalmology (Burton et al., 2021):

Burton M (2021) The Lancet Global Health Commission on Global Eye Health: vision beyond 2020. The Lancet Global Health Commission, vol 9, issue 4, pp E489-E551. DOI: [https://doi.org/10.1016/S2214-109X\(20\)30488-5](https://doi.org/10.1016/S2214-109X(20)30488-5).

Module 4. Social determinants of eye health through a GCDE lens

Overview

- 4.1 What do we mean by “Social Determinants of Eye Health”?
- 4.2 Malnutrition, Diabetes and Eye Health: Global challenges
- 4.3 Theoretical frameworks
- 4.4 Action for change

Introduction to Social determinants of eye health

Health does not exist in a vacuum; it is intricately linked to the social and economic environments in which people live.

"Poorer people live shorter lives and are more often ill than the rich"

Wilkinson and Marmot remind us that "poorer people live shorter lives and are more often ill than the rich," underscoring how social, economic, and psychological factors can shape physical health and longevity. These determinants include access to nutritious food, education, stable employment, clean water, safe housing, and supportive communities (Wilkinson & Marmot, 2003). When these determinants are compromised, as they often are in low-income and marginalized communities, the risk of developing health problems, including eye conditions, increases dramatically.

In this module, we explore the impact of social determinants on eye health, highlighting how factors such as poverty, education, access to healthcare, and systemic inequities shape the well-being of populations worldwide. This discussion is rooted in Global Citizenship and Development Education (GCDE), emphasising the need for systemic change, social justice, and an understanding of the historical and structural causes of health disparities.

4.1 What do we mean by “Social Determinants of Eye Health”?

This module looks at the various social determinants that significantly impact eye health, focusing on how poverty, education, access to healthcare, and nutrition are interlinked with visual impairment and overall health outcomes. These determinants create a complex web that influences who has access to eye care, who suffers from preventable conditions, and who ultimately faces greater health risks. By examining these factors, students will gain a deeper understanding of how systemic inequities shape health disparities globally.

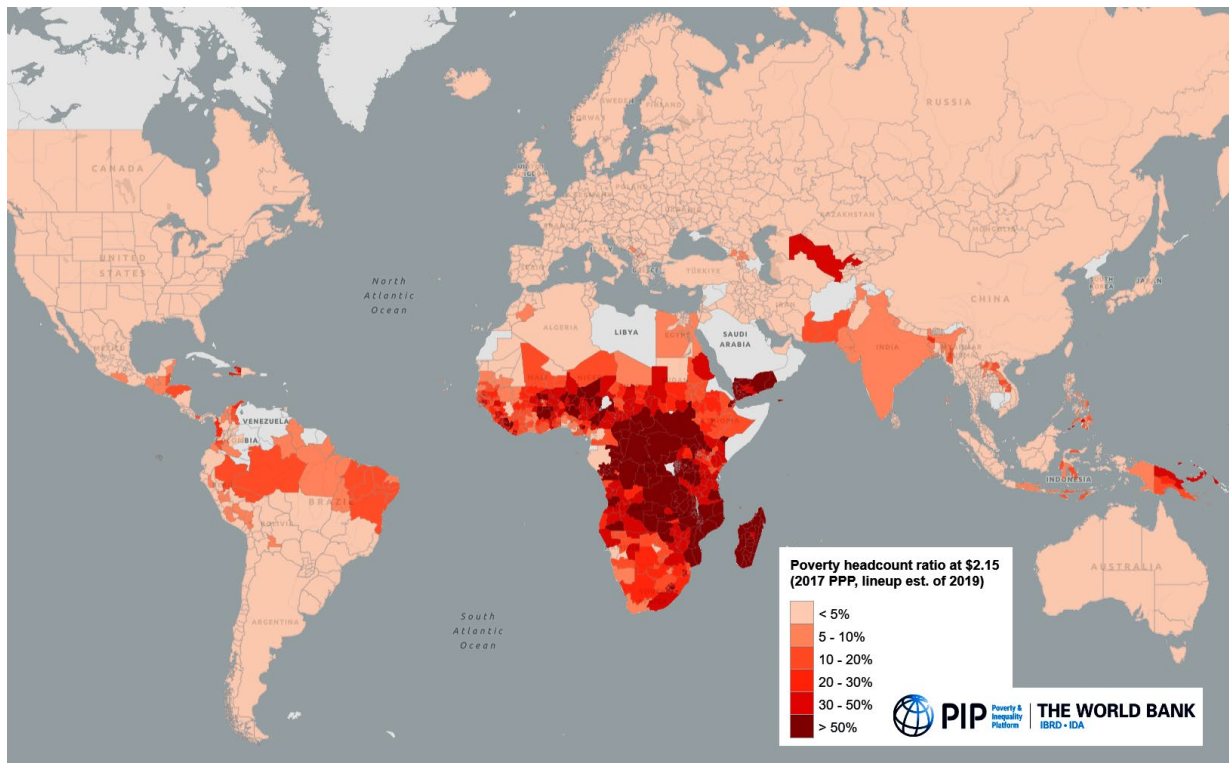
4.1.1 Poverty

9.2% of the world's population lives in extreme poverty (World Bank 2023).

Poverty is a major determinant of health outcomes, including eye health. According to the World Bank, approximately 9.2% of the global population (0.1 % in Ireland, 0.2% in UK), or about 719 million people, live on less than US\$ 2.15 a day (US\$ 64.5 a month), as updated in 2023. Compared to previous decades, world poverty has decreased steadily from 15.9% in 2010 and 29.2% in 2000 (WB, 2023). Extreme poverty often limits access to essential health services, including eye care, and restricts the ability to afford nutritious food, which is crucial for maintaining good eye health.

Poverty exacerbates the risk of visual impairment by restricting access to both preventive and corrective eye care. In regions with high poverty rates, people may delay or avoid seeking eye care due to cost, leading to untreated conditions that could have been easily managed or prevented.

The Global Subnational Atlas of Poverty (GSAP) map below, based on current data from the World Bank, highlights the areas most affected by poverty in the world (WB, 2024).



Poverty in the World map. Poverty & Inequality Platform (PIP) & World Bank (WB) (PIP/WB, 2024).



Case Study: Nigeria's poverty and blindness

In Nigeria, where over 40% of the population lives below the national poverty line, access to eye care services is significantly limited, particularly in rural areas. Evidence from the National Survey of Blindness and Visual Impairment showed that blindness is associated with poverty. Reducing avoidable causes will not be achieved unless access to services improves, particularly for the poor and women (Abubakar et al., 2015).

4.1.2 Education

250 million children and youth are out of school globally (UNESCO 2022).

Education is a critical determinant of health, including eye health. The UNESCO Institute for Statistics reports that approximately 250 million children and youth worldwide were out of school in 2023, 48% of whom were girls and young women. Sub-Saharan Africa accounts for

close to 30 % of all out-of-school children globally (UNESCO, 2023a). Education levels influence health literacy, the ability to understand and act on health information, and the capacity to advocate for one's health needs.

Inadequate education limits the awareness of eye health issues and the importance of early detection and treatment of eye conditions. Individuals with lower education levels are less likely to seek eye care, resulting in progression of preventable conditions.



Case Study: Bangladeshi women

A study of 1600 slum dwellers in Dhaka City, Bangladesh found that women and those with formal education were more likely to seek eye care. Although not the poorest of the country, the average income of the surveyed population ranged an equivalent US\$ 67 to 188 per month. The study also found that the incidence of eye diseases was high but the demand for services low due partly to low levels of education and cost (Sarker et al., 2015).

4.1.3 Access to healthcare

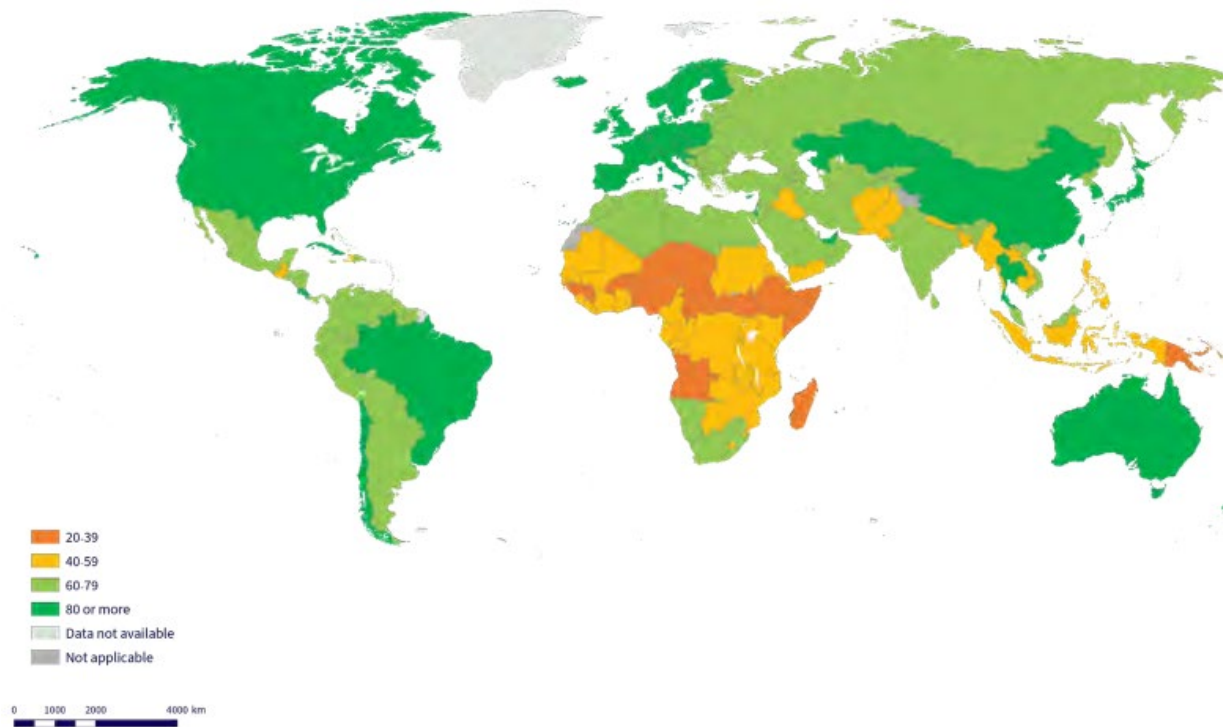
In 2021 about 4.5 billion people were not fully covered by essential health services (WHO 2023).

Access to healthcare is a critical factor in determining health outcomes, including eye health. The WHO reports that in 2021 about four and a half billion people were not fully covered by essential health services. In 2019, 344 million people faced impoverishing Out of Pocket (OOP) health spending at the extreme poverty line (WHO, 2023b).

Limited access to healthcare services, particularly in low-income and rural areas, leads to untreated eye conditions and preventable blindness. The lack of trained eye care professionals and inadequate healthcare infrastructure further exacerbate these challenges.

The following map shows the world's Universal Health Coverage (UHC) based on the Service Coverage Index (SCI) where the values indicate the percentage of people in each country that has access to essential health services. Note that in most of Africa and South Asia only 20 to 50% of the population can access essential health services (WHO, 2023b).

Figure: Universal Health Coverage (UHC) based on country's Service Coverage Index (SCI). From 2021 data (WHO, 2023b).



Values indicate the percentage of the population receiving essential health services in the country.



Case Study: Bangladesh women

In rural Uganda, a significant proportion of the population lives far from health centres, with only one ophthalmologist for every million people (the WHO recommends 4/million), therefore, “The majority of eye care services in Uganda are provided by non-ophthalmologists”. This lack of access to health services leads to high rates of preventable blindness, particularly due to untreated cataracts and glaucoma (Magyezi & Arunga, 2020).

4.1.4 Nutrition

Stunting, wasting and overweight continues to jeopardize children's ability to survive and thrive
(UNICEF 2023).

Nutrition is a fundamental determinant of eye health. Malnutrition, both undernutrition and overnutrition, can lead to a range of eye health problems. The triple burden of malnutrition, stunting, wasting and overweight, continues to jeopardize children's ability to survive and thrive (UNICEF, 2023). Vitamin A deficiency, for instance, is a leading cause of preventable blindness in children, particularly in low-income countries. Conversely, overnutrition and associated conditions like diabetes are increasingly contributing to vision problems globally.

Undernutrition can lead to conditions such as xerophthalmia and night blindness, particularly in children. On the other hand, overnutrition, leading to obesity and diabetes, can cause diabetic retinopathy, which is a growing cause of blindness worldwide.



The triple burden of malnutrition in the world in 2023 (UNICEF, WHO, WB 2023).

An average of 47.5% of stunting, 38% of overweight, and 48.5% of wasting afflicts children under 5 years of age living in Asia and Africa.



Case Study: Vitamin A supplementation in Ethiopia

In Ethiopia, where vitamin A deficiency is prevalent, interventions such as vitamin A supplementation and nutrition education have been implemented to reduce the incidence of blindness among children. These efforts have significantly decreased the rates of xerophthalmia, demonstrating the impact of targeted nutrition programs on eye health (Semba et al., 2008).

Integration into the Module

Each of these sections should be integrated into the module with clear connections to how they represent social determinants of eye health. Educators can use these statistics, maps, and case studies as starting points for discussions, group activities, or individual research assignments. Additionally, students can be asked to reflect on the global inequities presented and consider what actions might be taken to address these issues, thus linking to the theoretical frameworks introduced in the module, such as Freirean pedagogy, post-colonial theory, and eco-feminism.

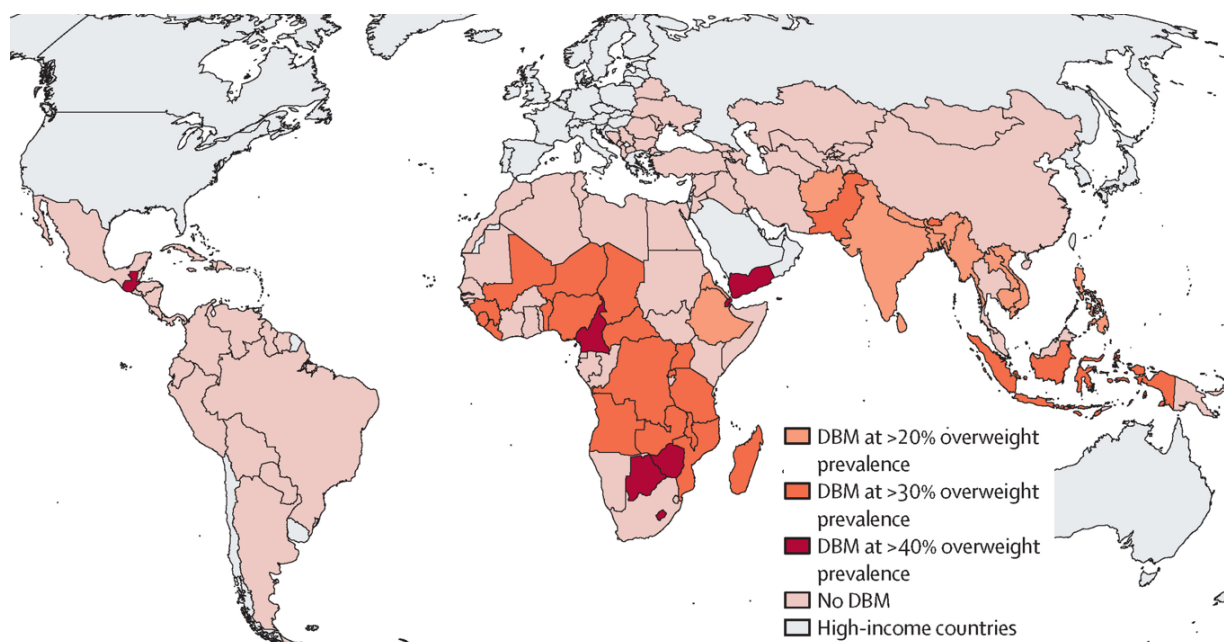
4.2 Malnutrition, Diabetes and Eye Health: Global challenges

Shortage of food and lack of variety may lead to malnutrition and deficiency diseases like that of vitamin A linked to damage to the surface of the eyes, night blindness, poor growth, anaemia, and propensity to skin infections. High rates of vitamin A deficiency were reported in South Asia (44%) and sub-Saharan Africa (48%) among pre-school children in 2013, and the WHO estimated a global rate of 33% in that age group in 2005. Programmes that improve access to food and nutritional quality aim at supporting breastfeeding and providing fortified supplements to reduce child mortality in pre-schoolers (Merson et al., 2020).

Excess food intake, another form of malnutrition, can also contribute to disease, e.g., diabetes and its effects on vision, obesity and cardiovascular disease like hypertension, dental caries, and cancer. Food poverty exists side by side with food plenty. Improvements in housing, sanitation, and better access to food in western Europe led to a transition from infectious diseases to chronic diseases, with an increase in consumption of energy-dense sugars and fats that led to obesity, more commonly among the poor. These tendencies are beginning to echo those found by the Centres for Disease Control in North America, where chronic disease and obesity have taken centre stage in expenditure and policy making (CDC, 2024; Wilkinson & Marmot, 2003).

Most Low- and Middle-Income Countries (LMICs) now face a Double Burden of Malnutrition (DBM) defined as the simultaneous manifestation of undernutrition and overweight and obesity. In severe DBM cases, reports show 15% of wasting, and 30% of stunting in children, thinness in 20% of women younger than 49 years, and overweight adult and children. These figures were found in 48 LMICs when using 20%, in 35 countries using 30%, and in 10 countries using 40% of excess weight as overweight (based on expected weight for the height). The following map based on DBM, shows that the highest obesity rates were found in Africa, with less impact in other LMICs (see next figure) (Popkin et al., 2020).

Figure: LMICs with DBM in the 2010s based on weight and height (Popkin et al., 2020).



Double Burden Malnutrition by percentage of overweight. Most in Africa and Asia (Popkin et al., 2020).

In the search of factors that lead to obesity, research has found a connection between obesity in children at age 9 and poor breastfeeding habits during their infancy. The World Health Organization (WHO) recognises the importance of breastfeeding in the prevention of malnutrition and has set a target of 50% exclusive breastfeeding in the first 6 months of life by 2025. Breastfeeding practices in Ireland are close the target at discharge from hospital (46.3%) but need to be continued for more than 6 months for a better protection against child obesity (McCrory & Layte, 2012).

Over 100 expert committees agreed that a balanced diet prevents chronic disease emphasises the consumption of more fresh vegetables, fruits, and legumes (pea family) with a reduction of starchy foods animal fat and refined sugar and salt. Policy makers have responded by supporting breast feeding and eating patterns with educational programmes that promote healthier food options in the community and at work, and lifestyle changes to reduce obesity and acquired diabetes (CDC, 2024).

Nutritional recommendations for a healthy lifestyle

The WHO recommended four nutritional goals for the prevention of chronic disease including obesity, diabetes, and hypertension:

The fibre contained in food is not a nutrient; it is mostly undigestible carbohydrates known as roughage, e.g., cellulose in plant foods and bran in cereals. Fibre is beneficial to digestion because it holds water inside the intestines and may act as a laxative (Davidson, 1999).

1. **Fat:** Reduce overall fats to less than 30% of total intake to prevent weight gain. Withing this limit, keep Saturated fats (red meat, dairy, coconut oil) to less than 10%, and Trans fats (margarine, puff pastry, chicken pie) to less than 1%. Replace both with Unsaturated fats (olive oil, canola oil, avocado, salmon/tuna oil, nuts, sunflower/corn oil) (see Appendix 3).
2. **Salt:** Keep salt consumption to less than 5 g per day by not having salt on the table, not adding salt, soy sauce or fish sauce when preparing food, limit salty snacks and hidden salt in ready-made meals, bacon, ham, salami, and cheese.
3. **Dietary fibre:** Consume at least 400 g a day of fibre-rich food (whole-grain cereals, legumes, fruit, and vegetables). These can be divided into 5 portions a day included with your meals and as snacks.
4. **Sugar:** Consume less than 10% of daily energy intake by limiting sugary foods or drinks (candies and sweet snacks, sugar-sweetened beverages), replace them with fresh fruit, raw vegetables as snacks and non-sugary sweetened or unsweetened beverages (Marmot & Wilkinson, 2011; WHO, 2019).

Fats at room temperature, are either semi-solid or liquid (oils), and are chemically the same. Fat makes food palatable and soft as it carries flavouring substances. Only small quantities of fat are needed in the diet to carry fat-soluble vitamins (A, D, E, K) and to provide essential fatty acids. Most fats can be made in the body from other foods except two essential fatty acids that need to be consumed (Alpha-linolenic and Linoleic acids). This is why diet recommendations promote essential fatty acids, which are more common in vegetable oils, that contain more unsaturated fatty acids (mono and polyunsaturated). Animal fats contain more saturated and trans fatty acids. Foods with fat differ by the proportions of saturated and unsaturated fatty acids they contain (Davidson, 1999).



Appendix 4 presents a summary of types of fats with food examples that complies with WHO recommendations.

Interactive activity

Group analysis

Divide students into groups to analyse the impact of malnutrition on eye health in different regions. Each group could research specific causes—such as food deserts in urban areas or agricultural policies in rural regions—that contribute to malnutrition. They can then present their findings, focusing on how systemic changes could address these issues.



Further reading

The Australian government published guidelines, posters and other resources to encourage healthy eating and positive choices for the general population (ADHAC, 2024).

Healthy eating guidelines at: <<https://www.eatforhealth.gov.au/eating-well/tips-eating-well>>

The WHO Global Action Plan 2013-2020 included nutritional goals and recommendations in areas considered social determinants of eye health, including: Behavioural risk factors (reduce Tobacco use by 30%, and increase physical activity by 10%), biological risk factors (reduce prevalence of high blood pressure by 25%), and suggested policy responses (Skolnik, 2016).

Book: Skolnik R (2016) **Global health 101**. 3rd ed. Burlington: Jones & Bartlett Learning. ISBN: 978-1-284-05054-7

4.3 Theoretical frameworks

Theoretical frameworks are essential tools in education that provide a structured lens through which we can understand, analyse, and address complex issues. In the context of Global Citizenship and Development Education (GCDE), these frameworks offer a foundation for exploring the root causes of social and health inequities. By applying these frameworks, educators and students can critically examine the power dynamics, cultural contexts, and systemic structures that contribute to disparities in areas such as eye health. In pedagogy, particularly within fields like ophthalmology, these frameworks guide the development of curricula, inform teaching methodologies, and shape the critical thinking skills necessary for future practitioners. They enable educators to move beyond surface-level understanding and engage students in deeper analysis, encouraging them to become agents of change who can advocate for social justice, human rights, and equitable healthcare. By incorporating these frameworks into ophthalmology education, students can better understand the broader socio-political and cultural factors that influence eye health outcomes, preparing them to address these challenges in their professional practice.

The following list shows the theoretical frames commonly used in GCDE:

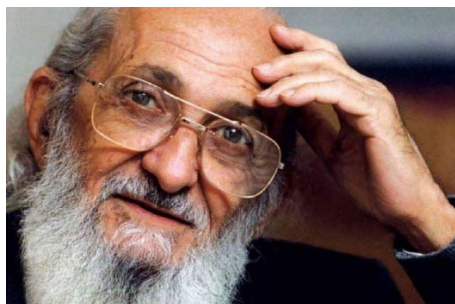
In Education	In Development Studies, Global Citizenship & Others	In the Area of Action for Change or Social Movements
Critical Pedagogy	Capability Approach	Collective Identity Theory
Critical Race Theory	Global Justice Theory	Critical Mass Theory
Decolonial Theory	Human Development Theory	Decolonial Theory in Activism
Global Education Theory	Human Rights Theory	Empowerment Theory
Human Rights Education	Intersectional Environmentalism	Environmental Justice Theory
Liberation Pedagogy	Participatory Development Theory	Framing Theory
Multicultural Education	Post-Development Theory	Global Justice Movement
Peace Education		Grassroots Organizing
Sustainable Development Theory		Intersectionality
Transformative Education		New Social Movement Theory
		Political Opportunity Structure (POS) Theory
		Prefigurative Politics
		Radical Democracy
		Resource Mobilization Theory
		Transformative Justice

In this section we explore seven frames that are commonly used in GCDE and show how they might be applied in the context of Ophthalmology pedagogy:

1. Freirean pedagogy;
2. Transformative education;
3. Post-colonial theory;
4. Eco-feminism;
5. Social justice;
6. Anti-racism, and
7. Human rights framework in GCDE.

These succinct frame descriptions aim at helping the educator understand how to incorporate GCDE framing into their work. Each of these frameworks offers unique insights into the social determinants of health and provides students with the tools to critically engage with and address the root causes of health inequities. These frameworks are integral to Global Citizenship and Development Education (GCDE), as they emphasize the importance of social justice, human rights, and transformative education.

4.3.1 Freirean pedagogy



Paulo Freire (abcmals.com, 2024).

Paulo Freire's (1970) concept of problem-posing education is central to developing critical consciousness among students. Freirean Pedagogy challenges the traditional "banking model" of education, where knowledge is deposited into passive students. Instead, it promotes dialogue and critical thinking, encouraging students to engage actively with social issues and see themselves as participants in creating solutions (Freire, 1970).

This framework is particularly relevant in GCDE because it empowers students to question the status quo and understand how power dynamics shape social realities.

Applying Freirean Pedagogy to a case study of Vitamin A deficiency in Sub-Saharan Africa

During the colonial era, European powers prioritised the cultivation of cash crops like cotton and coffee over subsistence farming, disrupting local food systems (McMichael, 2012). This shift led to a reliance on imported foods and decreased the production of nutrient-rich crops, such as those high in vitamin A, leading to widespread malnutrition.

Why This Matters: Using Freirean Pedagogy, students learn that malnutrition is not merely a consequence of local failings but a result of systemic inequalities and global power dynamics. This understanding fosters a sense of responsibility among students from richer nations, who are encouraged to support efforts to rebuild sustainable food systems in regions affected by these historical injustices.

Educator's role

Facilitating critical analysis

Educators should guide students in exploring how colonial exploitation has led to current nutritional deficiencies. This can include examining historical documents, analysing current trade policies, and discussing their impacts on food security in Sub-Saharan Africa.

Role-playing exercise

Students could role-play as public health workers, community leaders, and international donors, using Freire's problem-posing techniques to engage with local communities. They could work together to identify barriers to adequate nutrition and develop strategies to co-create sustainable solutions.

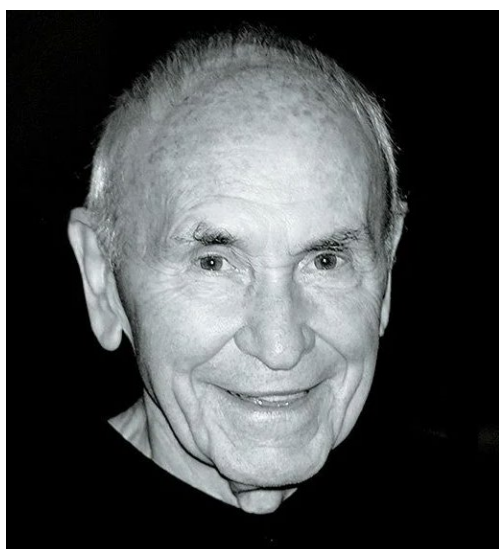


Further reading

Book: Freire P (1970) **Pedagogy of the oppressed**. 50th Anniversary edition. New York: Bloomsbury Publishing Inc. 219 pages. ISBN: 978-1-5013-1413-1.

Book: McMichael P (2012) **Development and social change: A global perspective**. 5th ed. London: SAGE. 383 pages. ISBN: 978-1-4129-9207-7.

4.3.2 Transformative education



Transformative Education focuses on the process of changing students' perspectives by encouraging them to question their assumptions and consider alternative viewpoints. This framework emphasizes the role of education in not just imparting knowledge but also in transforming students' worldviews, leading them to take action for social justice (Mezirow, 2000). In the context of GCDE, Transformative Education is crucial for helping students move from awareness of health inequities to active engagement in addressing these issues.

Applying Transformative education to a case study of Diabetes and Eye Health in Latin America

Prof Jack Mezirow (alchetron.com, 2024).

In Latin America, the rise of diabetes is closely linked to global trade policies and corporate practices that have promoted the widespread availability of processed and sugary foods. Trade liberalisation has facilitated the influx of cheap, unhealthy food products from multinational corporations, displacing traditional diets rich in fruits, vegetables, and whole grains (Hawkes, 2007). This dietary shift, coupled with urbanisation and sedentary lifestyles, has led to an increase in obesity and diabetes-related eye diseases.

Educator's role

Facilitating group discussions

Educators can guide students to explore the connections between global trade policies and local health outcomes. This might include analysing trade agreements like NAFTA or MERCOSUR and their impact on food availability and health in Latin American countries.

Advocacy strategies

Encourage students to brainstorm strategies for advocating healthier food policies. For example, they could consider how to promote local agricultural practices that support healthier diets or how to engage with policymakers to regulate the marketing of unhealthy foods.



Further reading

Book: Mezirow J (2000) **Learning as transformation: Critical perspectives on a theory in progress**. San Francisco: John Wiley & Sons Inc. 371 pages. ISBN: 0-779-4845-4.

Hawkes C (2007) The role of foreign direct investment in the nutrition transition. *Public Health Nutrition*, vol 8, issue 4, pp 357-365. Cambridge University Press. DOI: 10.1079/PHN2004706

4.3.3 Post-colonial theory



Prof Robert Young (amazon.com, 2024).

Post-Colonial Theory examines the lingering effects of colonialism on former colonies, particularly in terms of social, economic, and cultural inequalities (Young, 2004). This framework helps students understand how colonial histories have shaped contemporary global health disparities, including those in eye health. By using this theory, students can critically analyse how power dynamics from the colonial period continue to affect health outcomes today.

Application of post-colonial theory to a case study on Vitamin A deficiency in Sub-Saharan Africa

Colonial exploitation in Sub-Saharan Africa has resulted in long-term agricultural and economic challenges. The focus on export-oriented agriculture during the colonial period has left many countries with underdeveloped local food systems and economies heavily dependent on global markets. These conditions have made it difficult to achieve food security, leading to widespread malnutrition and related health issues, such as vitamin A deficiency (Young, 2004).

To decolonise global health, it is essential to shift power dynamics and prioritise the voices and needs of local communities. This involves challenging current global trade practices that exacerbate inequalities and advocating for policies that promote fair trade, local food sovereignty, and equitable resource distribution.

Educator's role

Critical analysis

Educators can help students analyse how colonial legacies continue to shape global health disparities. This might involve comparing post-colonial countries' health outcomes with those of their former colonisers and discussing ways to challenge these inequities.

Advocacy and action

Students could be tasked with developing advocacy campaigns that promote equitable distribution of resources, such as lobbying for international policies that support local agriculture and food security in Sub-Saharan Africa.



Further reading

Book: Young R (2004) **Postcolonialism: An historical introduction**. Oxford: Blackwell Publishing. 514 pages. ISBN: 9781119288954.

4.3.4 Eco-feminism



Dr Vandana Shiva (lifegate.com,

Eco-Feminism links the exploitation of nature with the oppression of marginalised communities, particularly women. Shiva argues that "maldevelopment", the violation of the integrity of organic, interconnected, and interdependent systems that sets in motion a process of exploitation, inequality, and injustice, is dragging the world down a path of self-destruction (Shiva, 2016). This framework emphasizes the interconnectedness of environmental health and human health, advocating for sustainable practices that benefit both people and the planet. In the context of eye health, Eco-Feminism highlights how environmental degradation and industrial agriculture contribute to poor health outcomes, including those related to diet, vision, and a higher rate of visual impairment in women.

Application of Eco-feminism to a case study on Diabetes and eye health in Latin America

Eco-Feminism highlights how industrial agriculture has led to environmental degradation, negatively impacting community health. The loss of biodiversity due to monoculture farming reduces the availability of diverse, nutritious foods, contributing to unhealthy diets and increasing the prevalence of related diseases like diabetes (Shiva, 2016). This approach calls for sustainable agricultural practices that benefit both the environment and human health.

Eco-Feminist solutions involve supporting local, sustainable agriculture that promotes biodiversity and community well-being. This might include advocating for agroecology, a farming approach that integrates ecological principles and social equity, ensuring that food production methods are sustainable and beneficial to local communities.

Educator's role

Promoting sustainable practices

Educators can guide students in exploring the links between environmental health and human health. This could involve case studies of agroecological projects that have successfully improved both environmental and health outcomes.

Role-playing exercise

Students could role-play as environmental activists, community leaders, or policymakers working to implement sustainable agricultural practices in their communities.



Further reading

Book: Shiva V (2016) **Staying alive: Women, ecology, and development**. Berkeley: North Atlantic Books. 228 pages. ISBN: 9781623170523.

4.3.5 Social justice



Nancy Fraser (newschool.edu, 2024).

Social Justice as a theoretical framework focuses on the fair distribution of resources, opportunities, and privileges within a society. It emphasises the importance of addressing inequalities that arise from social determinants of health, such as economic status, education, and access to healthcare (Fraser, 2008).

In the context of GCDE, Social Justice encourages students to critically examine the root causes of health disparities and to advocate for policies that promote equity and fairness.

Social justice is about creating a fair and equitable society where all individuals have the opportunity to live healthy, fulfilling lives. In the context of healthcare, social justice means addressing the root causes of health disparities, such as poverty, discrimination, and lack of access to resources. It is closely linked to human rights, particularly the right to health, which includes access to quality healthcare services for everyone, regardless of their socioeconomic status.

Application of Social justice to a case study on Vitamin A deficiency in Sub-Saharan Africa

Social Justice can be applied to understand how the unequal distribution of resources contributes to the high rates of vitamin A deficiency in Sub-Saharan Africa. Poverty, lack of education, and limited access to healthcare are key factors that exacerbate malnutrition and health disparities in the region.

Students can explore how advocacy efforts can address these social determinants by promoting policies that ensure equitable access to nutritious food, healthcare, and education. This might involve lobbying for international aid programs, supporting local food production, or engaging in community-based initiatives to improve health outcomes.

Educator's role

Facilitating discussion on equity

Educators can guide students in discussions about the role of social justice in addressing health disparities. This might include exploring the ethical implications of resource allocation and the importance of advocating for policies that promote equity.

Advocacy projects

Encourage students to develop advocacy projects that focus on promoting social justice in global health. These projects could involve creating campaigns to raise awareness about health inequities or working with local organizations to support community health initiatives.



Further reading

Book: Fraser N (2008) **Scales of justice: Reimagining political space in a globalizing world**. Cambridge, UK: Polity. 361 pages. ISBN: 9780745658919.

4.3.6 Anti-racism



Ibram Kendi (gosw.org, 2024).

Anti-Racism is a theoretical and practical framework that seeks to actively confront and challenge racism and its impact on society. It involves recognizing the systemic nature of racism and working to dismantle the structures that perpetuate racial inequalities. In the context of GCDE, Anti-Racism is crucial for addressing the ways in which race and ethnicity influence health outcomes and access to care, particularly in marginalized communities (Kendi, 2019).

Application of Anti-racism to a case study on Diabetes and eye health in Latin America

Anti-Racism can be applied to understand how racial and ethnic disparities contribute to the high prevalence of diabetes in Latin American communities. Historical and ongoing discrimination, coupled with socio-economic inequalities, has limited access to healthy food, healthcare, and education for marginalised racial and ethnic groups.

Students can explore how to advocate for anti-racist policies that address these disparities. This might involve promoting inclusive healthcare practices, advocating for culturally competent care, or challenging policies that disproportionately harm marginalized communities.

Anti-racism example in an Irish context: Addressing health disparities in eye care

Ireland has become increasingly multicultural in recent decades, with significant immigration contributing to a more diverse population. However, this demographic shift has also revealed disparities in access to healthcare services, including eye care, particularly among minority

ethnic groups. These disparities are often exacerbated by language barriers, cultural differences, and systemic biases within the healthcare system.

An example of anti-racism in action was the Dublin initiative to address the barriers faced by migrant communities in accessing eye care services in 2021. The project, led by a coalition of local NGOs, healthcare providers, and university researchers, focused on the following key areas:

1. Cultural competency training for healthcare providers

Healthcare professionals, including optometrists and ophthalmologists, participated in workshops designed to improve cultural competency. These workshops covered topics such as understanding cultural differences in health-seeking behaviours, addressing implicit biases, and developing strategies for effective communication with non-native English speakers.

2. Multilingual health education materials

Recognizing the language barriers that many migrants face, the initiative produced multilingual health education materials. These materials included brochures, posters, and videos in several languages commonly spoken in Ireland's migrant communities, such as Polish, Arabic, Mandarin, and Portuguese. The content focused on the importance of regular eye exams, recognizing common eye conditions, and accessing local eye care services.

3. Community outreach and engagement

The initiative worked closely with community leaders and organizations that serve migrant populations. Through partnerships with these groups, eye health screenings were offered at community centres, places of worship, and schools with high numbers of migrant students. These screenings were paired with educational sessions that encouraged participants to seek regular eye care and provided information on navigating the Irish healthcare system.

4. Advocacy for policy change

In parallel with the direct service interventions, the initiative also engaged in advocacy to address systemic issues. This included lobbying for policy changes to ensure that language interpretation services were readily available in all healthcare settings, including optometry and ophthalmology practices. The coalition also pushed for the inclusion of anti-racism and cultural competency training in the continuing education requirements for healthcare professionals.

Impact

The initiative led to a significant increase in eye care access among migrant communities in Dublin. There was a notable rise in the number of migrants receiving regular eye exams, and

early detection rates for conditions like glaucoma and diabetic retinopathy improved. Additionally, healthcare providers reported increased confidence in serving diverse populations and a greater awareness of the need to address systemic biases.

Educator's role

Critical reflection on race and health

Educators can facilitate discussions on the role of race and ethnicity in shaping health outcomes. This might include exploring case studies that highlight the impact of racism on access to care and discussing strategies for promoting anti-racist policies in healthcare.

Action oriented learning

Encourage students to engage in activities that promote anti-racism in their communities. This could involve participating in anti-racist advocacy groups, developing educational materials that address racial health disparities, or working with local organizations to support marginalized communities.

Case study analysis

Present students with a case study and ask them to identify the key strategies used to address racial disparities in eye care. Students can discuss the importance of cultural competency in healthcare and propose additional strategies for other contexts.

Role-playing exercise

Students can take on the roles of healthcare providers, community leaders, and policymakers to explore the challenges and opportunities in implementing similar anti-racism initiatives. This exercise can help students understand the complexities of advocating for systemic change while working within diverse communities.

Advocacy campaign development

Encourage students to design their own advocacy campaigns focused on reducing racial disparities in healthcare, particularly in eye care. Students can research local demographic data, identify barriers to care, and propose policy changes or community-based interventions to address these issues.



Further reading

Book: Kendi I (2019) **How to be an antiracist**. London: The Bodley Head. 305 pages. ISBN: 9781847925992.

Book: Farrell F (2001) **Responding to racism in Ireland**. Dublin: Veritas. 191 pages. ISBN: 978-1853905032.

The Immigration Council of Ireland publishes updates on immigrant issues in Ireland, available at: <<https://www.immigrantcouncil.ie/news>>

4.3.7 Human rights framework in GCDE

The Human Rights Framework is pivotal in understanding global health disparities, emphasizing the belief that all individuals are entitled to basic human rights, including the right to health. In the context of eye health, this framework helps educators and students explore how inequities in healthcare access violate these fundamental rights. The right to health, as outlined in international declarations such as the Universal Declaration of Human Rights (UDHR) and the Convention on the Rights of Persons with Disabilities (CRPD), includes access to necessary medical services, including eye care (UN, 2024).

Case study: Eye health in Rural India

In rural parts of India, access to eye care is severely limited, leading to high rates of preventable blindness. Despite the Indian government's efforts to improve healthcare infrastructure, many marginalized communities remain underserved due to geographical, economic, and social barriers. This situation can be explored through the lens of human rights, particularly the right to health.

Scenario

An educator introduces students to the case of a rural community in the state of Uttar Pradesh, where cataract-related blindness is prevalent. Due to the lack of healthcare facilities and trained professionals, residents have little access to necessary surgeries that could restore their sight. Moreover, many in the community are unaware of their rights to health services, exacerbating the problem.

Discussion questions

- How does the lack of access to eye care in this community violate the residents' human rights?
- What are the responsibilities of the government and international bodies in addressing this issue?
- How can local and global advocacy efforts be mobilized to ensure that the right to eye health is upheld in such communities?

Activity

Students can be divided into groups to develop an advocacy campaign aimed at improving eye health in rural India. They would research the barriers to accessing eye care in the region, create informational materials to raise awareness of the issue, and propose policy changes that could be presented to local government officials or international human rights organizations.

Reflective journals

Encourage students to reflect on how the Human Rights Framework influences their understanding of global health issues. They can document their thoughts on the connection

between health disparities and human rights violations and propose actions that could be taken to address these issues.

Educator strategies

Framing discussions

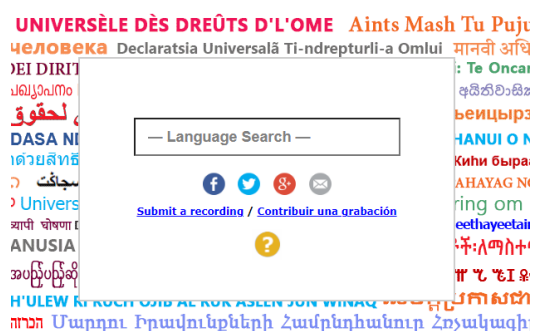
Use the case study to frame discussions around the human rights implications of health disparities. Ask students to consider how different policies and practices either support or undermine the right to health.

Connection to local context

Encourage students to explore how these human rights principles apply within their own communities, particularly in relation to access to healthcare services. This might involve comparing local healthcare policies with international human rights standards.



Further reading



The United Nations Declaration of Human Rights (30 articles) is available at: <https://www.un.org/en/about-us/universal-declaration-of-human-rights>.

A language selector to listen or read the full declaration in any of 89 languages is available at: <https://udhr.audio/>



Eleanor Roosevelt 1948
(FIXthe13th.org, 2024).

In the language selector, the English version is read by Mrs Eleanor Roosevelt, who presented the original proclamation at the United Nations (UN) General Assembly, 3rd Session 180th and 181st Plenary Meeting, in 1948.

Mrs Roosevelt was the wife of Franklin D. Roosevelt, President of the United States of America between 1933 and 1945. Mrs Roosevelt served as a United States Delegate to the United Nations General Assembly between 1945 and 1952 (Biography, 2024).

The World Health Organisation's constitution is available at: <https://www.who.int/about/governance/constitution>

4.3.8 Action and advocacy for change in Global Citizenship

This section emphasizes the transition from understanding to meaningful action, guiding students to address the social determinants of eye health. It provides educators with strategies to lead students from comprehension to activism, ensuring that they not only grasp the concepts but also engage in practical initiatives that contribute to global health equity.

Educator's role in advocacy and public health initiatives

1. Advocacy project development

Guide students to develop advocacy projects that target specific social determinants of health. These projects could focus on improving access to healthcare, education, and nutrition in underserved communities. For instance, students might create campaigns to strengthen healthcare infrastructure, support educational programs in areas lacking resources, or lobby for policy changes that address systemic causes of health disparities.

2. Frameworks and resources

Provide students with structured frameworks such as the SMART criteria (Specific, Measurable, Achievable, Relevant, Time-bound). This helps students set clear objectives, design practical strategies, and measure the success of their initiatives. Additionally, educators should offer resources on conducting needs assessments, engaging stakeholders, and evaluating the impact of their advocacy efforts. This approach not only enhances the students' practical skills but also deepens their understanding of the complexities involved in addressing health disparities.

3. Partnership building

Encourage students to explore and build partnerships with local organizations and communities. This might involve conducting needs assessments to identify service gaps, developing culturally relevant educational materials, or collaborating with community leaders to co-create sustainable solutions. Building such partnerships ensures that the interventions are not only effective but also resonate with the cultural and social contexts of the communities involved.

4. Action oriented learning

Involve students in community-based projects such as collaborating with local schools on vision screening programs or working with NGOs on public health initiatives. These activities provide students with hands-on experience, helping them apply their knowledge in practical settings while fostering a sense of responsibility and connection to the communities they serve.

5. Community engagement (see Module 7)

Educator's strategies for action

1. Global advocacy

Inspire students to view themselves as global citizens with a responsibility to contribute to health equity. This might involve participation in international health initiatives, advocating for fair trade policies, or supporting sustainable development goals that align with improving global health outcomes. By encouraging students to connect their local actions to global challenges, educators help them see the broader implications of their work.

2. Reflective journaling

Encourage students to document their advocacy projects, partnerships, and the broader impact of their work on global health equity. Reflective journaling helps students internalize their experiences, fostering deeper insights into their actions and the global health landscape.

3. Case study analysis

Guide students in identifying key advocacy issues within these case studies and proposing strategies to address these through public health initiatives or policy changes. This approach not only reinforces learning but also empowers students to think critically and creatively about solutions to global health challenges.

4. Role-playing exercise

Divide students into groups representing different stakeholders—such as government officials, NGO representatives, healthcare providers, and patients—and have them negotiate policies that integrate eye care into a national health system. This exercise enhances students' understanding of the intricacies involved in policymaking and underscores the importance of collaboration in achieving health equity.

5. Research and debate

Assign research projects on the impact of specific policies on eye health outcomes in various countries. Following the research, students can engage in a debate where they discuss the merits and drawbacks of these policies, focusing on their alignment with GCDE principles. This activity promotes critical thinking, analytical skills, and a nuanced understanding of the global health policy landscape.

6. Advocacy project development

Provide frameworks and resources to help students design evidence-based campaigns that align with GCDE principles. These projects could involve local or global health challenges, allowing students to apply their learning in real-world contexts while fostering a sense of agency and responsibility.

7. Policy critique and proposal activities

Students are tasked with selecting a current policy related to global eye health and critically evaluating it through the lenses of social justice, equity, and human rights. After their critique, students should propose revisions or entirely new policies that better align with GCDE principles. This exercise encourages students to engage deeply with policy analysis,

understand the impact of policies on health disparities, and develop creative solutions to enhance health equity.

Integrating theory and practice

By the end of this module, students should be able to grasp the complex interplay between social determinants and eye health, framed within broader theoretical contexts such as Freirean Pedagogy, Transformative Education, Post-Colonial Theory, and Eco-Feminism. They will have developed not only the knowledge to identify and analyse these determinants but also the skills and motivation to advocate for systemic change, both locally and globally. Using case studies, interactive learning, and action-oriented projects, students will be empowered to make a meaningful impact in the field of global eye health.

Module 5. The wider socio-economic and political contexts of eye health

Overview

- 5.1 Global trade policies
- 5.2 Food subsidies
- 5.3 Corporate practices
- 5.4 Case study
- 5.5 Interactive activity

Introduction to the wider socio-economic and political context of eye health

s This section examines how these systemic issues exacerbate health disparities, particularly in low-income regions, and uses a case study to illustrate these dynamics in action.

5.1 Global trade policies

Global trade policies significantly influence the production, distribution, and consumption of food worldwide. These policies often prioritize profit over public health, leading to the dominance of cheap, processed foods in global markets. Transnational agrifood firms have been able to influence the world food economy to better serve their own objectives (Clapp, 2012). For instance, trade agreements may lower tariffs on unhealthy, highly processed foods, making them more accessible and affordable than fresh, nutritious options. This shift contributes to diets high in sugars, unhealthy fats, and salt, increasing the prevalence of obesity, diabetes, and related eye conditions such as diabetic retinopathy (Patel, 2012).



Global food trade (Adobe stock, 2024).

5.2 Food subsidies

In wealthier countries, food subsidies frequently support the production of crops like corn, soy, and wheat, which are the primary ingredients in many processed foods. These subsidies lower the cost of producing and selling unhealthy food products globally, while fruits, vegetables, and other nutritious foods often receive little to no financial support. Consequently, the global market is flooded with cheap, unhealthy options, while healthier foods remain unaffordable for many people, especially in low-income regions (Patel, 2012).

5.3 Corporate practices

Corporate practices in the food industry, including aggressive marketing strategies, significantly influence dietary choices, particularly among vulnerable populations. Multinational food corporations often target low-income communities with marketing campaigns for processed foods, which contribute to poor dietary habits. These companies frequently exploit gaps in regulation to market unhealthy products, leading to a rise in diet-related diseases, including those affecting eye health (Patel, 2012; UNCTAD, 2023).

5.4 Case study: The global impact of corn subsidies



USA subsidised corn to Mexico (Adobe stock, 2024).

Corn is one of the most heavily subsidized crops in the United States, leading to its overproduction. This surplus corn is used in a wide range of food products, from high-fructose corn syrup in soft drinks to feed for livestock. The global consequences of this overproduction are profound, as surplus corn is exported at prices that often undercut local production costs in other countries (Clapp, 2012).

For example, the North American Free Trade Agreement (NAFTA) opened Mexico to cheap U.S. corn, undercutting local farmers and contributing to a decline in traditional agriculture. Many small farmers were forced to abandon their farms and migrate to urban areas in search of work. Simultaneously, the influx of cheap, processed foods made with corn products, such as sugary snacks and sodas, contributed to a rise in obesity and diabetes, which are major risk factors for eye conditions like diabetic retinopathy (Clapp, 2012; UNCTAD, 2023).

Discussion questions

Understanding the impact

How did the combination of trade policies and food subsidies contribute to the rise in obesity and diabetes in Mexico? What were the specific mechanisms that led to these health outcomes?

Analysing the role of corporations

How have corporate practices in the food industry influenced dietary habits in Mexico? Consider the role of marketing, availability, and pricing of processed foods.

Exploring alternatives

What alternative policies or practices could have supported local agriculture in Mexico and promoted healthier diets? How might these alternatives have affected the prevalence of eye health conditions?

Global implications

How do similar trade policies, subsidies, and corporate practices impact other countries? Can you identify any parallels in your own country or region?

5.5 Interactive activity

Role-playing exercise

The objective is to understand the complex interplay between trade policies, corporate interests, and public health, and to explore potential solutions that prioritize health and social justice over profit.

Scenario

Students are divided into groups representing different stakeholders, e.g., local farmers, multinational food corporations, policymakers, and health advocates. Each group must present their perspective on the impact of U.S. corn subsidies on Mexico's agricultural economy and public health.

Case study exploration

The objective is to critically assess how social determinants such as poverty, education, and infrastructure influence access to healthcare and to explore solutions that address both symptoms and root causes.

Scenario

Students examine a case study of a rural community in Latin America where eye care services are severely limited. They are tasked with developing a plan to improve access to these services, considering both immediate needs and long-term systemic changes.



Reflective questions

- How do social determinants shape the accessibility and quality of eye care in this community?

- What are the potential barriers to implementing systemic changes, and how might they be overcome?
- How can global citizenship principles guide the development of more equitable healthcare systems?

By engaging with this material, students will develop a critical understanding of how systemic issues contribute to health disparities and be equipped to advocate for more just and equitable food and health systems.

Action-based learning

Student-led campaigns

Students can develop campaigns aimed at raising awareness about the importance of healthy eating in their communities. These could include creating educational materials, organizing local food drives, or advocating for policy changes to improve access to healthy foods.

Policy debate

Organize a classroom debate where students take on roles as policymakers, health advocates, and food industry representatives to discuss the challenges and opportunities in implementing WHO's nutritional goals in low-resource settings.

Module 6. Skills for global ophthalmology through the GCDE lens

Overview

- 6.1 Identifying key skills and knowledge
- 6.2 GCDE at different stages of an ophthalmologist’s career
- 6.3 Educator’s strategies for developing GCDE skills
- 6.4 Training and education in global ophthalmology

Introduction to Skills for global ophthalmology

Ophthalmologists play a critical role in promoting global eye health. By integrating with the principles of GCDE, they can contribute to systemic changes that address the root causes of visual impairment and blindness. This module explores the essential skills needed for global ophthalmology, with a focus on how these can be aligned with GCDE values such as equity, social justice, and cultural competence. Educators can use a variety of strategies, case studies, and activities to help students develop these skills.

6.1 Identifying key skills and knowledge

Examples of GCDE skills			
Advocacy	Analytical Skills	Civic Engagement	Communication
Conflict Resolution	Critical Thinking	Cultural Competence	Data Interpretation
Ethical Decision-Making	Digital Literacy	Economic Literacy	Empathy
Negotiation	Gender Sensitivity	Leadership	Media Literacy
Research	Problem-Solving	Project Management	Public Speaking
	Teamwork	Technology Use	Writing

From the many GCDE desirable skills, the following six are more closely related to eye-care health professionals.

6.1.1 Cultural competence

Understanding and respecting the cultural contexts in which eye health services are provided. This includes awareness of local customs, beliefs, and practices that may affect patient care (Hudelson et al., 2011).

As an educator, use role-playing exercises where students simulate patient interactions in different cultural settings. This helps them practice culturally sensitive communication and decision-making.

Present a case study where an ophthalmologist must navigate cultural barriers to provide effective care, such as a situation involving traditional healing practices in a rural community.

6.1.2 Advocacy and social justice

This refers to promoting policies and practices that address the social determinants of health and ensure equitable access to eye care services for all communities, particularly marginalized groups.

Educators would encourage students to develop advocacy campaigns focused on improving eye care access in underserved areas. This can involve creating policy briefs, public health messages, or social media campaigns.

Analyse a successful advocacy campaign that led to increased funding for eye care services in a low-income country. Discuss the strategies used and the outcomes achieved.

6.1.3 Ethical global engagement

Ensuring that international work is conducted in a way that respects local autonomy, builds local capacity, and avoids creating dependency (Bernhisel, 2022).

The educator would facilitate debates on the ethical challenges of global health work, such as the potential for creating dependency or undermining local healthcare systems.

Examine an international partnership in which local healthcare providers were empowered to lead eye care initiatives, reducing reliance on external aid.

6.1.4 Global ophthalmology clinical competence

Maintain high standards of clinical care and surgical proficiency, especially in resource-limited settings (Bernhisel, 2022).

Educators would incorporate simulation-based training that mimics the challenges of performing surgeries in low-resource environments. This can include working with outdated equipment or managing complications without access to advanced technology.

6.1.5 Public health knowledge

Understanding the broader context of eye health, including epidemiology, health systems, and global health initiatives (Frehywot et al., 2010).

As an educator, assign students to conduct community health assessments in collaboration with local public health departments, focusing on eye health issues.

Review the impact of a national eye health program in a developing country, discussing how public health principles were applied to achieve large-scale improvements in eye care.

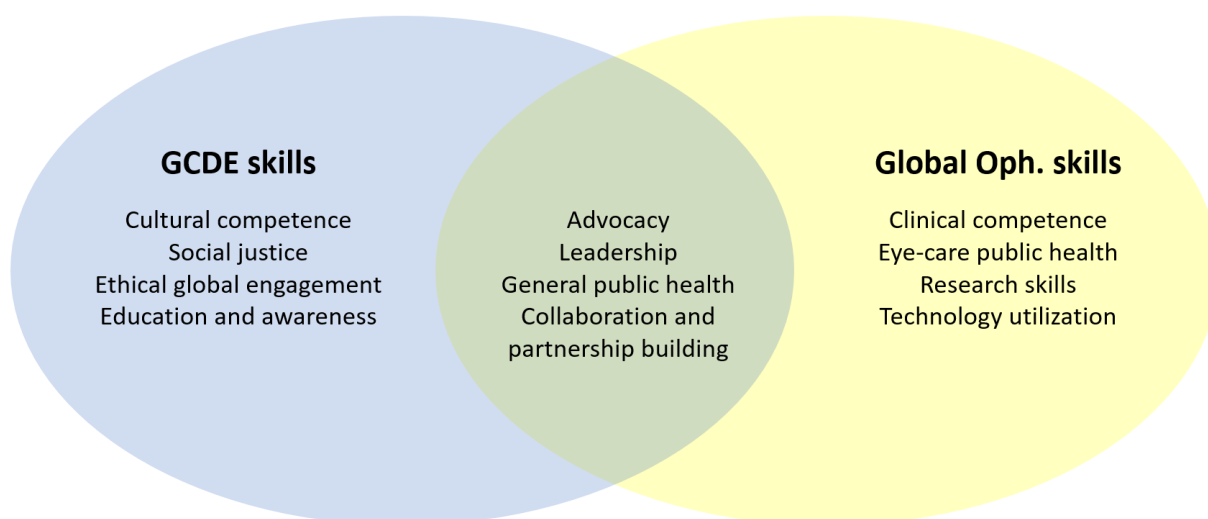
6.1.6 Research skills

Designing and conducting research that is culturally sensitive and relevant to the communities served (Watts et al., 2017).

Educators would guide students in designing a research project that involves community-based participatory research methods, ensuring that the research is conducted with and for the community.

The main skills shared by GCDE and Global Ophthalmology include Advocacy, Leadership, Public health knowledge, Collaboration and Partnership building (see figure).

Figure: Overlap of GCDE and Global Ophthalmology skills



Appendix 6 presents a more detailed account of overlapping and own skills of each field.

6.2 GCDE at different stages of an ophthalmologist's career

Early career: Global ophthalmology as training and service

For young ophthalmologists, global engagement often begins with participation in international medical programs or NGO initiatives. These opportunities, while valuable, must be approached with a GCDE mindset to ensure mutual benefit for both the ophthalmologist and the host community.

Best practices:

Intent

Select programs that prioritize sustainable development and capacity building over short-term service delivery, ensuring contributions to long-term improvements in local eye care systems (Bernhisel, 2022). Encourage students to critically assess various global health programs, comparing their sustainability and impact on local communities.

Preparation

Equip yourself with cultural and linguistic knowledge of the region before engaging in international work to understand the local context and deliver respectful and effective care (Green et al., 2012). Provide resources for language and cultural training, such as online courses or workshops with cultural experts from the region where the students will be working.

Mentorship

Seek guidance from experienced global health professionals who can provide insights into the challenges and ethical considerations of working abroad. Establish a mentorship program where students are paired with experienced professionals who have worked in global health settings.

Mid-career: Expanding the scope of practice

As ophthalmologists advance in their careers, global ophthalmology becomes an expansion of their duty of care. This stage involves not only direct service delivery but also contributing to the global knowledge base and influencing policy.

Focus areas:

Public health

Engage with initiatives that aim to improve eye care delivery systems on a global scale, working with international organizations or contributing to global health research. Develop a sample project where students design a public health intervention for eye care in a specific low-resource setting.

Global research

Conduct research that addresses the unique challenges faced by low- and middle-income countries (LMICs), ensuring projects are community-driven and findings are shared with local stakeholders. Facilitate a collaborative research project between students and a community in a LMIC, focusing on a pressing eye health issue.

Clinical competence

In resource-limited settings, ophthalmologists often face challenges such as limited access to advanced medical equipment, high patient volumes, and the need for creative problem-solving. Be prepared to adapt clinical practices to the resources available in the local setting. This might involve using older equipment or finding alternative methods to deliver care. Ensure proper follow-up care is arranged to manage complications.

Communication skills

Effective communication will prevent misunderstandings, reduced patient compliance and detrimental health outcomes. Improve communication skills by participating in training programmes that involve cultural characteristics of the target population. Use professional interpreters to ensure accuracy and respect patient dignity. Pay attention to the patient's and family's non-verbal clues that may vary across cultures, e.g., body language, gestures, facial expressions.

Linguistic and cultural differences impose barriers on key aspects of communication such as rapport building and giving and receiving subtle verbal and non-verbal cues. These difficulties become evident when dealing with patients from minority backgrounds and create a challenge for all involved and pose a health risk for patients that have unique difficulties accessing equitable care and navigating the health care system. Although health care professionals developed strategies to facilitate interactions (modifying speech, taking more time in consultations, rapport building, and using nonverbal techniques), they recognise that formal training in communication skills is needed for health care providers, particularly those working in multi-cultural environments (Hudelson et al., 2011; Watts et al., 2017).

6.3 Educator's strategies for developing GCDE skills

The following strategies are designed to help educators guide students to develop the GCDE skills necessary for effective global ophthalmology through a variety of activities and learning experiences.

Advocacy and social justice

Students work in groups to develop an advocacy plan addressing a specific eye health issue in a low-resource setting. They must identify key stakeholders, craft a message, and design an action plan. This activity will demonstrate how to influence health policy and advocate for equitable access to eye care.

Use a case study such as increased funding for eye care in a developing country. Discuss the strategies used and the impact on the community, which will help understand the practical implications of advocacy in global health.

Cultural competence and communication

Students participate in a cultural simulation where they must navigate patient care scenarios in different cultural contexts, using role-playing to practice culturally sensitive communication. They can also examine a case where cultural differences impacted the delivery of eye care. Discuss how these challenges were addressed and what could have been done differently. This will show the importance of cultural awareness in patient care.

Ethical global engagement

Present students with ethical dilemmas commonly encountered in global health work, such as issues related to dependency or cultural sensitivity. Facilitate a group discussion on how to address these dilemmas to develop critical thinking and ethical decision-making. A case study of the analysis of a partnership between a Western university and a clinic in a developing country, focusing on ethical principles can give students an insight into the ethical complexities of global health partnerships.

Research and public health knowledge

Ask students to design a research project in collaboration with a local community, ensuring that the research addresses the community's needs and that findings are shared with them. The aim is to conduct ethical research that is culturally sensitive and beneficial to the community. The analysis of a public health intervention aimed at reducing blindness in a low resource setting could be discussed to analyse the role of public health principles in the success of such programme.

6.4 Training and education in global ophthalmology

For ophthalmologists interested in pursuing a career in global ophthalmology, formal training and education are essential. Various institutions offer specialised programs that combine ophthalmology with public health, research, and global health education.

Specialised training programmes

LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



London School of Hygiene and Tropical Medicine (LSHTM): Offers a range of programs focused on global eye health, including the MSc Public Health for Eye Care, Ophthalmic Epidemiology, Global Blindness: Managing eye care services, and short courses on Global Eye Health.

Information on LSHTM courses is available at:
<<https://www.lshtm.ac.uk/study/courses/short-courses/eye-health>>



Centre for Public Health at Queen's University Belfast (QUB): Offers doctoral and post-doctoral training in global eye-health research focusing on diabetic retinopathy, age-related macular degeneration, glaucoma, and clinical trials.

Information is available at: <<https://www.qub.ac.uk/research-centres/CentreforPublicHealth/Research/HealthServicesGlobalHealth/EyeandVision/>>



Centre for Eye Research Ireland (CERI): Focuses on industrial applications of ophthalmic research on the prevention of blindness. While they do not offer formal training, they are active in clinical trials that contribute to global eye health.

Information on CERI is available at:
<<https://www.ceri.ie/index.html>>



Moran Eye Centre (USA): Provides training of eye care professionals in more than 25 LMICs through hands-on experience of surgeons. Locally, their outreach work focusses on providing access to care to the Navajo Nation in southern Utah (Bernhisel, 2022).

Information on training and outreach is available at:
<<https://healthcare.utah.edu/moran/outreach>>

Conclusion

Global ophthalmology, when approached through the lens of Global Citizenship and Development Education, becomes more than just a medical specialty, it becomes a vehicle for social change. By developing skills in cultural competence, advocacy, public health, and communication, ophthalmologists can contribute to a more equitable world where everyone has access to the eye care they need. This module encourages ophthalmologists at all stages of their careers to embrace the principles of GCDE and apply them in their global practice, leading to better health outcomes and stronger, more resilient health systems worldwide.

Module 7. Community engagement and international partnerships in eye health

Overview

- 7.1 Community engagement in eye health
- 7.2 Global engagement in eye health
- 7.3 The value of equitable partnerships
- 7.4 Educator strategies
- 7.5 Global partnership case studies
- 7.6 Community project toolkits

Introduction to Community engagement and international partnerships in eye health

This module explores the roles of community engagement and international partnerships in promoting global eye health. By aligning with Global Citizenship and Development Education (GCDE) principles, the module shows how meaningful involvement of local communities, and the formation of equitable international partnerships can drive sustainable health outcomes. The focus is on both the local Irish community context and on international settings in underserved communities, with a particular emphasis on the values of equity, mutual respect, and shared responsibility.

7.1 Community engagement in eye health

Community engagement is foundational to effective public health strategies, especially in the field of eye health. Whether in the local Irish context or on a global scale, involving communities meaningfully is crucial for achieving sustainable health outcomes. The Alma-Ata Declaration of 1978 emphasised the importance of community participation in healthcare, asserting that “people have the right and duty to participate individually and collectively in the planning and implementation of their health care” (Shukla, 2022). The Alma-Ata declaration

identified primary health care as the key for “health for all” was the predecessor of the SDGs and the goal of Universal Health (WHO, 2024b).



The **Alma-Ata declaration** at the International Conference on Primary Health Care, Alma-Ata, USSR, (6-12 September. 1978) is available at:

<<https://cdn.who.int/media/docs/default-source/documents/almaata-declaration-en.pdf>>

The table below sets out some of the key points educators might consider regarding community-based ophthalmology practices.

Table: Key considerations for community-based ophthalmology

Category	Key Considerations	Ethics	Good Practice
Community Needs	Understand and assess the specific eye health needs of the community.	Respect for autonomy and cultural sensitivity.	Conduct comprehensive needs assessments.
Cultural Competence	Develop culturally appropriate educational materials and communication strategies.	Avoid cultural bias and ensure inclusivity.	Engage community leaders and use local languages.
Partnerships	Collaborate with local organizations, healthcare providers, and community leaders.	Ensure mutual respect and shared decision-making.	Establish transparent and equitable partnerships.
Accessibility	Ensure that services are accessible to all community members, including marginalized groups.	Promote equity and fairness in service delivery.	Implement services in easily accessible locations.
Sustainability	Design programs that can be sustained by the community after external support ends.	Avoid creating dependency and ensure long-term benefits.	Train local health workers and involve the community in planning.
Evaluation	Continuously monitor and evaluate the impact of eye health initiatives.	Maintain transparency and accountability in outcomes.	Use participatory evaluation methods involving community members.
Ethical Consent	Obtain informed consent for participation in eye health services and research.	Respect individual autonomy and rights.	Provide clear, understandable information about services.
Equity in Service	Address barriers to care such as gender, disability, and socio-economic status.	Ensure non-discrimination and equal access to services.	Implement targeted outreach for underserved populations.
Education & Training	Provide ongoing education and training to both community members and health workers.	Empower communities through knowledge and skills development.	Facilitate peer education and community-led training sessions.

7.1.1 Community eye care services in Ireland



Eye care professional examining patient (Glasses.com, 2024).

There are approximately 300 practices and 700 optometrists in Ireland, distributed across the country, mostly in areas with dense populations like towns and cities (Powell, 2022). Most optometrists work at commercial establishments dedicated to selling spectacles and contact lenses. They provide solutions for blurred vision and refer medical issues they discover to the client's General Practitioner (GP) who can treat minor eye diseases and refers other eye health problems to an eye-specialist (ophthalmologist), commonly working at a hospital.

Optometrist in Ireland regularly advocate to government authorities for an increase in purchasing services from them to treat minor eye infections, allergy, inflammation, removal of foreign bodies under topical anaesthesia, prescribe medications, treat chronic conditions and direct referral to hospital (Norton, 2022). Those treatments are currently managed primarily by GPs.

Optometrists in the UK are allowed to provide those services known as Community Urgent Eyecare Services (CUES) that require assessment and direct referral to an Ophthalmologist at a hospital, and Minor Eye Condition Services (MECS) which are treated by accredited optometrists. They also provide eye care for learning disabilities and pre and post operative cataract services (PE, 2024). There are various organisations that specialise in community eye care, including Local Optical Committees (LOCs), Local Optical Committee Support Unit (LOCSU), SeeAbility for people with learning disabilities, NHS Confederation - Primary Care Network, Independent Healthcare Providers Network (IHPN), and Referral Management Services (RMS) (PE, 2024).

Local community engagement in Ireland

For students interested in global citizenship, a good place to start to develop skills is in their own local area. In Ireland, for instance, engaging local communities in eye health initiatives can significantly improve public health outcomes while simultaneously developing essential skills in ophthalmology and GCDE among students. Conducting comprehensive needs assessment with consultation with the communities is a best practice because this empowers the community and helps determine gaps in eye health services, guiding the development of targeted interventions that address real needs (Shukla, 2022).

*“The responsibility to engage with communities
lies with those who have the means”*

(Shukla, 2022).

7.1.2 Conducting needs assessments

Educators can play a pivotal role in guiding students to conduct comprehensive needs assessments in their local communities. This process may involve conducting surveys, focus groups, or interviews with community members to gather data on the prevalence of eye conditions, access to eye care services, and barriers to seeking care. Engaging students in this process not only provides them with practical public health research experience but also contributes to the well-being of their community.

Empowering communities from the outset in eye care services and they should be involved in the six areas or pillars of health systems strengthening framework (Yasmin et al., 2022):

1. **Service delivery:** Government-led eye health programs should engage communities for the delivery of eye care to ensure their needs are met and to remove barriers in screening and referral pathways for treatment and surgery, e.g. gender identity, disability, or sexual orientation.
2. **Health workforce:** Staff should be well trained and competent at all levels of care, from community to hospital care. They should be well resourced and in sufficient numbers to provide continuous care from detection through treatment, follow up and rehabilitation. The community could participate by volunteering to help overcome barriers of distrust and fear.
3. **Health information systems:** Incorporate communities to the Health Information Management System (HIMS) to manage data adequately, but also include a human focus. Take advantage of existing technology like mobile phones.

4. **Essential medicines:** Ensure that supply channels are adequate for medicines, spectacles, technology for diagnosis and treatment, and technology for data management. Facilitate affordable medicines, make them available to underserved groups, and maintain the supply chain.

5. **Finance:** Sustainable eye health services depend on appropriate business models for public and private sectors. A focus on community-based financing mechanisms that are cost-effective and well-resourced can create a strong model that covers everyone.

6. **Leadership and governance:** Communities could participate in advocacy and governance to influence education, rehabilitation groups, those with disabilities and women's groups, to ensure their needs are met and hold eye care service providers accountable and to enable policies that benefit the community (Yasmin et al., 2022).

7.1.3 Community-based education

Students can develop educational campaigns tailored to local health needs and cultural contexts. For instance, creating informational materials that emphasize the importance of regular eye exams, the risks of untreated conditions, and the availability of local eye care services can have a significant impact. These campaigns can be delivered through schools, community centres, or social media to ensure broad reach and engagement.

Effective educational or training programmes involve consultation and participation of the community in all stages of the process, and include the following actionable stages (Hubley, 2000):

1. **Define training needs:** If field workers are the trainees, it is essential to define what they will offer to the community based on their concerns and ideas and literature reports of previous successful projects. Engaging the community in defining their needs to give the project adequate impact and serve the people that need the intervention the most.
2. **Plan a curriculum:** The content of the training programme should focus on the defined needs. Identify the constraints: Knowledge needs and time available should be clarified. Find a balance between facts, attitudes, values, and skills (communication, decision-making, manual). Add interaction to teaching facts using discussion, role-playing and other techniques for trainee participation, ensuring that learners understand that this is a person-centred model for the benefit of the community.
3. **Organise logistics:** Keep number of participants small. Group activities are best with 8-12 participants. If more than that, split the activities in small groups. Group work is not recommended with more than 40 participants. Group activities, problem-

solving exercises and role play may require additional trainers in large groups. Choose a location that resembles the area where they will practice.

4. **Implement training:** Begin asking participants their expectations so that adjustments can be done to suit them. Encourage questions and feedback and respond to needs. Encourage reflexion at the end to consider how to put the content into action. For example, assign student projects aimed at the community or sections within it, e.g., people with poor vision for reading at care homes.
5. **Evaluate training:** Immediate or delayed feedback will give you an idea of the impact of the training, particularly in practice. Make supervisory field visits to assess if what was learnt translates to practice. If needed, measure impact with comparative analysis of statistical values. Use results and feedback to improve future content, teaching method and delivery (Hubley, 2000).

Examples of community education projects



Bright Eyes campaign
(opticianonline.net, 2013).

Bright Eyes campaign launched by the **Association of Optometrists Ireland (AOI)** in 2013: During the eye health awareness week independent optometrists in Ireland offered the AOI's "6 Point Vision Check" free of charge or at a nominal cost, to identify reading vision problems not normally picked up at school screenings.

The campaign was a response to community children waiting for up to four years for an eye exam by an ophthalmologist after detection of a visual problem at school screening.

The Opticianonline news article is available at: <https://www.opticianonline.net/content/news/irish-campaign-targets-follow-ups>



Dr Yusrah Shweikh presenting
Eye Heroes (Shweikh, 2013).

Eye Heroes project, led by London's Moorfields Eye Hospital between 2013 and 2022: Ophthalmologist Dr Yusrah Shweikh and Health-tech entrepreneur Manjul Rathee run interactive workshops to teach school children aged 8 to 12 about the importance of eye tests. Children became champions of eye health and passed that knowledge to their communities in Bedford and North-London, UK. The project won four awards between 2016 and 2019 (Shweikh & Rathee, 2022).

7.1.4 Culturally-relevant communication

Given Ireland's increasingly multicultural society, it is crucial that communication strategies in healthcare are culturally relevant and inclusive. Educators should teach students the importance of cultural competence in healthcare, encouraging them to develop materials and messages that resonate with diverse populations. This might involve translating educational materials into different languages or partnering with community leaders to ensure that messaging is culturally appropriate and effective (RCSI, 2024).



Royal College of Surgeons in Ireland (RCSI): Offers a course on Cross-cultural competence and effective communication for Ophthalmologists. It consists of a workshop that identifies key aspects of patients' culture, values, attitudes and behaviours in Ireland.

Information on the RCSI course is available at:
<<https://www.rcsi.com/dublin/professional-cpd/cpdss/cross-cultural-competence-and-effective-communication-workshop/course-details>>

7.2 Global engagement in eye health



Ropes tied together (Adobe Stock, 2024)

Global engagement in eye health encompasses a broad spectrum of activities, ranging from individual advocacy and education to involvement in international health initiatives and research. While individuals and organizations can engage with global health issues through various means, this chapter focuses specifically on the role of partnerships in advancing global eye health.

Partnerships are a cornerstone of effective global engagement, providing opportunities for collaboration that can enhance the reach, impact, and sustainability of health interventions. Cross-sector partnerships, involving civil society organizations, governments, and businesses, can unleash innovative ways of working, mobilize expertise, and create shared accountability (WEF, 2017). Partnerships can pool resources, share expertise, and foster innovation in tackling complex global health challenges.

Successful partnerships in global eye health must be built on principles of equity, transparency, and sustainability. These principles ensure that all parties involved, particularly those from low-resource settings, have an equal voice in decision-making processes, and that the benefits of collaboration are distributed fairly. In this chapter, we explore the best practices for building and maintaining equitable partnerships in global eye health, providing practical strategies for educators and students to evaluate and design effective collaborations.

By focusing on partnerships, this section highlights the importance of working together to address global health disparities and underscores the critical role that equitable collaboration plays in achieving sustainable health outcomes. While partnerships are just one way to engage globally, they are a powerful tool for creating lasting change in the field of eye health.

7.3 Building equitable international partnerships

Building equitable international partnerships involves more than just resource sharing; it is about sharing power, decision-making, and responsibility. Equitable partnerships should create value for all participants, with a focus on empowering under-resourced communities and ensuring that all parties benefit fairly.

For equitable partnerships, consider: **Equality**, ensuring partners have an equal voice in decision making and resource allocation; **Cultural sensitivity**, respecting the cultural context of all partners; **Sustainability**, designing projects that can continue independently; and **Transparency**, keeping an open and honest communication throughout the partnership.

Sustainability prevents dependency and interruptions on the existing health system. Participation of and organised community can ensure the maintenance of a project. Partnerships should focus on strengthening local systems, building capacity and independence and plan on how a project will be sustained after the initial funding and support have concluded.



Appendix 7a presents a more detailed account of the key considerations for global partnerships in ophthalmology.

7.4 Educator's strategy for partnership building activities

The goal of this activity is to deepen students' understanding of the complexities and ethical considerations involved in global health partnerships. By evaluating existing partnerships, students will gain insights into the importance of equity, transparency, and sustainability, and learn how these principles contribute to successful and ethical collaborations.

1. Preparation

Select a diverse set of case studies that represent various types of global health partnerships in ophthalmology. These could include partnerships between universities, NGOs, government agencies, and private sector entities. Ensure that the case studies highlight both successful and challenging aspects of the partnerships.

Develop a framework to evaluate the partnership from the point of view of: Equity to determine power distribution among partners; Transparency to evaluate open communications and clear documentation; and Sustainability to ensure a long-term survival of the project.

2. Group activity

Divide the students into small groups, assigning each group a different case study. Provide each group with the evaluation framework and relevant background information on their assigned partnership.

Each group should use the framework to evaluate power dynamics between partners, resource distribution, cultural sensitivity (respect local customs, values and practices), impact on local community (long-term benefits), and possible challenges and solutions for success.

3. Class discussion

Have each group present their findings to the class. Encourage them to discuss both the strengths and weaknesses of their assigned partnership.

Lead a discussion with prompts to guide the conversation, for example:

- What common challenges did the partnerships face, and how were they addressed?
- Which partnerships were most successful, and why?
- How did cultural understanding (or lack thereof) impact the success of the partnerships?
- How can future partnerships be designed to be more equitable, transparent, and sustainable?

Ask students to reflect on what they have learned about the importance of these principles in global health partnerships and how they might apply these insights in their future work.

4. Extended learning

Follow the activity asking students to develop a proposal for a new global health partnership in ophthalmology. The proposal should outline how the partnership would be structured to ensure equity, transparency, and sustainability. Students should identify potential partners, describe the goals of the partnership, and propose strategies for overcoming potential challenges.

5. Reflective journaling

Encourage students to maintain a reflective journal throughout the activity. They should document their thoughts on the case studies, the group discussions, and how their understanding of global health partnerships evolves. This will help them internalise the principles of equitable partnerships and consider how they might apply these in their future careers.

Outcome

Through this activity, students will gain a deeper understanding of the complexities involved in global health partnerships. They will learn to critically assess partnerships using a framework of equity, transparency, and sustainability, and develop the skills necessary to design and manage successful and ethical collaborations in the future. This activity also reinforces the importance of cultural competence and respect for local autonomy in global health work.



Further reading



The Global Independent Commission on Education of Health Professionals found that 2,420 medical schools worldwide train about 1 million health professionals per year, the distribution and number does not align well with country population size or national burden of disease, and funding allocated is less than 2% of health expenditures worldwide. Little is done to alleviate this situation. A new generation of educational reform should focus on improving the performance of health systems utilising global knowledge and aiming at global health equity (Frenk et al., 2010).

Frenk J (2010) Health professionals for a new century. The Lancet, is available at: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(10\)61854-5/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(10)61854-5/fulltext)

Glenn Laverack presents a framework intended to assist planners, implementers and evaluators to systematically consider community empowerment goals within top-down health promotion programming (Laverack & Labonte, 2000).

Laverack G (2000) A planning framework for community empowerment goals within health promotion. Health Policy and Planning, is available at: <https://academic.oup.com/heapol/article/15/3/255/573300>

Book: Marmot M (2011) Social determinants of health. 2nd ed. Oxford: Oxford University Press. ISBN: 978-0-19-856589-5

The WHO sustains that governments must ensure dignified, equitable health services for marginalized and vulnerable populations during and beyond emergencies. Many countries will require substantial health system reforms, addressing foundational gaps in public health capacities to make them more efficient, effective and resilient (WHO, 2021a).

WHO (2021) Building health systems resilience for universal health coverage and health security during the COVID-19 pandemic and beyond, WHO, is available at: <https://www.who.int/publications/i/item/WHO-UHL-PHC-SP-2021.02>

7.5 Global partnership case studies

Partnerships can significantly contribute to reducing health disparities by ensuring that under-resourced communities receive the support they need to improve health outcomes.

Community eye care services in South Asia

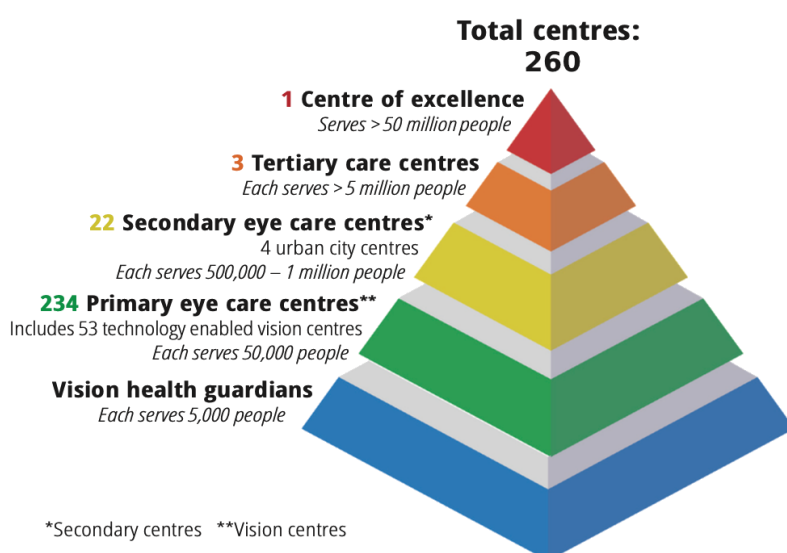


Engage community Pakistan
(McConnell/Sightsavers, 2022)

Between 1988 and 2018, South Asia (Afghanistan, Pakistan, Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka) had an increase in population of 162% and of life expectancy from 57 to 68 years, resulting in a larger population aged 50 and over, which raised the risk of visual impairment and blindness. The main eye health challenge in the region is visual impairment due to infections, e.g., trachoma and leprosy, and non-communicable diseases like cataract, glaucoma, diabetic retinopathy, and retinopathy of prematurity. The health system is unable to provide adequate

services due to logistical issues despite the existence of technical knowledge, the successful integration of “Accredited Social Health Activists” and “Lady Health Workers” trained to identify and refer eye problems, to schoolteachers screening for vision issues at schools has shown a substantial improvement in eye health awareness in the region (Bechange et al., 2021; Murthy, 2017). Engaging with communities and empowering them is vital to the uptake of eye care services (Yasmin et al., 2022).

Vision guardians in India



Eye health pyramid, LV Prasad Eye Institute, India (Marmula, 2022)

The LV Prasad Eye Institute in India calls their volunteers “Vision Guardians” and they form the base of their pyramid of eye health care.

Volunteers are recruited from and selected by the communities, they are known in their areas and inspire trust and confidence. they perform essential activities, including door-to-door vision screening, vision screening at schools, escalation of cases to next level of eye care, ensure patient compliance with

treatment, post-surgical visits, promote awareness, visit vulnerable people, and engage with

stakeholders, e.g. village groups, government, and non-governmental bodies. Volunteers are trained by the Institute in identifying common eye diseases, vision screening, record keeping and counselling. Although most volunteers donate their time to the effort, the system has a fix number of paid Vision Guardians to ensure sustainability, typically one for a population unit of 5,000 people. A community supervisor monitors 10 paid Vision Guardians in each region. The system has demonstrated success with a coverage of 81% of a population of 48,000, which required 23 volunteers. In 3 years, volunteers identified 3,616 people with eye problems, 677 pre-school and school children referred with eye problems, dispensed spectacles to 1,500 people, operated 470, rehabilitated 30 and conducted 100 awareness programmes (Marmamula et al., 2022).

Marmamula's article is available at: <<https://www.cehjsouthasia.org/wp-content/uploads/2022/11/18-20.pdf>>

Schoolteachers in community eye health in China.



Schoolteacher, China (Jing, 2019)

In 2016, a project aiming at raising awareness of eye health among children took place in the Yunnan Province of China. Initially involving six schools, the project expanded to 50 schools and 500 teachers by 2018. The educational manuals were made with levels of difficulty suitable for each school grade and teachers were trained accordingly. Lessons combined interactivity and creativity and the children spread the knowledge within their community. Following the success of the project, the Chinese Ministry of Education and Health

launched 'The Comprehensive Plan to Prevent Near-sightedness among Children and Teenagers' (Jing, 2019).

Jing's report is available at: <<https://www.iapb.org/news/the-role-of-schoolteachers-in-community-eye-health/>>

7.6 Community project toolkits

Effective community engagement begins with a sound understanding of a community's needs, circumstances and preferences.



The **Community Engagement in Eye Health Assessment Tool** (CEEHAT) tool was developed by Dodson et al., for the Fred Hollows foundation to assess community opportunity, capacity, and motivation to engage with eye health care, and identifies areas of eye health that can be improved. This is a research toolkit that contains community analysis surveys focused on Neglected Tropical Diseases (NTD), including Trachoma, River blindness, Diabetes, Willingness to pay and Patient journey (Dodson et al., 2020).

CEEHAT is available at: <<https://www.infontd.org/resource/community-engagement-eye-health-assessment-tool-ceedhat>>



New developments in health care and tools for researchers and other healthcare professionals are available online. For example, the non-profit organisation "**infoNTD**" offers a database of information and access to news on developments in the field of NTD on their website.

InfoNTD is available at: <www.infontd.org>.



Community engagement with information for the most common health concerns, including eye care, are available at "**Patient**", an information service for the community and health care professionals that follows the UK's **National Health Service (NHS)** guidelines of content creation. An example of a community information article in eye health is "What is astigmatism", explained in detail by an Optometrist, a professional that examines and tests the vision, prescribes glasses and fits their clients' spectacles at an optician's shop (Berry, 2024).

Patient is available at: <<https://patient.info/news-and-features/what-is-astigmatism-2>>



In 2018, "**Light for the World**" launched a multinational programme to address Glaucoma in Sub-Saharan Africa called "**Addressing Challenges of Glaucoma – the Silent Thief of Sight**". Glaucoma experts met in Ethiopia to develop a practical toolkit for glaucoma management, which was supported by the International Council of Ophthalmology (ICO) and multiple eye-care agencies in Africa. The toolkit documents guide specialists and eye care team members to setup integrated glaucoma care services (LFTW et al., 2021).

Light for the world Glaucoma toolkit is available at: <<https://www.light-for-the-world.org/publications/a-toolkit-for-glaucoma-management-in-sub-saharan-africa/>>

Conclusion

This module emphasizes the importance of equitable partnerships in global eye health. By focusing on mutual benefit, sustainability, and shared decision-making, educators can guide students to engage meaningfully in global health initiatives. The examples provided show that successful global engagement requires careful planning, cultural sensitivity, and a long-term commitment to empowering local communities.



Appendix 7b covers Skill building opportunities for Ophthalmologists and health institutions that collaborate in eye health.

Appendix 7c presents institutions that work in Partnerships for Global Eye health.

Module 8. Sustainable practices in ophthalmology

Overview

- 8.1 Eye health and the Sustainable Development Goals
- 8.2 Health care carbon footprint
- 8.3 Sustainable practices in hospitals and surgery
- 8.4 Sustainable practices in ophthalmology
- 8.5 Infographics of health-care waste segregation
- 8.6 Group project on sustainable ophthalmology

Introduction to Sustainable practices in ophthalmology

This module explores the relationships between eye health care and the 17 Sustainable Development Goals (SDGs) that are at the centre of the 2030 Agenda for Sustainable Development adopted by all the United Nations (UN) Member States in 2015 (see section 1.6) (UN, 2024). This is followed by the exploration of the contribution of eye health care in the overall healthcare carbon footprint, presenting presents recommendations to improve climate change performance and to enhance sustainability practices in eye clinics and at hospitals. The module concludes with a suggested activity for students of sustainable practices in ophthalmology.

8.1 Eye health and the Sustainable Development Goals



Eye health and Sustainable Development Goals (SDG) (R Gonzales, Adobe,

In 2021, the Lancet global health commission on Global Eye Health demonstrated that eye health is essential to achieving the Sustainable Development Goals. The commission published a report with the results of systematic literature reviews focused on the importance of eye health from the perspectives of quality of life, general health and wellbeing, and mortality. The report described how eye health relates to UNESCO’s Sustainable Development Goals (SDG) going beyond 3.8 that relates to Universal Health Care (UHC).

Scoping reviews of studies reporting links to SDGs found that in addition to SDG 3 related to global health, eye health is directly or indirectly related to other goals, including Poverty (SDG 1, 2, 8), Education (SDG 4), Equality (SDG 5 and 10), Sustainable cities (SDG 11) and Climate action (SDG 12 and 13) (Burton et al., 2021; Zhang et al., 2022).

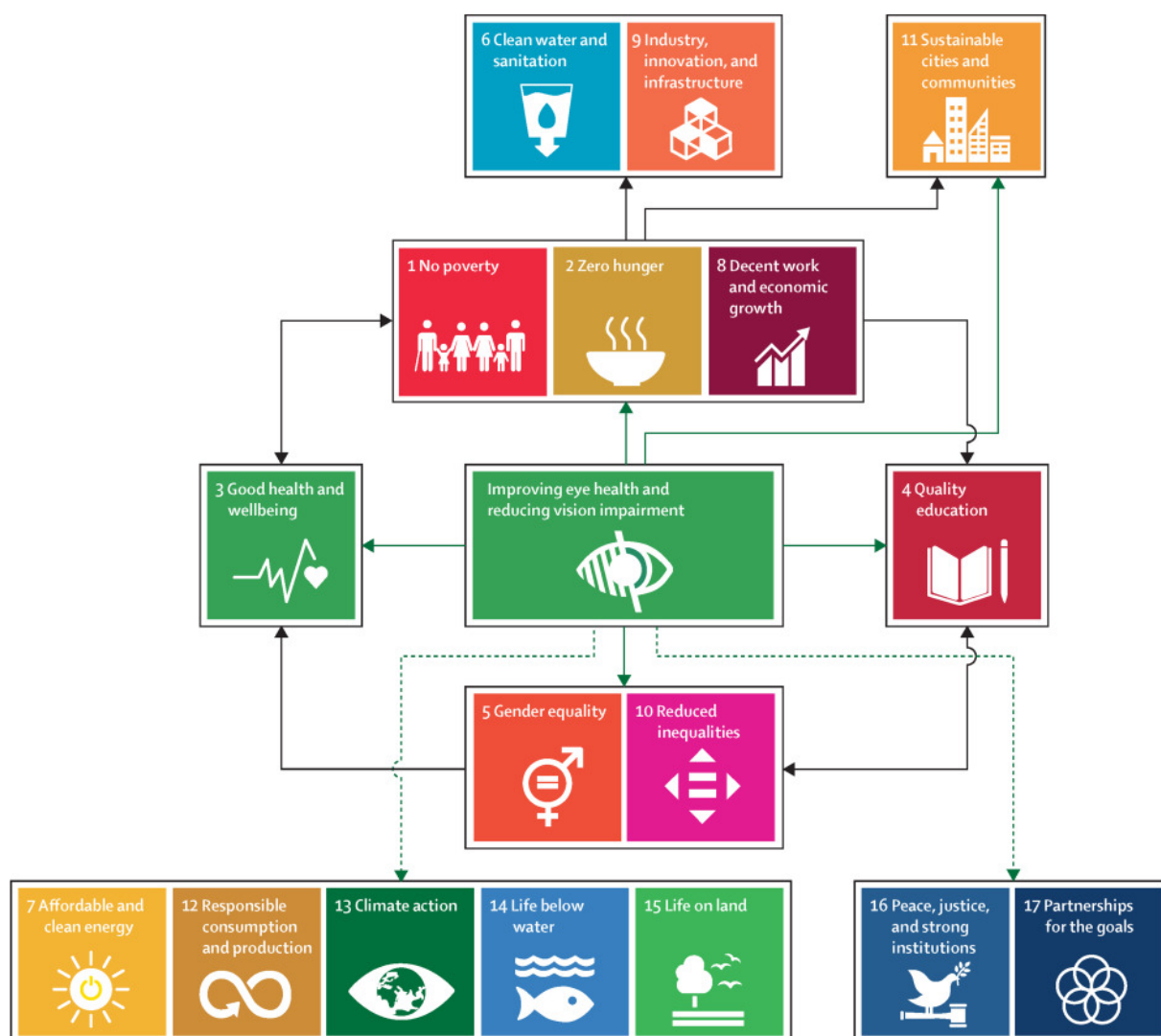
The following table shows the relevance of eye health to the above SDGs.

Table 4. Eye health care links to the Sustainable Development Goals (SDG) (Burton et al., 2021).

1 NO POVERTY 	2 ZERO HUNGER 	Provision of eye care is associated with improvements in workplace, economic productivity, household consumption, income, and employment. For example, the provision of free near-vision glasses to tea workers in India improved their productivity by 22%. It also improved the sense of achievement and self-worth, resulting in enhanced worker’s wellbeing and a positive contribution to the community.
8 DECENT WORK AND ECONOMIC GROWTH 		
4 QUALITY EDUCATION 		School children with poor vision are more likely to have poorer education outcomes and be excluded from school. Detection of vision impairment at school, e.g. in the Peed Vision programme, improved performance.
5 GENDER EQUALITY 	10 REDUCED INEQUALITIES 	Women carry more visual impairment than men, improving their eye health breaking inequalities. Families led by someone with cataracts are poorer than their neighbours. Restoring their vision by operating their cataracts closes this gap.
3 GOOD HEALTH AND WELL-BEING 	11 SUSTAINABLE CITIES AND COMMUNITIES 	Improved vision reduces traffic accidents, which affect mostly young adults and children. In older adults, cataract surgery reduces driving difficulties and traffic collisions.
12 RESPONSIBLE CONSUMPTION AND PRODUCTION 	13 CLIMATE ACTION 	Healthcare contributes to 5% of greenhouse gas emissions. It is unclear how much of this is related by eye health care, although it was shown that the main treatments are cost-effective. This area requires further research considering industry changes where providers are moving towards more sustainable products.

The Lancet global health commission found indirect connections to most of the remaining goals forming a map of relationships that shows the interconnections as direct and indirect effects (Figure 8) (Burton et al., 2021).

Figure 8. Eye health direct and indirect relationships with SDGs (Burton et al., 2021).



Note: Solid arrows show direct relationships, dotted arrows show indirect ones.

The commission concludes their report of this series of systematic reviews with 10 key messages described in section 7. Advocacy and policy in ophthalmology.

8.2 Health care carbon footprint

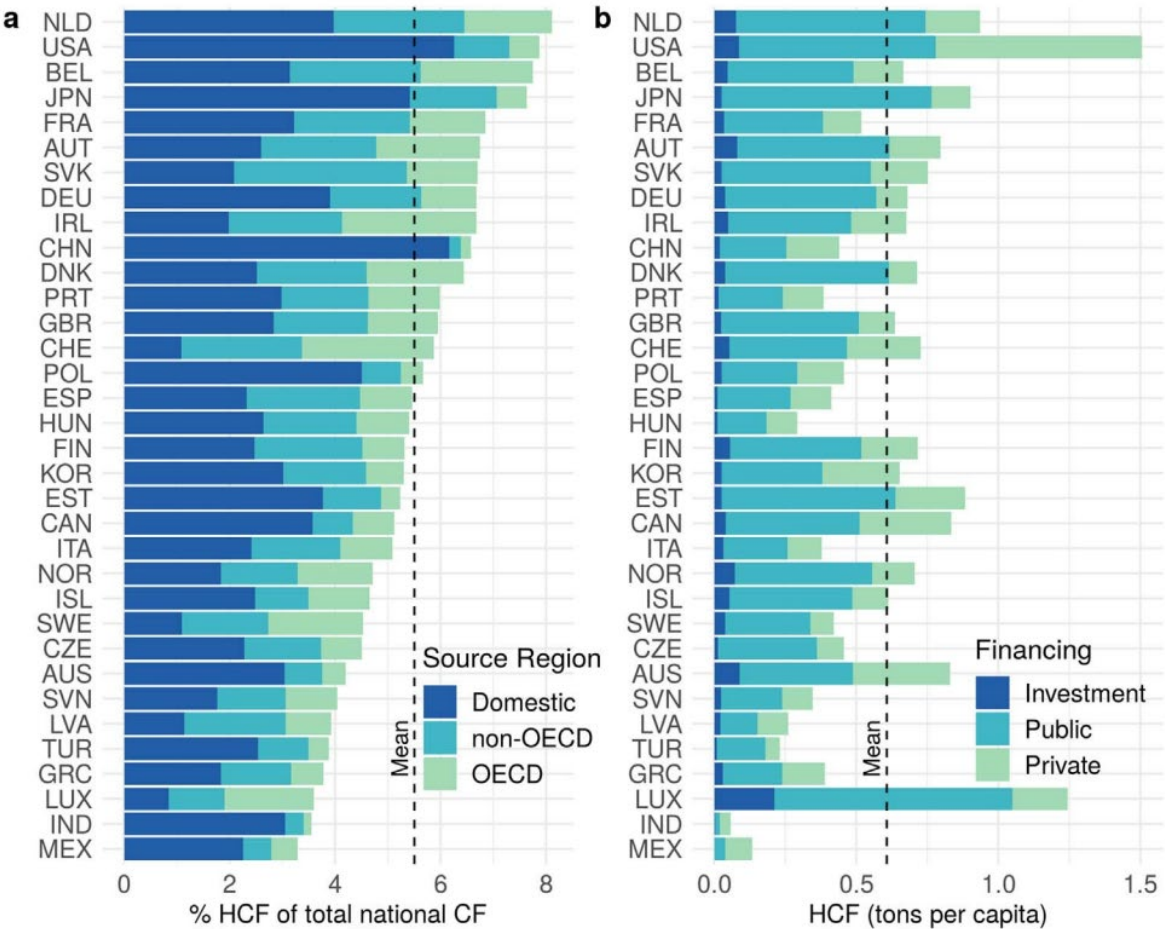
Estimations of greenhouse gas emissions show the impact of health services on the environment. For example, a review of the National Health Services in England in 2019 showed that health services are responsible for emitting the equivalent of 25 mega tonnes of carbon dioxide a year. Supply chain accounted for 62% of this value, while delivery of care was 24%, staff commute, and visitor travel 10% and the remaining 4% was private health and care services commissioned by the NHS. Delivery of care involves water and waste, metered dose inhalers and business travel. Supply chain includes pharmaceuticals and chemicals,

medical and non-medical equipment, business services, and food and catering. When compared with similar estimates in previous years, the study found a 26% reduction since 1990 (Tennison et al., 2021).

A comparison of Carbon Footprints in 34 countries around the globe from 2000 to 2014 showed that the health care carbon footprint was on average 5.5% of the country’s total footprint but demonstrated that high-income countries have footprints well above this average, topped by The Netherlands at 8.1%, followed by USA at 7.9% and at the bottom were India at 3.5% and Mexico with 3.3%. The UK (case described above) stood above the average at 5.9%, while Ireland was much higher at 6.7% (Pichler et al., 2019).

The graph shows the health care carbon footprint (HCF) as percentage of the national carbon footprint (CF) and for each country the contribution of the domestic supply chain (navy bars) where China has the highest with almost 99% or its footprint, followed by India, Poland, and the US with 75%. The average health carbon footprint per capita was 0.6 tonnes of carbon dioxide (tCO₂) topped by USA at 1.51 tonnes, followed by Luxemburg and Japan and at the bottom, India with 0.06 tonnes, preceded by Turkey and Mexico (Pichler et al., 2019).

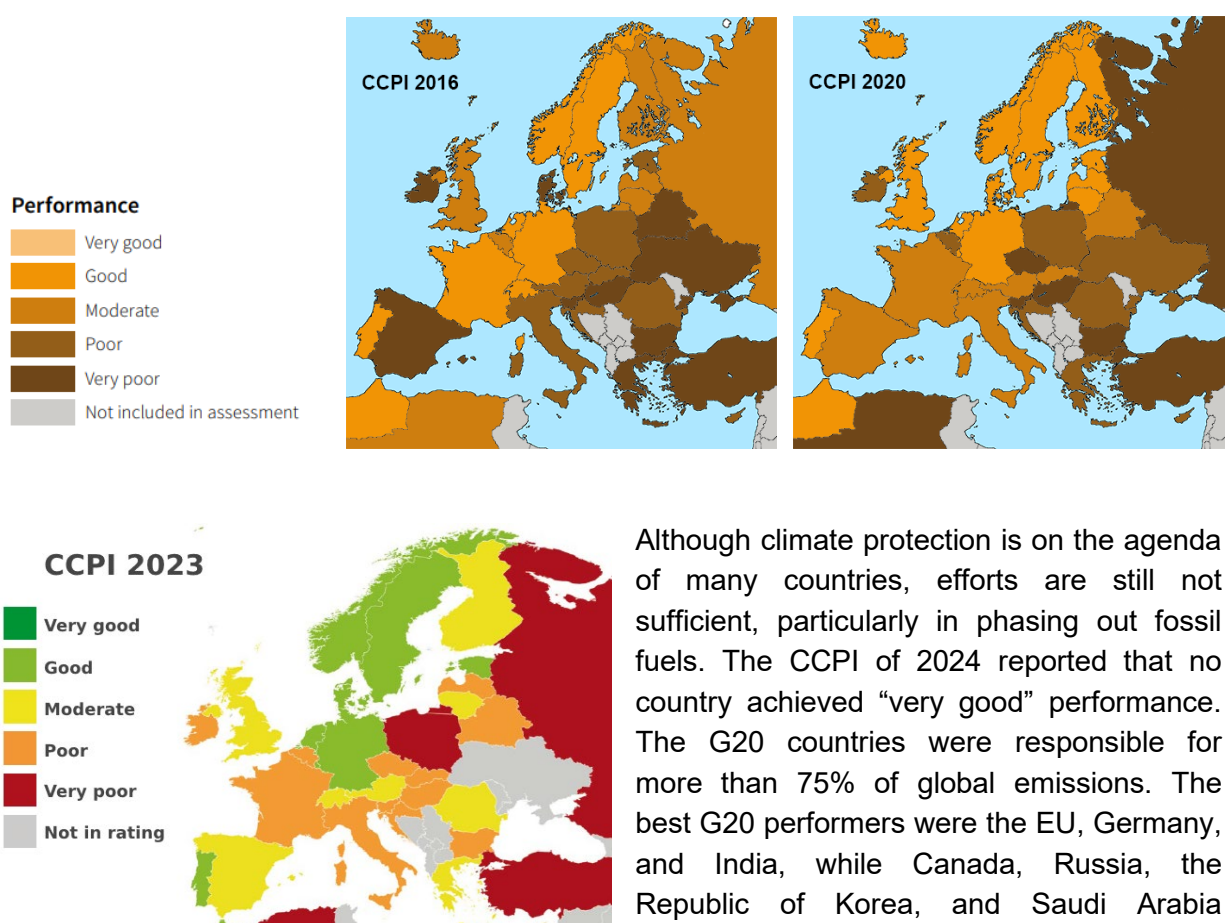
Figure 9. International health care carbon footprint (HCF) as percentage of national carbon footprint (CF).



Note: HCF as percentage of CF by country (a) and HCF per capita by financing scheme (b) in 2014. OECD = Member countries of the Organization of Economic Co-operation and Development (OECD)

The continuing rise of greenhouse gas (GHG) emissions led to the declaration of a “climate emergency” by the UK and Ireland in 2019, and the European Union set a target to reduce emissions by 20% by 2020. Ireland managed to reduce only 6% in that period, therefore failing to meet the target (Kirk et al., 2021). Based on expert evaluations of the Climate Change Performance Index (CCPI) 2017, Ireland ranked as a moderate performer with 59.02 points (UK ranked good with 66.10), but next to Spain, they were the worst performing countries in the EU in climate policy. In 2020 Ireland’s climate policy performance improved but was still among the bad group, while the overall points also dropped to 45.47 (UK scored high, with 69.66 points, second to Sweden at 74.42 points (Burck et al., 2021; Burck et al., 2017)).

Figure 10. Climate policy performance in Ireland improved slightly between 2016 and 2020 remaining among the poor performers.



remained as the worst. Denmark was the frontrunner in Europe, followed by Estonia, both within the “good” range. Ireland remained in the poor range with 51.42 points, a decrease of 6 points from the previous year, while the UK fell to the medium range with 62.36 points, 9 below 2023. (Burck et al., 2024).

The CCPI report: <<https://www.germanwatch.org/sites/default/files/publication/16484.pdf>>

Based on Ireland’s climate change performance and analysing the health system and public hospitals in Ireland, Kirk proposed recommendations to inform Ireland’s “Climate Action Plan” to ensure the preparation of the health sector for the future (Kirk et al., 2021):

1. **Transdisciplinary approach and collaboration within the health system, from local to national level:** Promote relationships between government sectors at multiple levels and create partnerships with the health, transport, financial and climate services to build a “Climate action plan” and prepare for climate hazards.
2. **Monitoring and evaluating the health system’s carbon footprint:** Publish an annual report on health emissions would enable dynamic action system that includes greenhouse emissions, waste, water, and energy management within hospitals. In the NHS, this annual report led to adjustment of measures to decrease the carbon footprint.
3. **Strengthen interventions in hospitals with scale-up of financial support and pilot initiatives:** Secure investment for projects that showed success in pilot demonstrations, focused on energy efficiency, safe water provision, procurement of local and sustainable food and local transport systems.
4. **Promote leadership of health professionals in environmental and human health:** Clinicians can influence local and national policy and should be encouraged to become leaders in climate change within healthcare.
5. **Incentivise funding and investment in low-carbon technologies:** Focus on more efficient energy generation and transition from fossil fuels to renewable energy technology and minimising electricity grid overload.
6. **Ensure long-term investment to prepare for future climate changes:** Secure “ring-fenced” funding for climate adaptation and mitigation to avoid competing priorities, considering investment from other institutions like philanthropist and industry.
7. **Strong political action and will:** Leadership and governance need to show strength in the application of a “Climate action plan” that will benefit the health sector and consequently the country and prepare for unknown health-related climate hazards (Kirk et al., 2021).

8.3 Sustainable practices in hospitals and surgery

Improvements in material management at the clinic and operating rooms and adjusting the patient handling strategy can help reduce waste and enhance the efficiency of eye clinics.

The health care system and particularly hospitals generate increasing amounts of solid waste and are responsible for important portions of greenhouse gas emissions. For example, in Canada, the sector generated 1.46% of the country’s emissions in 2001 and 1% of total waste, while in the USA in 2007, solid waste was 1.8 million tonnes a year, an 8% contribution to the country’s gas emissions, second in size after the food industry (Kagoma et al., 2012). A 385-bed hospital in Oregon, USA generated 6 tonnes of solid waste every week in 1975, which tripled by 1991, making a total 939 tonnes of waste annually, corresponding to 6.8kg

per hospital bed per day. The waste was composed of plastics (46%), paper (34%), liquids (12%), glass (7.5%), metals (0.4%), and anatomic waste (0.1%), all going to landfill, the cost of which has increased correspondingly (Gilden et al., 1992).

A systematic review of 115 studies reporting healthcare waste (HCW) production from around the world between 2000 and 2019, calculated a World waste generation of 1.2 kg/bed/day, of which 0.46 kg was of hazardous waste. The study identified North America as the leading continent in healthcare waste generation with a total of 3.8 kg/bed/day, followed by Latin America and Asia with 2.5 and 2 kg/bed/day respectively (Gomes et al., 2022) (Figure 11).

Figure 11. World map of Healthcare Waste (HCW) generation (Gomes et al., 2022).



Waste reduction strategies recommended in 1990s have yet to make an impact in hospitals where the trend of single-use disposable material has not changed much since its introduction in the 1970s. In another effort to reduce waste, it was proposed to add “restrict” or “re-think and research” to the standard triad of conservation: “reduce, reuse and recycle”, referring to appropriate separation of waste, proper disposal and development of new solutions (Elabed et al., 2024; Esaki & Macario, 2009; Gilden et al., 1992).

The operating theatre generates 20-33% of total waste of hospitals in USA (Esaki & Macario, 2009). Analysis of the type of waste from surgeries at a tertiary community teaching hospital showed that the most voluminous waste consisted of disposable linen and paper (69%), followed by plastic (23%), researchers calculated that by re-using linen and recycling materials, hospitals could reduce the weight of waste by 73% (Tieszen & Guenberg, 1992).

Sustainability awareness is on the rise thanks to research in the area. There are efforts to reduce the footprint worldwide, for instance, since 1996, Healthcare Without Harm (HWH) aimed at transforming healthcare to reduce the impact on the environment; and since 1998, Practice Green Health (PGH) recruited 7500 health-care facilities worldwide to reduce waste, increase sustainability and educate the community. This remit is shared by other organisations like Hospitals for a Healthy Environment (HHE) and The Collaborative for Health and the Environment (CHE). Guidelines for sustainability are in place, for instance, the

Environmentally Preferred Purchasing (EPP) programme that leads health institutions into purchasing sustainable products in USA, and the Kaiser Permanente and Engineering World Health (EWH) create manufacturing guidelines for medical suppliers worldwide (Elabed et al., 2024).

8.4 Sustainable practices in ophthalmology

Eye surgeries account for a small contribution to hospital waste unless the institution specialises in this field. A study of waste generation and management of patients undergoing cataract surgery at a specialist eye centre in India compared similar procedures with the UK. They reported that a cataract surgery at that centre (Aravind in southern India) generates 250 grams of waste and the equivalent to 6 Kg of carbon dioxide. This is 5% of the waste and footprint of the same surgery in the UK. Most of the carbon emissions at Aravid result from sterilisation procedures because they reuse instruments and materials. Surgical efficiency at that centre is impressive, in 4 months there were 2942 cataract surgeries (approx. 35/day) with minimal complications, and their full capacity is 750-1500 surgeries per day (Thiel et al., 2017).

The major contributors to improve efficiency, reduce costs and retain patient safety in an eye-care hospital like Aravid are:

1. Optimising use and reuse of instruments and supplies, including re-processing of single-use devices. Sterilising drapes, surgical gowns, and blankets for reuse, limiting disposable material to adhesive surgical drapes.
2. Promoting minimum waste, recycling, and use of energy efficient appliances throughout the hospital.
3. Increase surgery efficiency by coordinating surgical procedures for a timely turnaround to optimise surgeon's time.

The study shows that it is possible to reduce the waste of surgical material and therefore emission equivalents in eye surgeries. In contrast with India, the UK and USA have more regulatory restrictions and may find it hard to reduce the convenience of using single-use and disposable materials. The authors recognise that one of the drivers of waste creation by use of disposable materials and avoidance of re-use is the higher liability rate linked to surgical procedures, which has led to a defensive medicine model that ignores the environmental footprint (Thiel et al., 2017).

This example from India shows that private organisations can devise and implement successful environmentally friendly actions and not wait for the government or world authority to impose legislations. Private efforts, in collaborations with governments could widen their impact by creating monitoring and regulatory systems for the region.

Alongside India, there are various countries in the world with a variety of economies that are actively engaging in sustainability either because they see it as a method to combat waste or because they depend on it to run a successful practice.

Outside the surgical environment, ophthalmologists produce little waste during clinics but being a technology-enabled specialty, eye clinics consume moderate amounts of power for examination and diagnostic procedures, with exception of laser equipment used for treatment in the office.

Sustainability in eye health in Ireland

A study of the opportunities and barriers of decarbonisation of public hospital in Ireland found that there is a need for policymakers to adjust decarbonisation efforts to meet the goals set by the European Union. Ireland's efforts have been insufficient so far (see section 8.2) and there is an opportunity to work transdisciplinary to ensure hospitals become centres of excellence in climate change. Monitoring greenhouse gas (GHG) emissions is important but using that information wisely to make better decisions by policymakers to improve the performance of the country is even more so (Kirk et al., 2021).

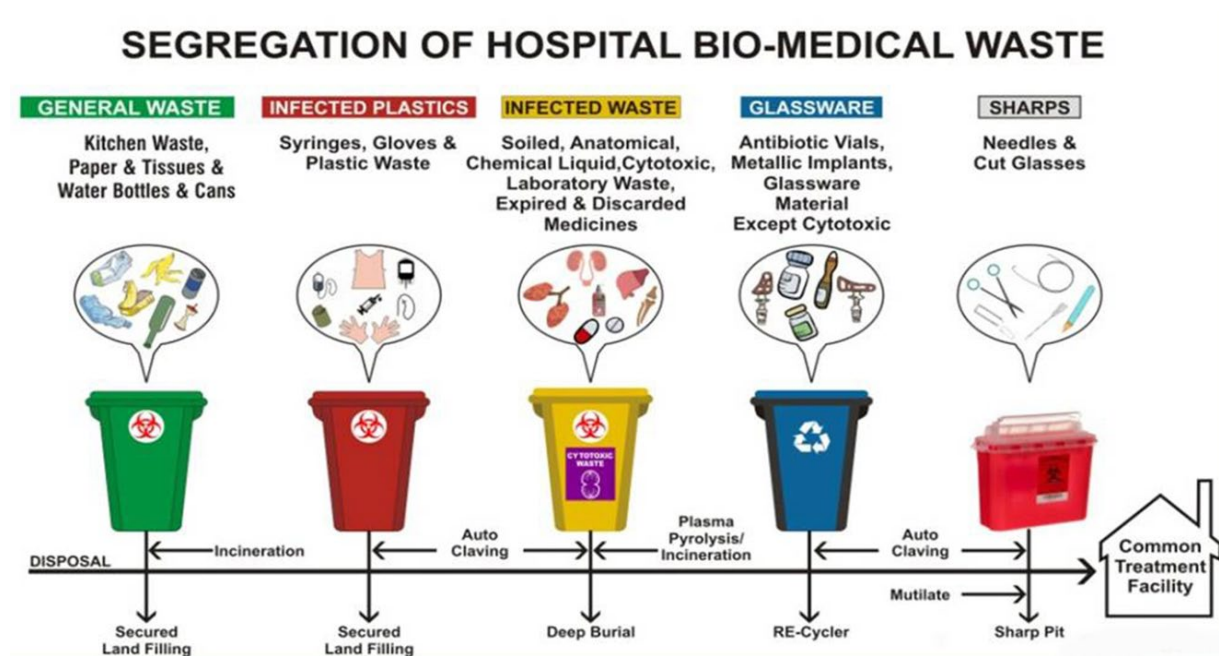


In response to the evident responsibility of the ophthalmic community in the generation of greenhouse gasses as part of the 5% estimation emitted by healthcare globally, the Irish College of Ophthalmologists (ICO) organised a symposium dedicated to “Sustainability in Ophthalmology”, presented at their annual conference in May 2024. A panel of experts acknowledged the contribution of eye health in carbon emissions and discussed strategies to minimise the carbon footprint in the future. To promote awareness on this issue and provide guidance to their members, the ICO launched a resource page on their member website. ICO President Mr John Doris, made a “call to action” to members, recognising the importance of this issue in the global commitment to protect the climate (ICO, 2024e).

8.5 Infographics of health-care waste segregation

Segregation at hospitals and surgical facilities is essential and must be rigorous for an effective waste management (Figure 11).

Figure 12. Segregation of hospital waste infographic (Continental Hospitals, Gleneagles Facility).



8.6 Group project on sustainable ophthalmology

Educators may ask groups of students to create a proposal for a sustainable ophthalmology practice in a low-resource setting. The topics are selected by the groups from a pool of ideas based on available information and known need. The WHO has identified the most common eye diseases in low-income populations and students can start the project revising public documents available on their website, e.g. World report on vision, or global eye health. The focus could be on eye diseases that lead to visual impairment and blindness, like those listed on **Appendix 2d** and **Appendix 2e**.

Module 9. Advocacy and policy in ophthalmology within the framework of GCDE

Overview

- 9.1 Understanding advocacy and policy in ophthalmology
- 9.2 Key messages for policy makers
- 9.3 GCDE and advocacy in ophthalmology
- 9.4 The role of educators and students in advocacy
- 9.5 Critical engagement with global policies
- 9.6 Building advocacy skills
- 9.7 Evaluating advocacy efforts
- 9.8 Advocacy in the community

Introduction to Advocacy and policy in ophthalmology

This module explores the critical role of advocacy and policy in advancing global eye health, framed through the lens of Global Citizenship and Development Education (GCDE). It highlights how educators can empower students to address the underlying social determinants of health, challenge power structures, and promote social justice in the field of ophthalmology. By engaging with real-world policies and advocating for systemic change, students can become active participants in the global effort to improve eye health outcomes.

9.1 Understanding advocacy and policy in ophthalmology

Advocacy in ophthalmology involves efforts to influence public policy and resource allocation decisions within political, economic, and social systems. It is about promoting changes that improve eye health services, enhance accessibility, and ensure the quality of care, particularly in low- and middle-income countries (LMICs). Policymaking involves the creation of laws, regulations, and guidelines that shape these services.

The *World Health Organization's (WHO) World Report on Vision* (2019) and the *Lancet Global Health Commission on Global Eye Health* (2021) are key resources guiding global efforts in this area. These reports emphasize the need to integrate eye health into broader health systems and ensure that care is accessible, equitable, and sustainable.



Further reading



WHO (2019) World Report on Vision. World Health Organisation (WHO) is available at:

<<https://www.who.int/publications/i/item/9789241516570>>

Burton M (2021) The Lancet Global Health Commission on Global Eye Health: Vision beyond 2020. The Lancet Global Health, is available at:

<[https://doi.org/doi:10.1016/S2214-109X\(20\)30488-5](https://doi.org/doi:10.1016/S2214-109X(20)30488-5)>



Audio



Audio: Vision beyond 2020

Publisher / date: The Lancet, Global Health, 2021.

Length: 24 min.

Description: Zoë Mullan interviews the Co-Chairs of the Lancet Global Health Commission on Global Eye Health, Prof Matthew Burton, and Prof Hannah Faal, who discuss highlights of their findings.

Link (bottom of the page under “Related audio”):

<[https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(20\)30488-5/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(20)30488-5/fulltext)>

9.2 Key messages for policy makers

The Lancet's 2021 report provides 10 key messages for policymakers, which are crucial for anyone engaged in GCDE and ophthalmology. These messages highlight the importance of eye health in achieving the SDGs and call for significant political action to close the gap between population needs and the delivery of high-quality care (Burton et al., 2021).

1. **Eye health is essential to achieve the SDGs** and needs to be reframed in importance.
2. **Political action is needed to prepare for the future.** Almost everyone will experience impaired vision or an eye condition during their lifetime and require eye care services. Visual impairment is expected to affect 1.8 billion people by 2050, mostly in low and middle-income countries, enhanced by aging population.
3. **Eye health needs to be included in national strategic plans and policies** because it is essential within Universal Health Coverage and requires integration of services to be effective.
6. **Eye health needs to be included in national health financial plans** to facilitate access to services to people with financial deficit.
5. **A major investment in eye health is required** to deliver existing highly cost-effective interventions and prevent the economic productivity loss caused by visual impairment.
4. **Close the gap between needs and care delivery.** The gap between population eye health needs and delivery of high-quality care can be closed by improving access to effective, efficient, safe, timely and equitable people-centred care.
7. **Technological developments in eye health service and treatment need to be encouraged** to improve coverage, accessibility, efficiency, and affordability. Technologies like telemedicine, mHealth and enhancement with AI promise a revolution in high-quality care to remote areas.
8. **The eye health work force needs to be expanded** and adequately trained to meet population needs of the future.
9. **Monitoring eye health to obtain reliable service data** is essential to determine efficiency and detect scarcity within the universal health coverage. Data is used to support policy makers who will drive change.
10. **Solution-focused relevant research is needed** to understand and treat eye disease, particularly in low and medium-income countries (LMICs), and to deliver innovative prevention and treatment strategies (Burton et al., 2021).

In agreement with the Lancet's view, The International Agency for the Prevention of Blindness (IAPB) produced a strategic document as a guide to achieve eye health levels in accordance with the universal health coverage goals by 2030. The document "2030 In Sight: Ending avoidable sight loss" reviews the world objectives and hurdles to overcome, proposing three key elements in a 10-year mission (IAPB, 2021; Stern et al., 2023):

1. **ELEVATE** vision as a fundamental economic, social and development issue: Influence political will and secure new forms of funding. Set new government targets. Include educational settings. Target employers. Implement sustainable development framework.
2. **INTEGRATE** eye health in wider health care systems: Deliver Integrated People-Centred Eye Care (IPEC). Implement Universal Health Coverage. Train diverse and resilient workforce. Embrace technology.
3. **ACTIVATE** consumer and market change: Combat negative stereotyping. Build public-private partnerships. Create regulatory environment (IAPB, 2021).

Educator Strategies

1. Educators can ask students to explore how eye health is essential to SDGs, and facilitate discussions how visual impairment impacts education, employment, and poverty reduction, linking these discussions to the SDGs.
2. Educators can guide students to critically assess how Universal Health Coverage (UHC) models can be adapted or improved to include comprehensive eye care, especially in resource-poor settings. Students can research and present on how eye health can be better integrated into national health plans.
3. Discuss the economic implications of investing in eye health, including potential returns on investment from preventing visual impairment and blindness. Encourage students to explore how different countries allocate resources to eye health and what policy changes could optimize these investments.

9.3 GCDE and advocacy in ophthalmology

Advocacy within the context of GCDE goes beyond promoting policy changes. It involves addressing the social determinants of health, challenging existing power structures, and promoting social justice. This requires a shift from a purely medical model to one that also considers the socio-political context of eye health.

Educator strategies: Addressing social determinants and challenging power structures.

1. Encourage students to critically examine the root causes of health disparities in eye care. This includes questioning who benefits from current policies, whose voices are marginalized, and how power dynamics shape health outcomes.
2. Guide students in developing advocacy strategies that promote social justice, such as lobbying for policies that address the underlying causes of health inequities, including poverty, education, and access to healthcare.
3. Students can explore how market forces and consumer behaviours impact eye health. For instance, public-private partnerships can play a significant role in making eye care more accessible and affordable. Educators can facilitate discussions on how these partnerships can be leveraged for the public good and what ethical considerations must be addressed.



Case Study analysis

1. Present case studies of successful public-private partnerships in eye health. For example, how has the collaboration between non-profits and private sector companies expanded access to affordable eyeglasses in LMICs? Discuss the ethical implications and potential pitfalls of such partnerships.
2. Organize a simulation where students represent different stakeholders (e.g., government, private companies, NGOs) negotiating a partnership to improve eye care in a developing country. This exercise helps students understand the complexities of these collaborations and the importance of balancing profit with public health goals.

9.4 The role of educators and students in advocacy

Educators can empower students to become effective advocates for global eye health. By incorporating GCDE principles into their teaching, educators can help students develop the skills needed to challenge injustices and promote systemic change.

Educator strategies



Case study analysis: Present students with case studies from the *World Report on Vision* or the Lancet report. Ask them to identify the key advocacy issues and discuss strategies to address these issues at the policy level. Educators can guide students in considering how these strategies could be implemented in different global contexts, considering cultural, economic, and political factors.



Role-playing: Divide students into groups representing different stakeholders in the eye health sector (e.g., government officials, NGO representatives, healthcare providers, patients). Have them negotiate a policy that integrates eye care into a national health system. This exercise helps students understand the complexities of policymaking, the importance of collaboration, and the challenges of balancing different interests.



Research: Assign students to research the impact of specific policies on eye health outcomes in various countries. Hold a debate where they argue the merits and drawbacks of these policies, focusing on their alignment with GCDE principles. Educators can provide examples of policies that have succeeded or failed and ask students to critically assess why.

9.5 Critical engagement with global policies

Students should be encouraged to critically engage with existing global policies on eye health, examining them through the lens of GCDE. This includes questioning who benefits from these policies, whose voices are included in the decision-making process, and how these policies can be improved to promote greater equity and justice.

Educator strategies

Guided policy critique and development: Provide students with a framework for critiquing global policies, focusing on issues of social justice, equity, and human rights. For example,

educators can ask students to analyse the World Health Organization's policies on eye health and propose changes that would better serve marginalized populations.

Organize a workshop where students create their own policy proposals based on their critiques. Educators can provide feedback on how well these proposals address the social determinants of health and promote systemic change.

9.6 Building advocacy skills

Students need to develop a range of skills, including research, communication, and coalition-building, to effectively advocate for policy changes. Educators can use GCDE principles to guide the development of these skills, ensuring that students are prepared to engage in meaningful advocacy work.

Teach students how to conduct thorough literature reviews and gather data on eye health disparities. This could involve hands-on workshops where students learn to use research databases, evaluate sources, and synthesize information to support policy recommendations.

Assign students to write policy briefs, op-eds, or advocacy letters. These assignments should focus on clear, persuasive arguments that are backed by evidence. Educators can also organize mock presentations where students practice delivering their recommendations to a panel of "policymakers."

Have students identify potential partners for an advocacy campaign and develop a plan for engaging into networking. Role-playing exercises can help students practice the interpersonal and negotiation skills needed to build successful coalitions.

9.7 Evaluating advocacy efforts

Educators can guide students in developing metrics for evaluating their advocacy campaigns, considering both short-term outcomes and long-term systemic changes. These activities can help students evaluate the impact of their advocacy efforts.

Educator strategies

Students can work on a group project where they design an advocacy campaign related to global eye health. They should include a plan for evaluating the impact of their campaign, considering metrics such as policy changes, increased funding, or improved access to eye care services. Educators can provide examples of successful advocacy campaigns and discuss what made them effective.

Assign students to evaluate a real-world advocacy campaign in the field of eye health. They should assess the campaign's goals, strategies, outcomes, and impact, considering both the intended and unintended consequences. This exercise helps students understand the complexities of advocacy and the importance of thorough evaluation.

9.8 Advocacy in the community

The promotion of eye health also gives a voice to the community of people with visual impairment and blindness, helping them show how they participate and contribute to society.



An example is the “Our Vision, Our Voice” campaign, dedicated to creating positive change for future college students with vision impairments. It highlights the barriers faced by this community when interacting with their sighted peers while studying and when entering the job market. The campaign was led by “Féach” (Irish for Look), an Irish charity that offers support for parents of blind and visually impaired children (Feach, 2024).

Information on “Our vision, our voice” is available at: <<https://feach.ie/2024/07/our-vision-our-voice/>>



Further reading

The International Agency for the Prevention of Blindness (IAPB) published “2030 In Sight”, a set of recommendations to improve eye health globally. This document and the resources can be used by policymakers to take decisions about eye services for the public (IAPB, 2021).

IAPB (2021) 2030 In Sight: Ending avoidable sight loss, is available at:
<<https://www.iapb.org/about/2030-in-sight/>>

Book: Woolf S (2013) U.S. Health in international perspective: Shorter lives, poorer health. Washington, USA: National Academies Press. ISBN: 9780309264150

Module 10. Research for global eye health through a GCDE lens

Overview

10.1 Research approach and methods in global eye health

10.2 Funding for eye health research

10.3 Gathering evidence from research

Introduction to Research for global eye health

Research in global eye health is essential for addressing the challenges of visual impairment and blindness worldwide. By integrating the principles of Global Citizenship and Development Education (GCDE), research can not only contribute to scientific knowledge but also promote social justice, equity, and culturally sensitive healthcare practices. This module explores various research methodologies, the importance of funding, and the ethical considerations involved in global eye health research. It also offers strategies for educators to engage students in critical reflection on these topics.

“Research is crucial to advancing global eye health; specifically, to understand population eye health needs, identify effective interventions, optimise delivery, and support effective advocacy

(Burton et al., 2021).”

10.1 Research approach and methods in global eye health

Research methodologies in global eye health are deeply rooted in broader philosophical approaches that shape how researchers gather and interpret data. In the context of GCDE, understanding these approaches is crucial not only for conducting effective research but also for critically engaging with the ethical and social justice implications of research practices. Based on a philosophical approach, research can be classified into positivist or interpretivist.

Positivist approach: Quantitative method

The positivist approach is grounded in the belief that reality can be observed, measured, and quantified. In global eye health, this approach typically involves the use of quantitative methods to collect and analyse data. These methods include epidemiological surveys, clinical trials, and statistical analyses aimed at identifying patterns, correlations, and causes of eye health issues across populations that can guide decision makers and practitioners in their actions to provide health care.

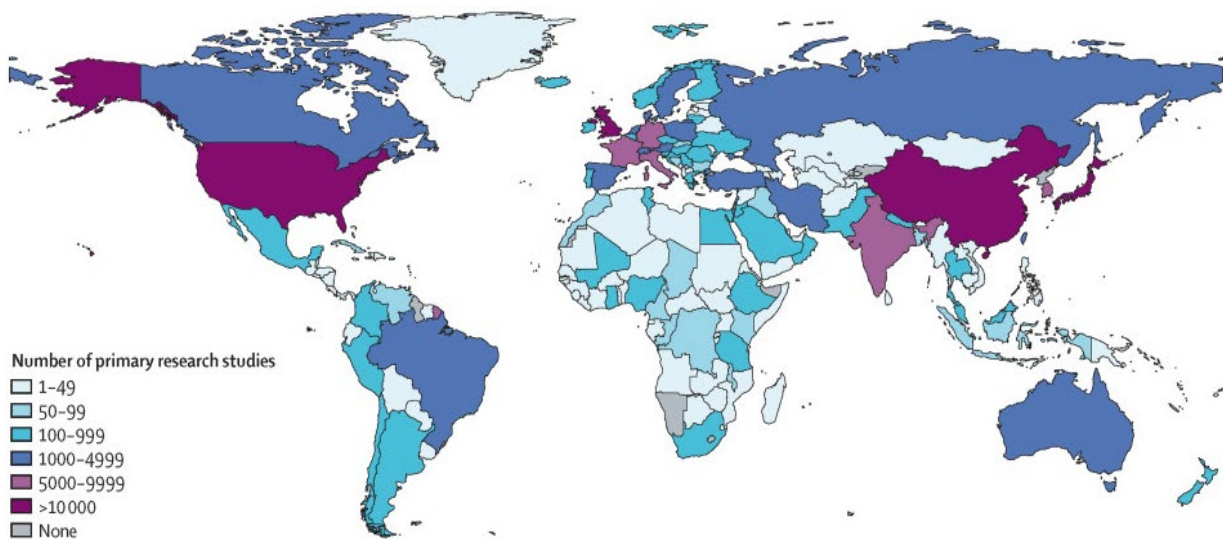
Key characteristics of **quantitative** research methods:

Aiming for an objective measurement, quantitative research seeks to eliminate bias and focuses on measurable data. This method is rigorous, reliable, and reproducible, calculating relationships, and inferring cause. It helps identify trends with time series, cross-section comparisons, correlations, and associations, estimates of prevalence and triangulation to link with qualitative data. Researchers remain distant to the process. Findings can be generalised and therefore guide policymakers and influencers (Allsop, 2013; Chambers, 2007).

Example of quantitative research study in eye health

The Lancet Global Health Commission included more than 20 researchers who examined more than 150,000 peer-reviewed publications between 2000 and 2019, they found that the publication of articles on eye health increased by 50% in the second decade; 3/4 publications came from high-income countries with China leading the rankings. The mayor topics were glaucoma, cataract and refractive errors, although focusing in Sub-Saharan Africa, the focus was on neglected tropical diseases. Regions in the global south had very low output and in general only 12% of studies were authored by women. These results show that more needs to be done to improve equity, diversity and inclusion of women and other unrepresented groups in the dissemination of eye health research (Burton et al., 2021). The following figure shows the world-wide distribution of research publications on eye health in that period.

Figure 13. Global distribution of research publications on eye health between 2000 and 2019 (Burton et al., 2021).



Ethical considerations in quantitative research

While quantitative research can be powerful, it often overlooks the voices of those most affected by the health issues being studied. Researchers must consider who is included in the study, whose experiences are quantified, whose are left out and the validity of people's own appraisals (Chambers, 2007)

Educators can prompt students to consider the ethical implications of using quantitative data to drive policy, especially in contexts where the data may not fully capture the lived experiences of marginalized communities.

Interpretivist approach: Qualitative method

The interpretivist approach emphasizes the importance of understanding the subjective experiences of individuals and communities. This approach typically employs qualitative methods, such as interviews, focus groups, and ethnography, to explore how people perceive and experience eye health issues within their social, emotional, and cultural contexts. Although qualitative method results are valid, they cannot be generalised because they rely on researcher interpretation (Allsop, 2013; Clark et al., 2021).

Key characteristics of **qualitative** research methods:

Researchers acknowledge the subjectivity of the process and prioritise depth over breadth and is open to the unexpected. Data is naturalistic, collected from everyday life and complex, requiring deep analysis of phenomena looking for meaning. There is no neutrality because there is a social relation between researcher and researched. Observations demand flexibility in thinking to create new ideas and categories, with interpretation partial to the researcher. Descriptions are rich and subjective and findings empathetic and related to social and historical contexts. Insights can inform more culturally sensitive and equitable health interventions (Allsop, 2013; Chambers, 2007; Green & Thorogood, 2014).

Example of qualitative study

A qualitative study might explore the experiences of women in rural areas who are reluctant to seek eye care due to poor understanding of the eye health risk in diabetes. Through interviews and focus groups, researchers can uncover the barriers these women face and work with communities to design interventions that respect and address their needs, for example, improve communication and community education strategies, and make treatment more affordable (Kumar et al., 2023).

Ethical considerations in qualitative research

Qualitative research has the potential to elevate marginalized voices, but it also comes with the responsibility to represent participants' perspectives accurately and respectfully, protecting their privacy and anonymity. Educators can encourage students to reflect on how power dynamics between researchers and participants might influence the research process and outcomes (Israel & Hay, 2006).

Researchers should be aware of their own biases and the influence these may have on the research. This reflexivity is crucial in GCDE, where the goal is to challenge existing power structures and promote equity.

Integrating research approaches in GCDE

In the context of GCDE, it is important to recognize that both positivist and interpretivist approaches have their strengths and limitations. A holistic approach to research in global eye health might involve combining both methods, using quantitative data to identify broad trends and qualitative insights to understand the deeper social and cultural factors at play.

Encourage students to explore mixed-methods research, which combines quantitative and qualitative approaches. This allows for a more comprehensive understanding of global eye health issues by capturing both statistical trends and personal experiences (Creswell, 2014; Creswell & Creswell, 2023).

Facilitate discussions on the ethical implications of each approach. For instance, students might explore questions such as: How do different research methods influence whose voices are heard and whose are marginalized? What are the implications of relying solely on quantitative data in contexts with complex social dynamics?

Case study example

A mixed-methods study on diabetic retinopathy might use quantitative data to assess the prevalence of the condition in different socioeconomic groups, while also employing qualitative methods to explore how patients in low-income communities manage their condition and navigate the healthcare system. This approach not only provides a fuller picture of the issue but also ensures that the voices of those directly affected are heard and considered in the development of interventions, for example, re-shaping care-seeking behaviours, increasing patient information on diabetic retinopathy knowledge and cost of treatment (Su et al., 2024).

Participatory research

An additional method is “participatory research” that focuses on a process of sequential reflection and action, carried out with and by local people rather than on them. The key difference between participatory and conventional methodologies lies in the location of power in the research process, empowering the community who have their own view of where their health care priorities lie (Chambers, 2007; Cornwall & Jewkes, 1995).

10.2 Funding for eye health research

Funding is a critical element in advancing global eye health research, enabling the development of new treatments, the implementation of public health strategies, and the enhancement of healthcare systems worldwide. The funding landscape is diverse, with contributions from government bodies, philanthropic organizations, the private sector, and international collaborations (McCarty, 2012). Navigating this landscape requires careful consideration of ethical implications, particularly within the framework of GCDE.

There is a major gap in research in low- and middle-income countries (LMICs), the Lancet Global Health Commission review of systematic reviews reported no research evidence in diabetic retinopathy, and only two studies on access to cataract services carried out in those countries (Burton et al., 2021). Government funding for health research is often limited due to budget constraints and competing priorities in LMICs, which can hinder local research capacity and exacerbate reliance on external donors. The commission recommends to build eye health research capacity by providing scholarships for Masters and Doctoral degrees (Burton et al., 2021).

Government funding

Government funding is often a primary source of financial support for health research. Most of the research in health is done at research institutions and universities that ultimately receive most of the funding. Funds are allocated to experiments, drug development laboratories, equipment, infrastructure, clinical trials and salaries for researchers and staff. The Irish Universities Association report on the main government department agencies spending in Research and Development in 2021 estimated that the Health Research Board provided 5.3% of their funding. The majority came from Science Foundation Ireland (21%) (IUA, 2024).

Governments around the world have distinct research landscapes that cover medical fields including eye health. The following are examples of funding agencies in Ireland, the United Kingdom (UK), and the United States of America (USA):



In Ireland, the Health Research Board (HRB) is Ireland's primary health and social care research funding agency. They support research to inform health and social care practice and policy, which improves people's health and contributes to economic growth. Funding opportunities, guidance for applicants and tools to manage their grants are available at: <<https://www.hrb.ie/funding/>>



Medical Research Council

In the UK, the Medical Research Council (MRC) is one of seven research councils that operate under Research England and Innovate UK. The MRC funds research at the forefront of science to prevent illness, develop therapies and improve human health. A review of MRC funding in 2018 showed that from the £2.56 billion targeted to health research, only 1.3% was invested in eye research (Dewing et al., 2023).

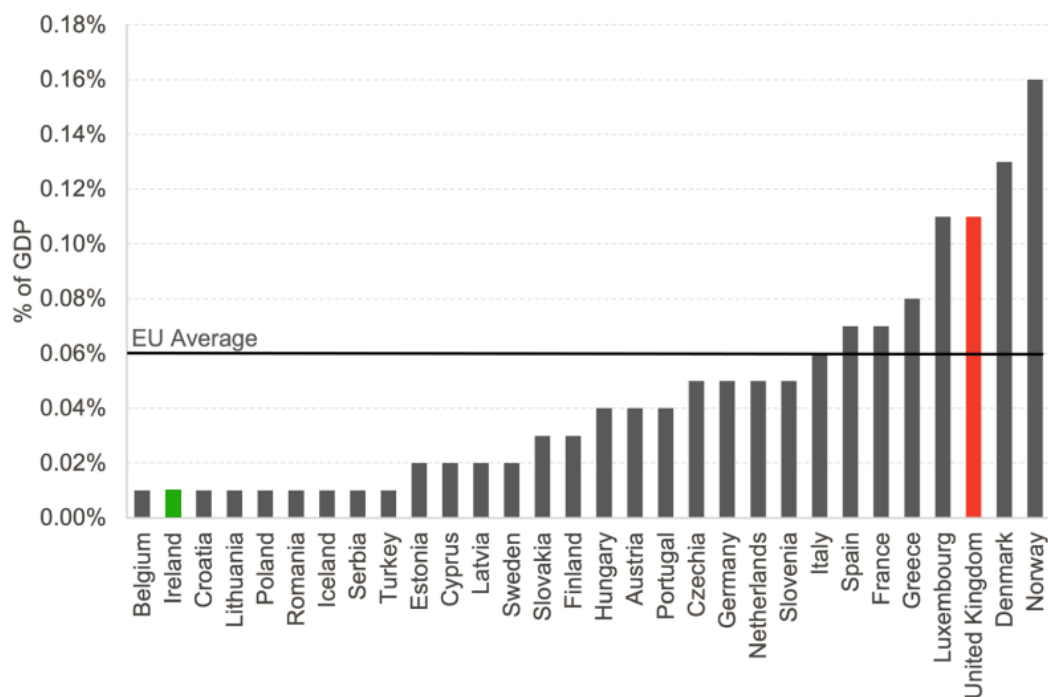
Funding opportunities, guidelines for applicants and reviewers and tools to manage the grants are available at: <https://www.ukri.org/councils/mrc/funding-assessment-and-award-management/>



In the USA, the National Institutes of Health (NIH) is the central agency that coordinates 27 different components called institutes or centres. Each has its own specific research agenda, often focusing on diseases or body systems. The majority receive direct funding from Congress. Grant opportunities and guidance for applicants are available at: <https://www.nih.gov/grants-funding>

The following graphic compares the percentage of Gross Domestic Product (GDP) that governments in Europe spend in health-related Research and Development (R&D) (Black et al., 2022).

Figure: Health related government research and development spend. EU comparison 2019. Source: Eurostat (Black et al., 2022).



Ireland was among the lowest spenders in Europe, the UK spent 0.11% of GDP on health R&D.

Philanthropic and charity funding

Philanthropic organizations and charities are crucial in supplementing government funding, especially in LMICs.

The Fred Hollows Foundation, for example, funds research and programs aimed at eliminating avoidable blindness in Africa and Asia. Their work emphasizes not only clinical research but also capacity building, training local healthcare providers to ensure that the benefits of research are sustainable and locally driven (FHF, 2024).

Charities are major funders of medical research in the UK. Medical research funding by charities has been estimated to be 14% of all public funding of medical research in the UK, providing £1.2bn in 2018 (Black et al., 2022). Without charity funding, public bodies in the UK would need to increase their funding by 85% to cover the shortfall. The Fraser of Allender Institute (FAI) estimated the economic impact on the supply chain in terms of jobs output and gross value added (GVA) and found that in 2019, charity funded research supported 51,000 jobs, £6 bn in output and 3.5 bn in GVA, ranked as the 5th highest multiplier out of 104 sectors (FAI, 2022).

The analysis of eye health charity expenditure can be surprising. A comparison of annual expenditure between 2016-2020 showed that the 5 largest UK research charities spent £18 million per year on eye research, while a similar number of non-research eye charities spent £350 million per year. The latter charities provide critical support and advice to blind and partially sighted people. This shows the contrast between the vast need of community eye care and the limited funding allocated to eye research (Dewing et al., 2023).

Private sector and industry funding

The private sector, including pharmaceutical companies and medical device manufacturers, provides substantial funding for eye health research, particularly in drug development and the advancement of medical technologies. Companies like Novartis and Alcon have invested heavily in research for conditions such as glaucoma and age-related macular degeneration (AMD), dry eye syndrome, and medical devices which are prevalent in high-income countries (Alcon, 2024; Novartis, 2024).

While private sector funding can drive innovation, it also raises concerns about conflicts of interest, particularly when profit motives influence research agendas. This is especially relevant in the context of GCDE, which emphasizes equity in healthcare access. The prioritization of conditions prevalent in wealthier regions over diseases that disproportionately affect poorer populations, such as trachoma, highlights the need for ethical scrutiny in funding allocations (Pratt & Hyder, 2017).

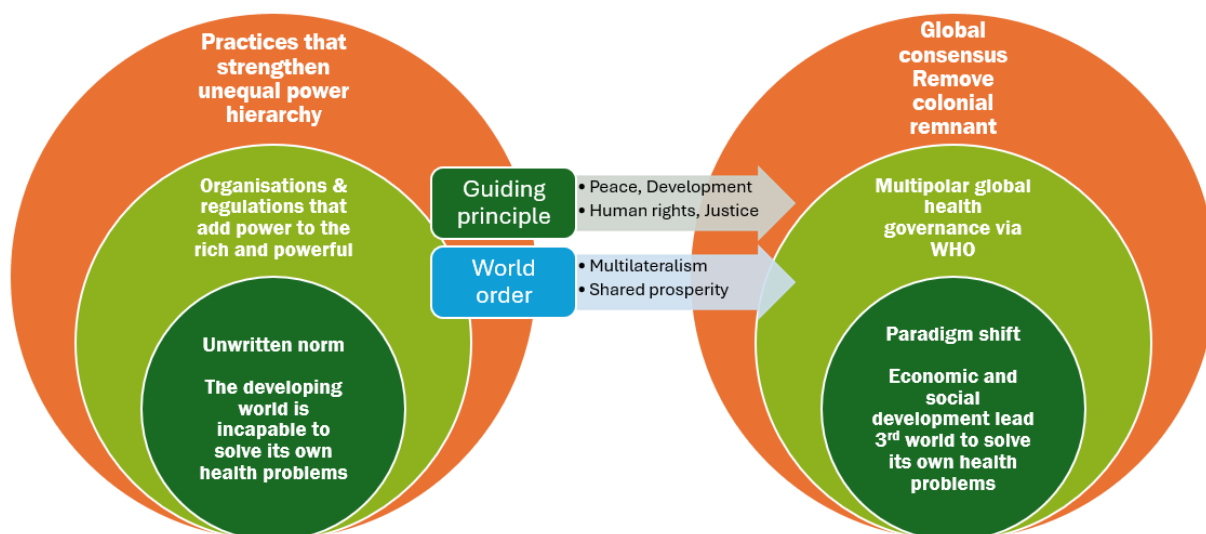
International collaborations in global health funding

International collaborations are increasingly vital in addressing global health challenges, including eye health. Initiatives like the Global Health Innovative Technology (GHIT) Fund and the Coalition for Epidemic Preparedness Innovations (CEPI) pool resources from multiple countries, NGOs, and private sector partners to fund research on global health priorities.

For example, the Lancet Global Health Commission on Global Eye Health, funded by a consortium of international donors, has provided comprehensive insights into the global burden of eye diseases and the need for integrated, cross-sectoral approaches to research and policy (Burton et al., 2021).

However, international funding mechanisms must ensure that research priorities are set by those most affected by the issues being studied. This approach, known as "decolonising" research funding, shifts decision-making power and resources to researchers and communities in LMICs, promoting more equitable partnerships and outcomes and acknowledging that LMICs are capable of solving their own health problems (Kwete et al., 2022).

Figure: Decolonising global health: From colonial remnants (left) to decolonised future (based on Kwete et al., 2022).



Challenges and opportunities in funding allocation

Despite the availability of diverse funding sources, several challenges remain in ensuring that resources are allocated equitably and effectively. One key issue is the prioritization of research topics. The James Lind Alliance (JLA) in the UK, for example, works with patients, clinicians, and researchers to identify the top research questions that matter most to those affected by health conditions, including eye diseases. In association with other research funders, JLA has identified key areas of research in eye health (see Appendix 10) (Burton et al., 2021).



Appendix 10a explores effective use of funding, research priorities and guidelines for research in eye health.

Appendix 10b explains who benefits from medical research.

Educator strategy

Analysing research funding from an ethical perspective

Engage students in critically analysing the ethical implications of research funding, focusing on how funding sources, priorities, and allocations impact global eye health and align with GCDE principles using an activity:

Preparation

Provide students with background reading on global eye health. Make a list of founding sources, e.g., government agencies, philanthropy, charity, and private sector.

Activity

Assign a type of funder to small groups of students and ask them to answer the following questions:

- What are the primary motivations of this funder?
- How might these motivations influence the type of research they fund?
- Whose voices are likely to be heard in the decision-making process for this funding?
- How does this funding source align (or not) with the principles of GCDE, such as equity, justice, and community empowerment?
- What potential conflicts of interest could arise from this funding source?

Organise a group discussion and encourage students to compare the different funding sources focusing on ethical considerations of each. Use the following prompts:

- How can researchers ensure that their work aligns with the needs of the communities they serve, regardless of funding source?
- What strategies can be used to mitigate the influence of profit-driven motives in research?
- How can funding be structured to promote equity and inclusion in global eye health research?

Ask students to write a short reflection on how this activity has influenced their understanding of the ethics of research funding in global eye health.

Outcome

Students will develop a practical understanding of the ethical challenges associated with research funding, and their impact on global health outcomes. They will also be better equipped to advocate for funding models that align with the values of GCDE.

When guiding students through the complexities of research funding in global eye health, it's important to encourage critical thinking about the ethical and practical implications of funding sources.



Appendix 10c illustrates the key issues and concerns that can be used to prompt discussion and reflection.

Conclusion

Research in global eye health is a powerful tool for advancing knowledge and improving healthcare outcomes. However, the ethical considerations surrounding research methods and funding are critical to ensuring that this work aligns with the principles of GCDE. By integrating these considerations into their practice, educators can help students become thoughtful, responsible researchers who contribute to a more equitable and just global health landscape.



Further reading

Book: Clark T (2021) **Bryman's social research methods**. Oxford: Oxford University Press. ISBN 978-0-19-879605-3

Book: Creswell J (2023) **Research design: Qualitative, quantitative, and mixed method approaches**. 6th ed, Thousand Oaks, USA: SAGE. 291 pages. ISBN: 9781071817940.

Book: Denzin N (2024) **The SAGE handbook of qualitative research**. 6th ed. Thousand Oaks, USA: SAGE Publications, Inc., 741 pages. ISBN: 9781071836743

Book: Green J (2014) **Qualitative methods for health research**, 3rd ed. Los Angeles, USA: SAGE, 342 pages. ISBN: 9781446296158

10.3 Gathering evidence from research

Research is only useful if it is shared and easy to find and access by other researchers and interested parties, therefore it is important that they are published somewhere visible like journals, and books. Knowledge obtained from research can also be disseminated by presenting the studies at conferences and through media like blogs, and more commonly, with short videos or documentaries. English is the dominant language for scientific journals, supporting the concept of an Anglocentric focus of knowledge. This cultural barrier prevents the equal sharing of finding and experience, and exposure of the work of authors from non-English speaking areas of the world (Davis & Serrata Malfitano, 2018).

Even if authors have English as a Second Language (ESL), proficiency in academic writing may become an obstacle in publishing their work in English-language journals. Peter Tyler, a former editor of the British Journal of Psychiatry listed several steps that ESL authors or those from middle and low-income countries can take to gain acceptance of their work in English-language journals. He recognises that there is less chance of success as the reader goes down the list (Davis & Serrata Malfitano, 2018; Tyler, 2013). The top three items on the list are: Large multinational epidemiological studies, Large Randomised Controlled Trials (RCT) and Systematic reviews and meta analyses, all of which involve multiple authors and are regarded as relevant and robust, leading to frequent citations (Tyler, 2013).

These types of publications can provide most useful information in global health issues and result from collaborations, that may give authors from middle and low-income countries an opportunity to participate and disseminate their knowledge are the following (Tyler, 2013):

Epidemiological studies: Governments and international organisations like the World Health Organization (WHO) base their decisions and policies on the analysis of epidemiological data collected from each country or region in the world. Data is collected by governmental agencies and are devoid of commercial interests, measuring the health status of the population.

Clinical research (RCT): Research about the effectivity of the methods used for management of eye disease, medications, treatment methodologies, surgical procedures, medical devices, instrumentation, technological advances, and cost-effective services, is crucial to provide solutions to eye and general health concerns and may involve multiple countries.

Systematic literature reviews: Thorough reviews of available literature focused on a specific topic, are considered highly authoritative in their findings, and commonly inform researchers and decision makers on that issue. Reviewing teams can be large and multi-national. Similarly, scoping literature reviews summarise publications with less rigidity and may include smaller studies and usually are preliminary studies to inform further research and avoid repetition or waste of resources (Clark et al., 2021; Tyler, 2013).

Module 11. Assessments and feedback through a GCDE lens

Overview

- 11.1 Assessment for learning in a GCDE context
- 11.2 Reflective journals as a tool for GCDE
- 11.3 Peer assessment to foster collaborative learning and global perspectives
- 11.4 The Peak Project: Integrating GCDE and ophthalmology

Introduction to Assessment and feedback

Incorporating Global Citizenship and Development Education (GCDE) into ophthalmology education requires a transformative approach to assessments and feedback. This module focuses on how assessments can not only measure learning but also promote the values of GCDE, such as equity, critical thinking, and social responsibility. By rethinking traditional assessment methods through a GCDE perspective, educators can better prepare students to apply their knowledge in ways that contribute to global eye health and social justice.

11.1 Assessment for learning in a GCDE context

Assessment for Learning (AfL) is a dynamic teaching approach that emphasizes feedback as an integral part of the learning process. In the context of GCDE, AfL can be used to foster a deeper understanding of global issues in ophthalmology, encouraging students to reflect on how their learning can impact both local and global communities. Effective feedback is the most impactful factor in student achievement and to be effective it must be task-focused, timely, specific, clear, and unbiased. (Christodoulou, 2014; Hart, 2021; Steele, 2019). In this approach, teachers become “thermostats” rather than traditional “thermometers”, meaning they do not simply assess or measure learning, but adjust their teaching to guide the learners towards a goal (Christodoulou, 2014).

Key features of AfL in GCDE

Empowerment: Involve students in their learning process. This aligns with GCDE’s goal of promoting agency and active participation in global issues.

Reflective practice: Reflection on their learning helps students connect theoretical knowledge with real-world applications, particularly in understanding global health challenges.

Social responsibility: Focus the assessment on the social implications of ophthalmology practice, to lead students to consider how their future practice can contribute to reducing global health disparities.

Educator strategy

Organize regular feedback sessions where students discuss their learning progress in relation to global health issues. Encourage them to identify areas where they can apply their knowledge to address global challenges in ophthalmology.

Ask a group of students to study the case of the global burden of cataracts and collect feedback on their understanding of the epidemiology but also on how well they consider the social determinants of health in their proposed solutions.



Audio



Audio: Episode 12: Assessment for learning

Publisher / date: Cambridge University Press, Education, 2021.

Length: 25 min.

Description: On the topic of assessment for learning, host Tamsin Hart interviews Mark Winterbottom, Senior Lecturer in Science Education at the Faculty of Education, University of Cambridge, Sarah Talbot-Joyce, Education Manager for Teaching and Learning, and Melise Camargo, Training Materials Manager, both from Cambridge Assessment International Education.

Link: <https://www.youtube.com/watch?v=DNTNzYKGbYY>

11.2 Reflective journals as a tool for GCDE

Reflective Journals are a powerful tool in GCDE, enabling students to critically engage with the material and connect their learning to global contexts. By reflecting on how their studies in ophthalmology intersect with global citizenship, students can develop a deeper understanding of their role in the global health landscape.

Students are encouraged to think critically about how their learning relates to broader global issues, fostering a deeper understanding of the interconnectedness of local and global health. Writing about their experiences allows students to gain personal growth by exploring their values, beliefs, and assumptions, aligning their professional development with GCDE principles.

Educator strategy

Provide students with specific prompts that encourage them to reflect on their learning from a GCDE perspective. For example, ask them to write about how the principles of equity and social justice can be applied to their future work in ophthalmology. Ask students to write a reflective journal entry on how learning about the global distribution of eye health resources has influenced their perspective on equity in healthcare.

11.3 Peer assessment to foster collaborative learning and global perspectives

Peer Assessment is an effective method to enhance collaborative learning while integrating GCDE principles. By assessing each other's work, students gain diverse perspectives and learn to provide constructive feedback, which is crucial for their development as global citizens.

This practice encourages collaboration, sharing knowledge and perspectives that are essential in a globalised world. Assessing work of peers from a different cultural or academic background fosters an understanding of diverse viewpoints, which are critical in GCDE.

Educator strategy

Implement a peer review process where students assess each other's projects on global health issues. Provide a rubric that includes criteria related to cultural sensitivity, equity, and the application of GCDE principles.

Ask students from different countries to collaborate on a project about eye care in low-resource settings. After completing the project, they assess each other's contributions, focusing on how well the solutions proposed address global health inequalities.

11.4 The Peak Project: Integrating GCDE and ophthalmology

The Peak Project encourages investigation, creativity, and critical analysis, culminating in a product that reflects both technical expertise and a deep commitment to global citizenship. The assignment helps students integrate their knowledge of ophthalmology with the principles of GCDE.

Students must think creatively to propose solutions that are scientifically sound, socially responsible, and culturally appropriate.

Educator strategy

Ask students to design a Peak Project around real-world challenges in global ophthalmology. Encourage students to develop innovative solutions that consider the social, economic, and cultural contexts of the communities they aim to serve. For example, propose the development of a mobile eye clinic that can be deployed in rural areas of a low-income country. They must consider not only the clinical aspects but also the logistical, cultural, and ethical implications of their project.

Conclusion

Assessment and feedback are critical components of effective learning, especially when viewed through the lens of GCDE. By incorporating strategies such as reflective journals, peer assessments, and comprehensive projects like the Peak Project, educators can help students develop the skills and perspectives needed to address global health challenges in ophthalmology. These methods ensure that students not only acquire knowledge but also learn to apply it in ways that promote equity, social justice, and global citizenship.

Module 12. Empowering global eye health through GCDE



Eye care professional looking at the globe (R Gonzales, Adobe, 2024).

As we conclude this comprehensive resource on global eye health through the lens of Global Citizenship and Development Education (GCDE), it is crucial to reflect on the journey we have undertaken together. This resource has aimed to equip educators, students, and practitioners with the knowledge, skills, and perspectives necessary to address the challenges of global eye health in an equitable and socially just manner.

Recap of Core Principles

Throughout the modules, we have explored the critical integration of GCDE into ophthalmology, emphasizing its importance in promoting equity, social justice, and cultural competence. The foundational principles of GCDE, such as understanding the social determinants of health, advocating for vulnerable populations, and engaging ethically with

global communities, have been consistently highlighted as essential components of effective global eye health practices.

We have also delved into the key skills and competencies that are necessary for ophthalmologists working in a global context. These include cultural competence, ethical decision-making, advocacy, communication, and leadership. These skills not only enhance the ability of healthcare providers to deliver high-quality care but also empower them to be advocates for systemic change within global health systems.

Reflection on the Role of Educators

Educators play a pivotal role in shaping the future of global eye health by imparting these essential skills and values to their students. This resource has provided various strategies, case studies, and activities that educators can use to inspire and equip students to make meaningful contributions to global eye health. The role of educators is not merely to impart knowledge but to foster critical thinking, empathy, and a commitment to social justice among their students.

In addition, it is essential to encourage a mindset of lifelong learning. The challenges in global health are always evolving, and so too must be the skills and knowledge of those who seek to address them. Educators should inspire their students to continually seek out new learning opportunities, stay informed about global health trends, and remain adaptable in their practices.

Challenges and Opportunities

As we look to the future, it is important to acknowledge the emerging challenges that global eye health faces. The growing burden of non-communicable diseases, aging populations, and the exacerbation of health disparities by socioeconomic inequalities are just a few of the issues that demand our attention.

However, with these challenges come significant opportunities for innovation and progress. Advances in research, technology, and policy offer new avenues for addressing these complex issues. Interdisciplinary collaboration, both within and across borders, will be crucial in developing and implementing effective solutions. This resource has underscored the importance of such collaboration, reminding us that the fight for global eye health is a collective one.

Call to Action

This resource is more than a collection of information; it is a call to action. Students, educators, and practitioners alike are urged to see themselves as agents of change. Everyone

has the potential to drive positive transformation in global eye health by applying the principles of GCDE in their work.

Global solidarity and partnership are key to achieving our shared goals. By working together, we can reduce avoidable blindness, improve access to eye care, and ensure that every individual, regardless of their location or circumstances, can achieve optimal eye health. This resource has highlighted numerous ways in which individuals and organizations can contribute to this mission, and it is our hope that these ideas will be put into practice.

Our vision for the future includes a commitment to sustaining the momentum that has been built through this resource. Continued engagement with the global eye health community, active participation in research, and advocacy for policies that promote health equity are all necessary to bring this vision to fruition.

Acknowledgments and Resources

We would like to extend our deepest thanks to all those who have contributed to the development of this resource. This includes the experts, educators, students, and practitioners who have shared their knowledge, insights, and experiences. Your contributions have enriched this resource and made it a valuable tool for those committed to improving global eye health.

For those who wish to continue their journey in this field, we have provided a list of further readings, organizations, and tools that can support ongoing learning and action. We encourage you to explore these resources, engage with the broader community, and continue to build on the foundation that this resource has provided.

Final Thought

In closing, we leave you with a message of inspiration and hope. The work of improving global eye health is challenging, but it is also deeply rewarding. Every effort counts in the collective mission to create a more equitable world where everyone has access to the eye care they need. As you move forward in your careers and endeavours, we hope that the principles of GCDE will guide your actions and that you will be motivated to make a difference in the world.

Together, we can turn the vision of global eye health equity into a reality. Thank you for your commitment to this important work, and we wish you every success in your future efforts.

Appendices

Appendix 1a – Definitions of Global Citizenship Education

The following short videos on Global Citizenship Education offer basic guidance. These are followed by more in-depth videos and podcasts for those who wish to take a deeper dive.



Videos



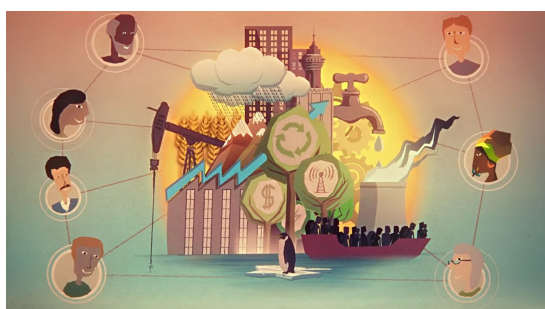
Video 1: What is Global Citizenship Education?

Publisher / date: GCED Online Campus, 2019.

Length: 2 min.

Description: A short, simplified introduction to Global Citizenship Education.

Link: <https://www.youtube.com/watch?v=uLeREqPKR08>



Video 2: Learning to live together in peace through Global Citizenship Education

Publisher / date: UNESCO, 2016.

Length: 2 min.

Description: A short introduction to Global Citizenship Education.

Link: <https://www.youtube.com/watch?v=KuKzq9EDt-0>



Video 3: Global Citizenship Education: Taking it Local!

Publisher / date: UNESCO, 2018.

Length: 2 min.

Description: An introduction to Global Citizenship Education related to SDG 4 with examples.

Link: https://www.youtube.com/watch?v=bV_AikD2rGg



Deep dive podcasts and videos



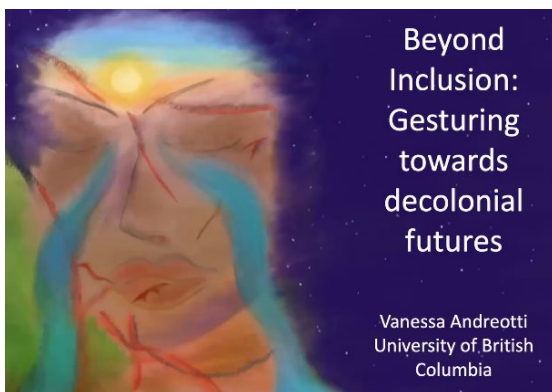
Video 4: Douglas Bourn on Global Citizenship Education Interview Series with Emiliano Bosio

Publisher / date: Dr Emiliano Bosio, 2022.

Length: 20 min.

Description: The academic Emiliano Bosio has done a series of interviews on the theme of Global Citizenship Education. Here he interviews Professor Douglas Bourn an eminent academic in this field and Director of the Irish Development Education Research Centre at the University of London. This centre is one of the world's leading centres for development education, global learning, education for sustainable development and global citizenship.

Link: <https://www.youtube.com/watch?v=tNLT534yP2E>



Video 5: Vanessa Andreotti: Beyond Inclusion - Gesturing towards decolonial futures.

Publisher / date: Äbo Akademi, 2021.

Length: 53 min.

Description: Addressing global justice in education is complex and multi-faceted: what if the systems that create our sense of prosperity and that give us hope, enjoyment and a sense of safety are both inherently violent and unsustainable? Facing the magnitude of the task of enabling a world without violent and unsustainable relations requires more than a change of values, narratives, convictions, or protocols: it requires an interruption of conscious and unconscious harmful desires hidden behind promises of entitlements and securities that people hold on to, particularly when they are afraid of pain, loss, scarcity, and belittlement. This presentation offers a snapshot of the work of the arts/research collective "Gesturing Towards Decolonial Futures", which addresses these questions and focuses on enabling healthier possibilities of (co)existence that are viable but are unthinkable/unimaginable within our dominant frames of reference.

Link: <https://www.youtube.com/watch?v=uLeREqPKR08>

Professor Vanessa Andreotti, University of British Columbia, born in Brazil, of an Indigenous ancestry, has written extensively on Global Citizenship and Development Education. She has a particular interest in the role indigenous knowledge and decolonial futures.

Prof Andreotti's website is available at: <https://decolonialfutures.net/>



Audio



Audio 1: Interview with Sheila Dillon, Trocaire.

Publisher / date: Dr Gertrude Cotter, 2015.

Length: 2 min.

Description: An earlier interview conducted in July 2015 was with Sheila Dillon, a former Development Education Officer with the international aid agency Trócaire. Dillon explains her understanding of the term Development Education.

Link: <https://soundcloud.com/gertrude-cotter/interview-with-sheila-dillon-trocaire>

Dr Gertrude Cotter has a series of interviews on Development Education which are available at <www.praxisucc.ie>.

Appendix 1b – Definitions of GCDE: National and International Perspectives

Definitions in this field can be confusing but like many fields of study, there are different nuances and approaches in description. A few examples below show various perspective.

Irish Aid Definition of Global Citizenship Education

Irish Aid is the Government of Ireland's international development cooperation programme, based at the Department of Foreign Affairs. It is responsible for the government of Ireland's Global Citizenship Education programme and funds GCE work across Ireland, including the Praxis Project.

Irish Aid uses the term "Global Citizenship Education (GCE)" as an umbrella to include Development Education and Education for Sustainable Development (ESD) and defines GCE as:

"a lifelong process which aims to increase public awareness and understanding of the rapidly changing, interdependent and unequal world."

They consider that GCE helps to challenge stereotypes, encourage independent thinking, and critically explore how global justice issues link with everyday life and how one can act to build a better world. Irish Aid supports formal and informal education through partnership with other institutions to deliver their services (Irish-Aid, 2022a, 2022b).

WorldWise Global Schools

Irish Aid's "WorldWise Global Schools (WWGS)" is Ireland's national Global Citizenship Education (GCE) programme for post-primary settings. This organisation elaborates on five key components that a teacher would address to introduce GCE (WWGS, 2024):

Knowledge: Explore themes related to inequality and injustice in the world, making sure learners make connections between local and global issues, explore root causes, multiple perspectives and question their findings, e.g., human rights and responsibilities, stereotypes, racism and prejudice, global hunger, etc.

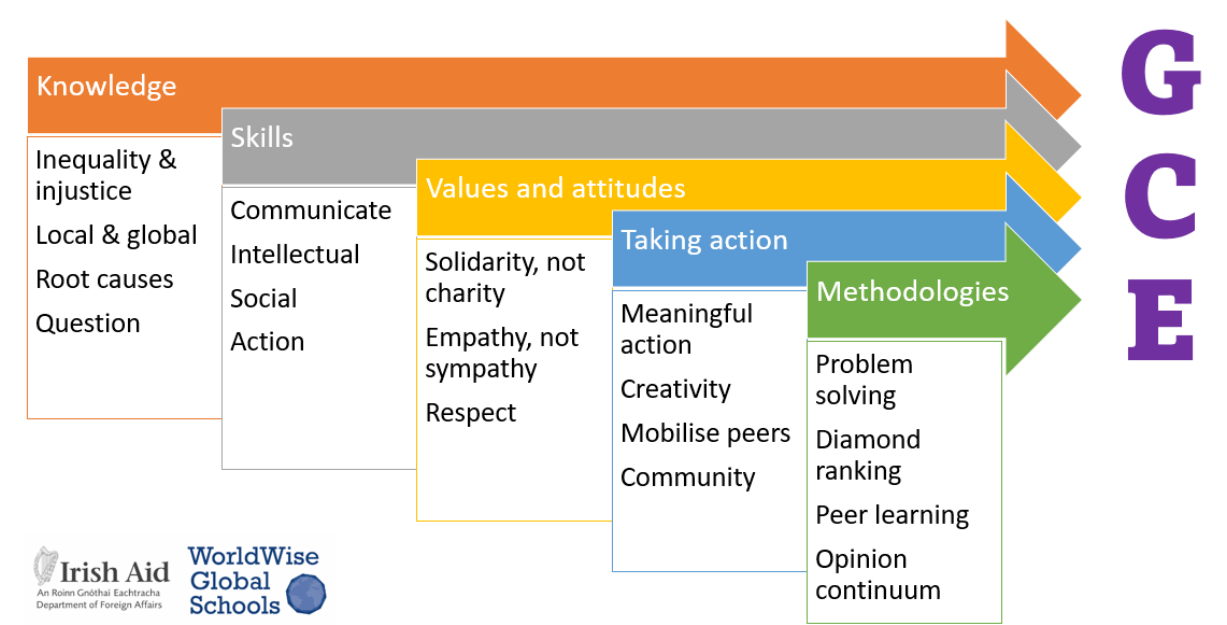
Skills: Building learner’s skills to create positive change, including Communication skills; Intellectual skills; Social skills and Action skills.

Values and attitudes: Fostering solidarity and not charity so that they can support and collaborate with others, and empathy, not sympathy, so that learners can imagine themselves in the situation of others. Respect for oneself and others also leads to positive relations and a sense of social responsibility and belonging.

Taking action: Meaningful actions in addressing justice centred issues explored when learning about Global Citizenship, promote the intervention of other people. Actions involve creativity to use arts and other means to get the message across and raise awareness; mobilise peers and campaign for change, thus influencing the community and local leaders.

Methodologies: Exploring methodologies to engage learners in a meaningful way using strategies like: Problem solving trees, diamond ranking, opinion continuum, peer learning and others. Methodologies shift the role of the teacher to take a facilitation role, enabling learners to take ownership of their actions (WWGS, 2024).

Figure 2. Implementing GCE: Areas to address for teachers. WorldWise Global Schools.



Global Citizenship Education is a dynamic concept that evolved over time. In the analysis of nine journal articles that categorise GCE, Pashby et al. describe three discursive orientations: Neoliberal, Liberal, and Critical. These ideological points of view overlap and even contradict one another in a debate that will continue in response to changes in society and philosophical perspectives (Pashby et al., 2020).

The United Nations Educational, Scientific and Cultural Organization (UNESCO) definition of Global Citizenship

The United Nations Educational, Scientific and Cultural Organization (UNESCO) mentions that *“Global citizenship refers to a sense of belonging to a broader community and common humanity. It emphasises political, economic, social and cultural interdependency and interconnectedness between the local, the national and the global”* (UNESCO, 2015). Global Citizenship Education (GCED) aims to equip learners with the knowledge, skills, and values necessary to contribute to more inclusive, just, and peaceful societies. UNESCO considered three core conceptual dimensions of GCED (UNESCO, 2015):

1. Cognitive: To acquire knowledge, understanding and critical thinking about global, regional, national, and local issues and the interconnectedness and interdependency of different countries and populations.
2. Socio-emotional: To have a sense of belonging to a common humanity, sharing values and responsibilities, empathy, solidarity and respect for differences and diversity.
3. Behavioural: To act effectively and responsibly at local, national and global levels for a more peaceful and sustainable world (UNESCO, 2015).

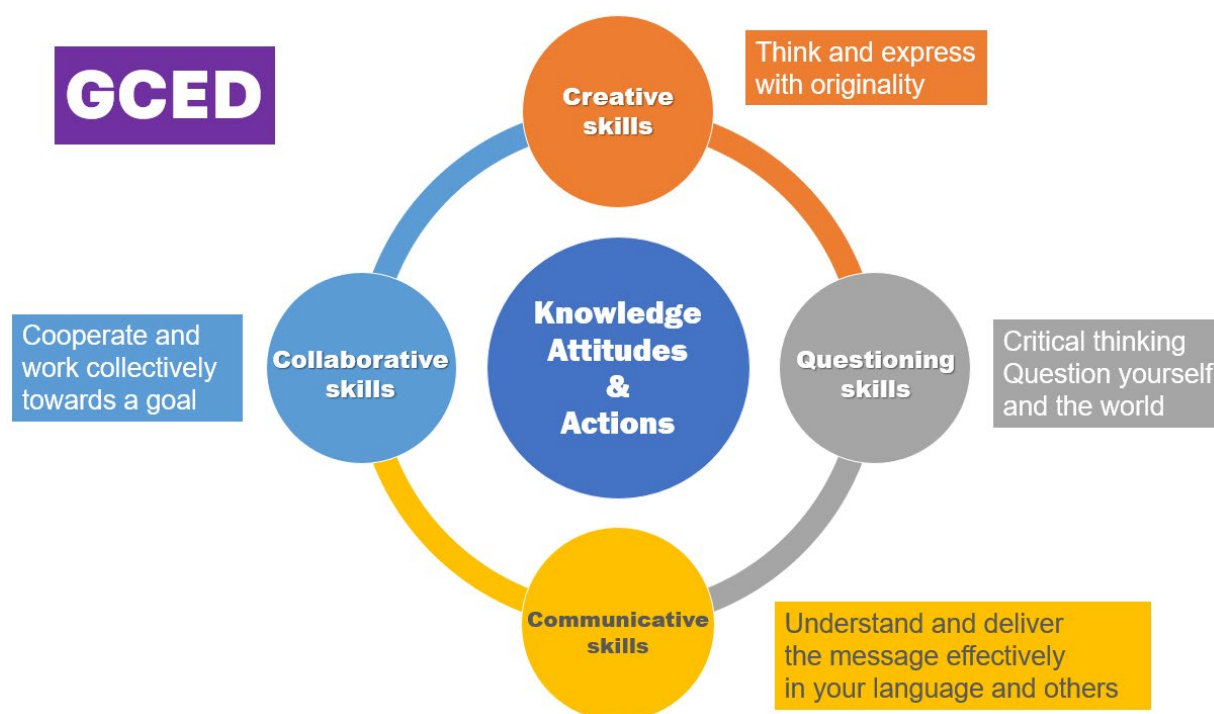
UNESCO's guide “GCED: Topics and learning objectives” is available at: <https://unesdoc.unesco.org/ark:/48223/pf0000232993>

There is an emphasis in providing knowledge about the interconnected world, nurturing social skills and critical thinking to understand other perspectives when interacting with people with different backgrounds, with respect, empathy, open mindedness, and fairness. Strive for the collective good when solving challenges constructively. (UNESCO, 2023b).

Heyes and Hadley

Hayes and Hadley consider that from the educational perspective, teachers introducing Global Citizenship Education need to consider Knowledge, Attitudes and Actions, which are addressed by developing four types of skills: Creative skills to allow originality in expression; Questioning skills directed to oneself and the world; Communicative skills to deliver the message effectively, and Collaborative skills to work collectively. The implementation of GCED can be applied to most levels of education and involves more than just learning about global issues but reflecting upon attitudes and actions and developing skills to change yourself and the global community (Figure 1) (Hayes & Hadley, 2021).

Figure 1. Implementing GCED: Areas to address in education. Hayes & Hadley.



Video



Video 6: Global Citizenship Education: What, why and how?

Publisher / date: Macmillan Education ELT, 2021.

Length: 58 min.

Description: Matt Hayes and Jonathan Hadley discuss what GCE is, why it has emerged in recent years and how it can be integrated into

English language teaching. They outline the benefits of GCE for a student's development and offer practical advice for its implementation both inside and outside the classroom.

Link: https://www.youtube.com/watch?v=tvFCgWsR9_M

Appendix 1c – Academic literature on GCDE

The following literature publications offer further details on Global Citizenship Development Education issues discussed above.

- Andreotti, V. D. O. (Ed.). (2013). *The Political Economy of Global Citizenship Education*. Routledge.
- Armstrong, C. (2006). Citizenship in Global Perspective. Policy & Practice - A Development Education Review: Global Development, 3.
<http://www.developmenteducationreview.com/issue3-focus2>
- Association (IDEA), T. I. D. E. (n.d.). Development Education » The Irish Development Education Association (IDEA). The Irish Development Education Association. Retrieved August 28, 2020, from <http://www.ideaonline.ie/development-education/>
- Baillie, Smith, M. & Skinner, A. (2015). *Reconceptualising global education from the grassroots: The lived experiences of practitioners*. Published by: DEEEP – CONCORD DARE Forum.
- Barry, M. (n.d.). Global challenges, global citizenship: what is the local classroom reality? A qualitative case study of global citizenship education teaching and learning practices. 274.
- Bartosh, O. (2003). *Environmental education: improving student achievement* [PhD, Evergreen State College]. <http://www.seer.org/pages/research/Bartosh2003.pdf>
- Bourn, D. (2014). *The Theory and Practice of Global Learning*.
https://www.academia.edu/12335103/The_Theory_and_Practice_of_Global_Learning
- Bourn, D. (n.d.). What is Meant by Development Education? Retrieved August 28, 2020, from <http://www.sinergiased.org/index.php/revista/item/51-douglas-bourn-what-is-meant-by-development-education>
- Bourn, D., University of London, Development Education Research Centre, & Global Learning Programme for England. (2014). *The theory and practice of global learning*.
- Bourne, Douglas. (2003). Towards a theory of development education. *The Development Education Journal*, 10(1), 3–6.
- Bourne, Douglas. (2011). Discourses and Practices around Development Education: From Learning about Development to Critical Global Pedagogy | *Development Education Review*. Policy & Practice - A Development Education Review, 13.
<https://www.developmenteducationreview.com/issue/issue-13/discourses-and-practices-around-development-education-learning-about-development>

- Bourne, Douglas. (2014a). Development Education Research Centre: Research Paper No.11 for the Global Learning Programme: The Theory and Practice of Global Learning. Development Education Research Centre.
- Bourne, Douglas. (2014b). Douglas Bourn – What is Meant by Development Education? Sinergias – Diálogos Educativos Para a Transformação Social, 17.
<http://www.sinergiased.org/index.php/revista/item/51-douglas-bourn-what-is-meant-by-development-education>
- Bourne, Douglas. (2014c). The Theory and Practice of Development Education: A pedagogy for global social justice. Routledge.
- Bryan, A. (n.d.). Social Justice Education In Initial Teacher Education: A Cross Border Perspective. ... POLICY AND PRACTICE, NORTH AND SOUTH. Retrieved August 23, 2020, from
https://www.academia.edu/316426/Social_Justice_Education_In_Initial_Teacher_Education_a_Cross_Border_Perspective
- Bryan, A., & Bracken, M. (2011). Learning to Read the World? Teaching and Learning about Global Citizenship and International Development in Post-Primary Schools.
http://www.developmenteducation.ie/media/documents/Learning%20to%20Read%20the%20World_FinalReport.pdf
- Casinader, N. (2020). Global citizenship education and teacher education in Oceania. Global Citizenship Education and Teacher Education: Theoretical and Practical Issues, 264–284. <https://doi.org/10.4324/9781351129848-15>
- Coriddi, J. (2008). Editorial. Policy & Practice - A Development Education Review, 7.
<http://www.developmenteducationreview.com/issue7-editorial>
- Council of Europe. (n.d.). Global Education Guidelines. A Handbook for Educators to Understand and implement Global Education (2012). Democratic Schools for All. Retrieved September 10, 2020, from <https://bit.ly/2FsGHxy>
- Farrington, C. (Ed.). (n.d.). Teaching from Theory, Learning from Practice: Development Education for the Primary Sector. DICE Project.
<http://www.developmenteducation.ie/media/documents/Teaching%20from%20Theory%20-%20FULL.pdf>
- Fiedler, M., Bryan, A., & Bracken, M. (2011). Mapping the Past, Charting the Future; A Review of the Irish Government's Engagement with Development Education and a Meta-Analysis of Development Education Research in Ireland. Published by Irish Aid. Irish Aid.
http://www.ideaonline.ie/sites/default/files/mapping_the_past_fiedler_bryan_bracken_2011.pdf
- Fiedler, Matthias, Bryan, Audrey, & Bracken, Meliosa. (2011). DE in Ireland—Mapping the past, charting the future: A Review of the Irish Government's Engagement with Development Education and a Meta-Analysis of Development Education Research in

- Ireland. Irish Aid. <http://www.unidev.info/Portals/0/Resources/DE%20in%20Ireland%20-%20Mapping%20the%20past,%20charting%20the%20future.pdf>
- Finlay, G. (2006). Popular development, moral justification and development education. *Policy & Practice - A Development Education Review: Global Development*, 3. <http://www.developmenteducationreview.com/issue3-focus1>
- Galway One World Centre. (n.d.). Global Teachers. Galway One World Centre. Retrieved January 29, 2015, from <http://galwayowc.org/global-teachers-award/>
- Global Citizenship Education (GCE) in the Context of Higher Education in the Netherlands. (n.d.). ResearchGate. Retrieved March 3, 2022, from <https://www.researchgate.net/project/Global-Citizenship-Education-GCE-in-the-Context-of-Higher-Education-in-the-Netherlands>
- Global Education Network, Europe (GENE). (2015). *Global Education in Ireland: The European Global Education Peer Review Process National Report on Ireland*.
- Horey, D., Fortune, T., Nicolacopoulos, T., Kashima, E., & Mathisen, B. (2018). Global Citizenship and Higher Education: A Scoping Review of the Empirical Evidence. *Journal of Studies in International Education*, 22(5), 472–492. <https://doi.org/10.1177/1028315318786443>
- <https://plus.google.com/+UNESCO>. (2018, January 9). Global citizenship education. UNESCO. <https://en.unesco.org/themes/gced>
- Huber-Warring, T. (Ed.). (2008). *Growing a Soul for Social Change: Building the Knowledge Base for Social Justice*. Information Age Publishing.
- IDEA Working Group on Formal Education. (2013). *Good practice guidelines for development education in schools*. Irish Development Education Association (IDEA). <http://www.developmenteducation.ie/resources/development-education/good-practice-guidelines-for-development-education-in-schools.html>
- IDEA. (2013). *Good Practice Guidelines for Development Education in Schools: Full Report*. IDEA. http://www.developmenteducation.ie/media/documents/IDEA_good_practice_guidelines_DE_2013.pdf
- Irish Development Education Association (IDEA). (2012). *Position Paper: The Role of Development Education in Development and Beyond 2015*.
- Khoo, S. (2006). Development education, citizenship and civic engagement at third level and beyond in the Republic of Ireland. *Policy & Practice - A Development Education Review: Global Citizenship*, 3. <http://www.developmenteducationreview.com/issue3-focus3>
- Massaro, V. R. (2022). Global citizenship development in higher education institutions: A systematic review of the literature. *Journal of Global Education and Research*, 6(1), 98–114. <https://doi.org/10.5038/2577-509X.6.1.1124>

- Nevin, E. (2008). Education and sustainable development. *Development Education Review*, 6, 49–62.
- O'Flaherty, J., Liddy, M., Tansey, L., & Roche, C. (2011). Educating engaged citizens: Four projects from Ireland. *Education + Training*, 53(4), 267–283.
<https://doi.org/10.1108/004009111111138442>
- O'Sullivan, K. (2007). Biafra to Lomé: The Evolution of Irish Government Policy on Official Development Assistance, 1969-75. *Irish Studies in International Affairs*, 18, 91–107.
- Open Democracy. (n.d.). What does it mean to be a global citizen? [2013]. openDemocracy. Retrieved April 7, 2020, from
<https://www.opendemocracy.net/en/opendemocracyuk/what-does-it-mean-to-be-global-citizen/>
- Pacho, T. (2020). Global citizenship education in the era of globalization (pp. 274–291).
<https://doi.org/10.4018/978-1-7998-5268-1.ch016>
- Pashby, K., da Costa, M., Stein, S., & Andreotti, V. (2020). A meta-review of typologies of global citizenship education. *Comparative Education*, 56(2), 144–164.
<https://doi.org/10.1080/03050068.2020.1723352>
- Peterson, A. (2014). *Global Learning and Education*. Routledge.
- Priestley, Mark, Biesta, Gert, Mannion, Greg, & Ross, Hamish. (2010). Education in a global space: The framing of 'education for citizenship.' In Wisely, T., Barr, I., Britton, A., & King, B. (Eds.), *Education in a Global Space: Emerging Research and Practice in Initial Teacher Education*. DEAS/SCOTDEC.
- Regan, C. (Ed.). (2006). *80:20 Development in an Unequal World. 80/20 Educating & Acting for a Better World*.
- Regan, C., Daly, Tony, & Regan, Ciara. (2015). Defining (and debating) development education. *DevelopmentEducation.ie*. <https://bit.ly/3m2pETY>
- Scheunpflug, A., & Asbrand, B. (2006). Global education and education for sustainability. *Environmental Education Research*, 12(1), 33–46.
<https://doi.org/10.1080/13504620500526446>
- Schutte, I. W., Kamans, E., Wolfensberger, M. V. C., & Veugelers, W. (2017). Preparing Students for Global Citizenship: The Effects of a Dutch Undergraduate Honors Course. *Education Research International*, 2017, e3459631.
<https://doi.org/10.1155/2017/3459631>
- Skinner, A., Smith, M. B., Brown, E., & Troll, T. (Eds.). (2016). *Education, Learning and the Transformation of Development*. Routledge.
- Trocaire. (n.d.). *Development Education*. Trócaire. Retrieved August 28, 2020, from
<https://www.trocaire.org/getinvolved/education/development-education>
- Ubuntu Network. (2012). *Global perspectives – teaching for sustainability, justice and equality: Development Education, the Post Graduate Diploma in Education and the Teaching*

Council Proforma and Guidelines. <http://www.ubuntu.ie/media/DE-PDE-TC%20requirement-7August2012.pdf>

UNESCO. (2018, January 9). What is global citizenship education? UNESCO.
<https://en.unesco.org/themes/gced/definition>

UNIDEV. (n.d.). Development Education in Theory and Practice: An educator's resource. DevelopmentEducation.ie. Retrieved September 10, 2020, from <http://wp5.developmenteducation.ie/resource/development-education-in-theory-and-practice-an-educators-resource/>

Waldron, Fionnuala. (2012). Learning to Read the World? Teaching and Learning about Global Citizenship and International Development in Post-Primary Schools | Development Education Review. Policy & Practice: A Development Education Review, 15, 122=128.

Wisely, T. L. K., Barr, I. M., & Britton, A. (Eds.). (2010). Education in a Global Space: Research and Practice in Initial Teacher Education. Scottish Development Education Centre.

World Wise Schools. (n.d.). Global Citizenship Education. World Wise Global Schools. Retrieved August 28, 2020, from <http://www.worldwiseschools.ie/development-education/>

Appendix 1d – IDEA's code of good practice



01 Contribute to Knowledge about global development in Ireland.

- Examine connections between the lives of people in Ireland and globally, as well as other local and global actors.
- Critically engage with models of development including dominant and alternative perspectives.
- Acknowledge and address bias and subjectivity in our own understanding of global development.

02 Explore the Root Causes of local and global injustices and inequalities in our interdependent world.

- Ensure an analysis of the cause and effect of injustices is at the centre of our educational processes, alongside an analysis of what drives global justice.
- As practitioners and learners, examine our own roles as global citizens as part of our exploration of the root causes of injustice.
- Be responsive to issues of justice and equality in Ireland and seek to make local global connections.

03 Be explicit about the Ethos of Development Education, global solidarity, empathy and partnership, and challenging unequal power relations across all issues we work on.

- Encourage participants to approach issues as global citizens, building a sense of working together for global change, not solely “helping others”.
- Place critical questioning about power relations at the centre of our education practice, asking “who gains?” and “who loses?” in the issues under discussion.
- Our engagement with people and communities affected by injustice and inequality is based on equal partnerships which recognise and address power differentials.

04 Encourage Critical Thinking in our exploration of local and global justice issues and seeking of solutions.

- Include diverse and challenging perspectives from both local and global contexts.
- Enable critical exploration of how global systems work.
- Create a safe space for open and respectful dialogue and build confidence in working with controversial issues.

05 Use Participatory and Creative approaches in our educational practice.

- Use participative methodologies and approaches that place the learners at the centre of our education process.
- Continuously and critically reflect on our approach to facilitating learning which reflects our Development Education ethos.
- Create a space for learning that is relevant and appropriate for the groups we work with.

06 Produce and use Quality Resources and Materials, based on continuous learning.

- When producing resources, ensure high quality standards by testing and piloting during resource development.
- Monitor and evaluate use of resources to understand engagement and associated learning.
- Use resources which are up-to-date, accurate and balanced from varied, reliable sources, including from places/communities under discussion where possible.
- Address potential bias in materials we use to prevent and challenge stereotyping, sensationalism and discrimination against people, situations, or places.

07 Build Knowledge, Skills and Attitudes for Informed action that is collective in nature.

- Encourage informed action based on participants' learning and analysis of how their actions can make a positive difference as well as have risks and limitations.
- Draw on the experience of those affected by the issue and learn from it in designing, and where possible co-creating the action.
- Support participants to develop a range of approaches and skills to target relevant audiences in their actions.
- Take other initiatives into account: consider collaborating with other networks or collective actions working on the same issues or identify gaps in the current initiatives that the action could address.
- Link learners with further opportunities to engage in relevant actions beyond our initiative.

08 Imagine and Explore Solutions for a better world.

- Actively examine driving forces of global justice and equality.
- Support participants to imagine and explore more sustainable and fairer ways of living.

09 Actively and consistently Reflect and Learn from our own Development Education practice and participants' feedback.

- Ensure quality monitoring and evaluation of activities and programmes are in place that are appropriate for our work, and use lessons learned to inform and improve our practice.
- Share our successes and learning with other Development Education actors to contribute to communities of practice, including for this Code, thereby strengthening our practice.

10 Have a clear Development Education Strategy and Action Plan and be clear how it fits into and is supported by our organisation.

- Have a current Development Education strategy which integrates Development Education into the overall work of the organisation.
- Commit financial and human resources to Development Education.
- Provide support for professional development and learning for Development Education.

11 Reflect the Key Values of Development Education: Equality, diversity, sustainability and human rights, and responsibilities, and challenging unequal and unjust power relations across our work.

- Act out of an awareness of the importance of diversity and inclusion when recruiting staff, volunteers, and external facilitators.
- Challenge all forms of discrimination within our own organisation and those we work with.
- Include minority perspectives and world views in our institutional decision-making.
- Demonstrate a clear commitment to sustainability throughout our organisation's policies and practices.
- Build understanding of and capacity for anti-oppressive, anti-racist and decolonial practice in the organisation.

12 Advocate for Quality Development Education for all learners on the island of Ireland which is adequately funded and in line with Sustainable Development Goal target 4.7.

- Mainstream Development Education within our organisation.
- Lobby donors and policymakers for adequate, diversified funding and support for quality Development Education including decent work, pay and conditions in the sector.
- Shape local/national/international policies through engaging in policy processes and contributing to submissions on issues related to Development Education.

Appendix 1e – Principles of effective pedagogy

The Principles of Effective Pedagogy (EP) are (Nind & Lewthwaite, 2015):

1. **EP equips learners for life in its broadest sense:** Look for worthwhile learning outcomes by facilitating the development of intellectual, personal, and social resources that will enable learners to participate as active citizens, contribute to economic development and flourish as individuals in a diverse and changing society.
2. **EP engages with valued forms of knowledge:** Provide key skills, big ideas, ways of thinking and practicing, understand what is agreed as quality standards and expertise.
3. **EP recognises the importance of prior experience and learning:** Invest time in finding out what learners already know in context and culturally and adapt the programme to strengthen their knowledge and advance to new material.
4. **EP requires learning to be scaffolded:** Provide intellectual, social, and emotional support to help learners to move forward by making learning interesting, simplified, highlighting important aspects, demonstrating, and encouraging. Provide time for learners to work with each other to consolidate understanding, supply face-to-face teaching, hands-on activities, and mentoring networks.
5. **EP needs assessment to be congruent with learning:** Assessment should be designed and implemented with the goal of achieving maximum validity of learning outcomes and processes. This can be also achieved as self-assessment or recognition of achievements and needs.
6. **EP promotes the active engagement of the learner:** To achieve a positive learning disposition, include learners in problem-based tasks, analysis of data, use of multimedia to disseminate knowledge and other hands-on work to allow experimentation.
7. **EP fosters both individual and social processes and outcomes:** Encourage the building of relationships and communication with others for learning purposes, and to create mutual construction of knowledge. Implement group discussions and collaboration in tasks as challenges.
8. **EP recognises the significance of informal learning:** In addition to knowledge on the subject, cultural perspectives are important to share, learn and understand, particularly in multi-cultural environments.
9. **EP depends on the learning of all those who support the learning of others:** Promote trainer's learning and the need of continuous development of knowledge and skills that reflect the changing times and understand learners' needs.
10. **EP demands consistent policy frameworks with support for learning as their primary focus:** Systemic support is needed to create effective learning environments, and this depends on influencing policy makers so that they understand modern learner needs, educational goals, and pedagogic principles.

James & Pollard recognise that the set of principles were developed in a particular cultural, social, economic, and political context which might differ from those of similar research groups around the world. Discrepancies are inevitable and it is advisable to use these principles as a starting point of “what worked” in this environment and adapt it to that of the user (James & Pollard, 2011; Lewthwaite, 2015; Nind & Lewthwaite, 2015).

Appendix 2a – WHO estimates of causes of visual impairment

WHO estimates of the global prevalence (total number of people affected) of eye conditions with a potential to cause visual impairment (Table 1) and those with visual impairment resulting from a given eye condition (Table 2).

Table 1. Global estimate of prevalence and world region hotspot of some eye conditions that can cause vision impairment, (WHO, 2019; WHS, 2021; Worldometers, 2024).

Eye condition	Number of people globally (% Wp)	Hotspot
Myopia	2.6 billion (32%)	South and Southeast Asia
Presbyopia	1.6 billion (20%)	No hotspot reported
Age related macular degeneration	200 million (2.4%)	Asia and Europe
Diabetic retinopathy	146 million (2%)	Western Pacific and Southeast Asia
Glaucoma	76 million (0.9%)	Asia
Trachoma	2.5 million (0.03%)	No hotspot reported

* Myopia includes 312 million cases of people under 19 years of age.

(% Wp): Percentage based on the World Population estimated of 8.1 billion (short scale) by 2024.

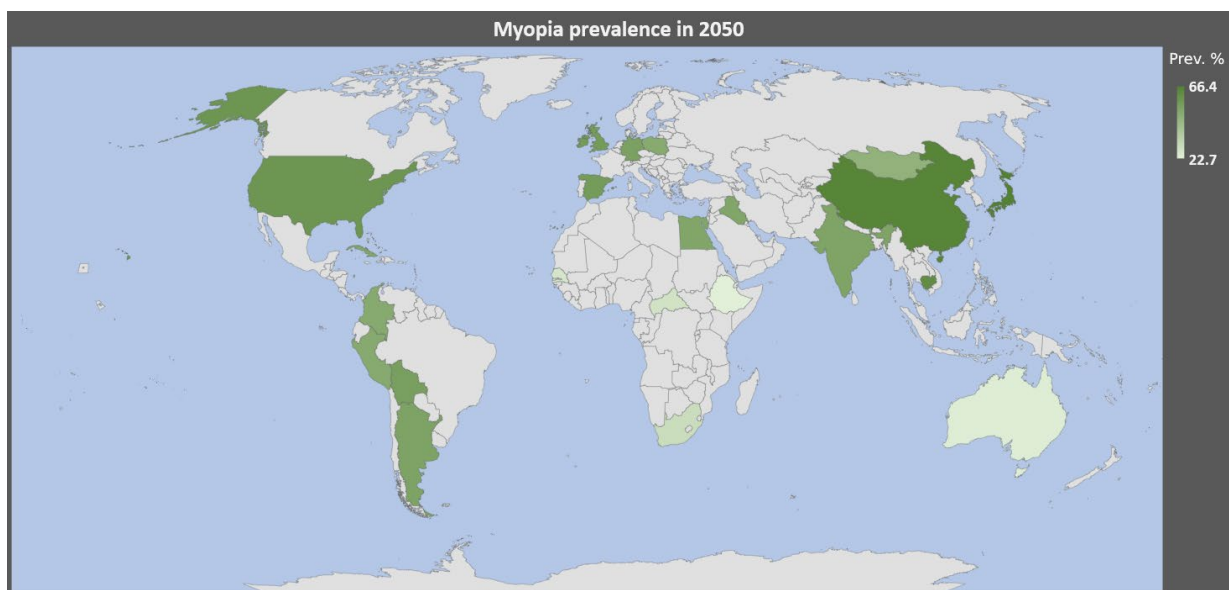
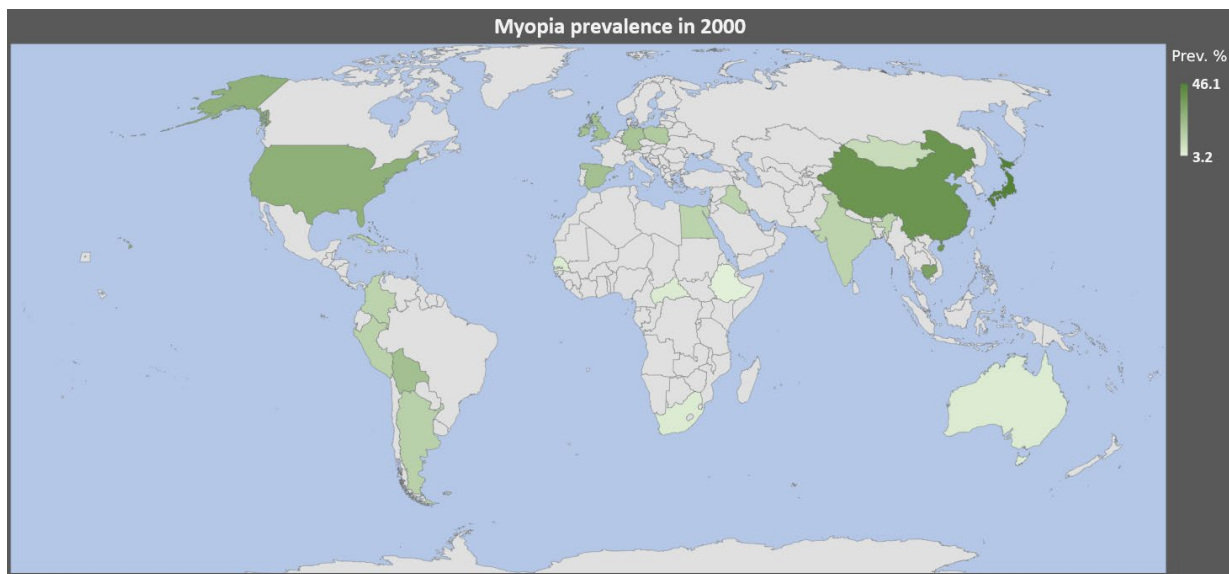
Table 2. Estimated global prevalence of vision impairment by cause (WHO, 2019).

Cause of visual impairment	Number of people globally (% Wp)
Refractive error (myopia or hypermetropia)	123.7 million (1.5%)
Cataract	65.2 million (0.8%)
Age-related macular degeneration	10.4 million (0.1%)
Glaucoma	6.9 million (0.08%)
Corneal opacities	4.2 million (0.05%)
Diabetic retinopathy	3 million (0.03%)
Trachoma	2 million (0.02%)
Other causes	37.1 million (0.5%)

(% Wp): Percentage based on the World Population estimated of 8.1 billion (short scale) by 2024.

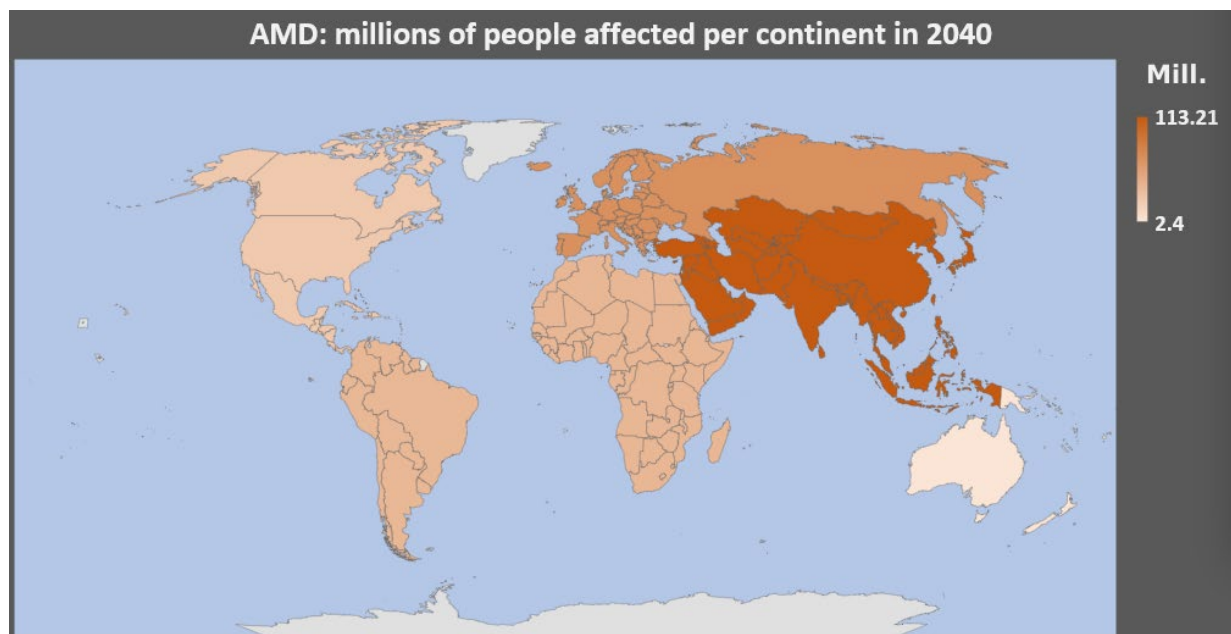
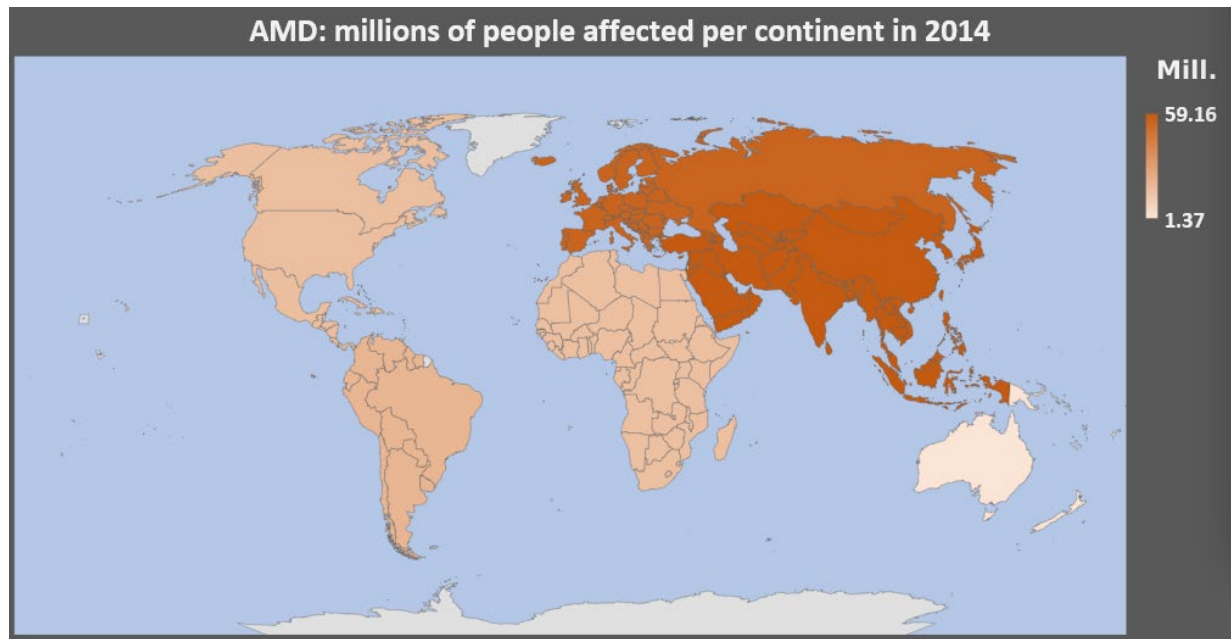
Appendix 2b – Myopia prevalence in the world: 2000 and 2050 (maps).

The prevalence (percentage of people affected) of Myopia is estimated to increase worldwide, and it will be higher in Asian countries that top the charts with a prevalence expected to increase from 46.1% in 2000 to 66.4% in 2050; The lowest values are 3.2% and 22.7% respectively. The maps only show selected countries representing the continents for clarity. Note that the distribution is similar, but the prevalence (colour intensity) increases in 2050. Adapted from Holden (Holden et al., 2016).



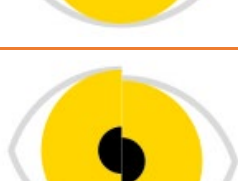
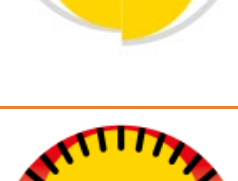
Appendix 2c – Age-related Macular Degeneration prevalence in the world: 2014 and 2040 (maps).

The prevalence (percentage of people affected) of Age-related Macular Degeneration (AMD) is estimated to increase worldwide. It is higher in Asian countries where it affected 59 million people in 2014. This value is expected to increase to 113 million by 2040. Lower values in countries of the west are 1.4 and 2.4 million respectively. The maps show averages per continent. Adapted from Wong (Wong et al., 2014).



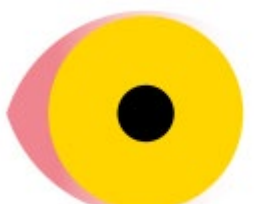
Appendix 2d – Eye conditions that lead to visual impairment.

Common eye conditions that can cause visual impairment and blindness.

	Age-related macular degeneration Damage to the central part of the retina responsible for detailed vision leads to dark patches, shadows, or distortion of the central vision. The risk of developing macular degeneration increases with age.
	Cataract Cloudiness in the lens of the eye, leading to increasingly blurred vision. The risk of developing cataract increases with age.
	Corneal opacity A group of conditions causing the cornea to become scarred or cloudy. Opacity is mostly caused by injury, infection, or vitamin A deficiency in children.
	Diabetic retinopathy Damage to blood vessels in the retina which become leaky or blocked. Vision loss mostly occurs due to swelling in the central part of the retina which can lead to vision impairment. Abnormal blood vessels can grow from the retina, which can bleed or cause scarring of the retina and blindness.
	Glaucoma Progressive damage to the optic nerve. Initially, loss of vision occurs in the periphery and can progress to severe vision impairment. The most common type is open angle glaucoma.
	Refractive error Due to an abnormal shape or length of the eyeball; light does not focus on the retina resulting in blurred vision. The most common: Myopia: Difficulty seeing distant objects (near-sightedness). Presbyopia: Difficulty seeing objects at close distance; increases after 40 years of age.
	Trachoma A bacterial infection that after many years makes the eyelashes can turn inwards (known as trichiasis), rubbing onto the eye, which can lead to corneal damage, scarring and, if extensive, blindness.

Appendix 2e – Eye conditions without visual impairment.

Common eye conditions that do not cause visual impairment unless untreated.

	Blepharitis Inflammation of the eyelids near the base of the eyelashes causing redness and irritation of the eye and eyelids.
	Chalazion and hordeolum (stye) Eyelid disorders resulting from a blocked gland or localized infection that can cause swelling of the eyelid and pain.
	Conjunctivitis Inflammation of the transparent membrane (conjunctiva) lining the inside of the eyelids and the white part of the eye. The fine veins become visible giving the eye a pink tone and itchiness or a burning sensation, mostly a reaction to allergy or infection.
	Dry eye Inadequate production of tears that can result in irritation, discomfort, a sensation of grit in the eye, and blurred vision.
	Pterygium and pinguecula Abnormal growths on the conjunctiva that can cause pain. Only in advanced cases, pterygium can extend further into the cornea and cause obstruction of vision.
	Subconjunctival haemorrhage Broken blood vessels underneath the conjunctiva. This may happen due to trauma or increased blood pressure.

Appendix 3a – Ethical guidelines and best practice in detail

The following ethical and best practice guidelines are designed to assist ophthalmologist in adhering to the highest standards when working in diverse and often resource-limited settings.

1 of 10. Act in the best interest of the patient and local community

Ensure that all actions prioritize the health and well-being of the patient and respect the needs and values of the local community. This includes understanding the local context, culture, and health infrastructure. Ophthalmologists should avoid imposing external solutions without consulting local stakeholders. Engage in practices that respect the autonomy and rights of the community.



Further reading

Cataract missions should aim to augment the existing ophthalmologic infrastructure in the locations they visit. Ethical improvement will require a change in volunteering attitude from beneficent experts to equal partners (Mohnasky & Rennie, 2023).

Mohnasky M (2023) Restoring sight, but short-sighted? Ethical considerations in global cataract missions. *World Medical & Health Policy*, vol 16, issue 2, pp 244-253. DOI: <https://doi.org/10.1002/wmh3.587>. Available at: <https://onlinelibrary.wiley.com/doi/10.1002/wmh3.587?af=R>

The American Academy of Ophthalmologists has a set of advisory opinions to help medical volunteers comply with the specialty code of ethics (AAO, 2020).

AAO (2020) Fundamental ethical issues in Global Ophthalmology. *American Academy of Ophthalmology* (AAO). [Online]. Available at: <https://www.aao.org/education/ethics-detail/global-ophthalmology>

2 of 10. Ensure appropriate training and knowledge

Before participating in international healthcare settings, ophthalmologists should be well-prepared for the specific challenges of the healthcare environment they are entering, including cultural, social, and technical aspects. This involves understanding the available resources, referral systems, and the role of traditional healers. It is also important to work closely with local health professionals to ensure continuity of care and appropriate follow-up.



Further reading



The Consortium of Universities for Global Health (CUGH) published the 3rd edition of the Global Health Competencies Toolkit. A comprehensive guide with references for global health education and professional development. It comprises of 14 domains: Global burden of disease, globalisation of health care, social and

environmental determinants of health, capacity strengthening, collaboration, ethics, professional practice, health equity and social justice, programme management, sociocultural and political awareness, strategic analysis, institutionalisation and sustainable development, planetary health, and decolonising global health. Partners (CUGH, 2024).

CUGH (2024) Global Health Competencies Toolkit. Consortium of Universities for Global Health (CUGH). Available at: < <https://www.cugh.org/online-tools/competencies-toolkit/> >

3 of 10. Global ophthalmic care should benefit all parties

Ethical global engagements should be mutually beneficial, with an emphasis on sustainable improvements in the local healthcare infrastructure. Instead of one-time interventions, focus on long-term capacity building through skills transfer, training programs, and partnerships that empower local health workers. Avoid practices that exploit local resources or professionals.

4 of 10. Ensure competency to perform procedures

Practitioners must ensure they have the necessary skills and experience to perform specific procedures safely and effectively. This principle also extends to supervising and training others. In situations where the ophthalmologist is less familiar with the local disease burden, it is critical to collaborate with local experts or more experienced colleagues.

Specialist postgraduate training in the Irish College of Ophthalmologists consists of three years of basic training and an additional two years for medical ophthalmology or four for surgical ophthalmology (ICO, 2024a). In the Royal College of Ophthalmologist in the UK, training consists of two years of the foundation programme, followed by seven years of Ophthalmic Specialist Training (OST) (RCOPHTH, 2024a). These medical professionals may join a volunteering programme during their specialist training years provided they are supervised by a fully trained specialist, or after they qualify as ophthalmologists.



Further reading

A list of competencies in Ophthalmology can be deducted from the syllabus for each area of interest or sub-specialty each area (RCOPHTH, 2024b). **Syllabi** are available at: <https://www.rcophth.ac.uk/training/ophthalmic-specialist-training/syllabi/syllabi-by-sia/>

The Royal College of Physicians of Ireland (RCPI) offers a list of essential generic capabilities required for a safe and effective high-quality medical care (RCPI, 2024).

The **RCPI** website on competence is available at: <https://www.rcpi.ie/Learn-and-Develop/Lifelong-Learning/Professional-Competence/Professional-Competence-Guidelines-and-Resources/Eight-Domains-of-Good-Professional-Practice>

Similarly, in the UK, the General Medical Council (GMC) provides a comprehensive list of standards for medical professionals (GMC, 2024),

The **GMC** website on standards is available at: <https://www.gmc-uk.org/education/standards-guidance-and-curricula/standards-and-outcomes/generic-professional-capabilities-framework>

5 of 10. Ensure liability coverage for international engagements

Practitioners should secure appropriate legal and medical coverage before working in a foreign context. This includes understanding the local legal environment, ensuring malpractice insurance is valid internationally, and having a clear understanding of the legal rights of patients in the host country.



Further reading

In Ireland, physicians require Professional Indemnity to protect the practitioner against claims in respect of medical malpractice, negligence and other civil claims that arise from a breach of duty associated with practice as a doctor. International coverage needs to be negotiated with the provider. Information from the Irish Medical Council is available at: <https://www.medicalcouncil.ie/registration-applications/professional-indemnity-information/>

In the UK, medical indemnity is required as a mode of insurance to protect medics from medical errors, negligence, or mistakes. International coverage needs to be negotiated with the provider. The following guide offers an overview of the various options and providers (Barton, 2020): <https://medicfootprints.org/how-to-choose-the-right-medical-indemnity-provider-for-you/>

6 of 10. Assess local infrastructure and technology

Evaluate the availability and adequacy of local medical technologies and infrastructure to ensure safe and effective care. This involves ensuring that the necessary surgical equipment, sterile conditions, and post-operative care facilities are available. If resources are limited, ophthalmologists must adapt their practices to what is realistically sustainable in the local context.

7 of 10. Pre- and Post-operative care

Ensure that comprehensive care is available, including proper pre-operative assessment and post-operative follow-up. This principle emphasises the need for continuity of care, especially after complex surgical procedures. It's important to have a plan in place for local healthcare workers to manage follow-up care, complications, and long-term outcomes.

8 of 10. Ethical research practice

All research conducted should be ethical and have proper local approval, respecting the rights and dignity of participants. This involves obtaining informed consent in a language and manner the participant understands, ensuring confidentiality, and minimizing risks. All research should be conducted with a genuine intent to benefit the local population and should include local researchers and institutions as partners.

9 of 10. Avoid conflicts of interest and ensure transparency

Carefully assess and disclose any potential conflicts of interest, particularly those related to commercial, industrial, or financial motivations. Transparency is crucial when dealing with sponsorships, funding, or partnerships that may influence clinical decisions or research outcomes. It is important to disclose all potential conflicts and ensure that patient care is not compromised.

10 of 10. Manage expectations and maintain standards

Have realistic expectations regarding outcomes, especially when local conditions differ significantly from those in more resource-rich environments. This includes communicating clearly with patients and local partners about what can be realistically achieved, given the available resources. Avoid overpromising or creating false hopes and ensure that all interventions are aligned with local capacities and sustainability goals.

Appendix 4 – Types of fat for healthy eating.

To prevent weight gain, the WHO recommends reducing daily overall fats to less than 30%, reducing sugar to less than 10%, reducing salt to less than 5 grams, and consuming at least 400 grams of high fibre foods (fruit and vegetables).



Withing the 30% fat, keep Saturated fats (red meat, dairy, coconut oil) to less than 10%, and Trans fats (margarine, puff pastry, chicken pie) to less than 1% or replace both with Unsaturated fats (olive oil, canola oil, avocado, salmon/tuna oil, nuts, sunflower/corn oil).



Prefer Unsaturated fats: Polyunsaturated and Monounsaturated. Liquid at room temperature. Eat less Saturated fats, and even less Trans fats. Solid or semi-solid at room temperature.

Appendix 6 – Overlapping and own GCDE and Global Ophthalmology skills

GCDE skills	Overlapping skills	Global Ophth. skills
Cultural competence Understanding and respecting diverse cultural practices. Communicating effectively across cultural and linguistic barriers. Incorporating cultural sensitivity into health education and outreach. Social justice Promoting policies that address the social determinants of health. Engaging in human rights-based approaches to health care. Advocacy for equitable access to healthcare services. Ethical global engagement Ensuring sustainability in global health initiatives. Respecting local autonomy and avoiding dependency. Building capacity in local health systems. Education and awareness Raising awareness about global health disparities. Educating communities on their health rights. Developing educational materials and campaigns.	Advocacy Promoting policies for equitable eye care access. Engaging in advocacy efforts that address global eye health disparities. Developing strategies to influence health policy at both local and global levels. Leadership Leading multicultural teams in global health settings. Navigating ethical challenges in international health projects. Mentoring and guiding others in global health initiatives. Effective communication with diverse populations. General public health Understanding global eye health trends and challenges. Designing and implementing public health interventions. Conducting research on the social determinants of eye health. Collaboration and partnership building Working with international NGOs, governments, and local communities. Building and sustaining partnerships for global health projects. Engaging stakeholders across different sectors.	Clinical competence High-level clinical and surgical skills in ophthalmology. Adapting clinical practices to resource-limited settings. Ensuring patient safety and quality of care in challenging environments. Eye-care public health Understanding the epidemiology of eye diseases globally. Integrating eye care into broader health systems. Utilizing public health principles in the design of eye care programs. Research skills Conducting ophthalmic research relevant to global health. Publishing and disseminating findings to influence global health practices. Designing studies that address the unique challenges of low-resource settings. Technology utilization Using telemedicine and mHealth in remote eye care. Leveraging AI and new technologies for diagnosing and treating eye conditions. Implementing low-cost, high-impact technologies in LMICs.

Appendix 7a – Key considerations for global partnership in ophthalmology

Category	Key Considerations	Ethics	Good Practice
Partnership Equality	Ensure that all partners have an equal voice in decision-making and resource allocation.	Promote fairness, respect, and mutual benefit.	Establish clear agreements that outline roles and responsibilities.
Cultural Sensitivity	Understand and respect the cultural contexts of all partners involved.	Avoid imposing external values or practices.	Engage in cultural exchange and mutual learning.
Sustainability	Design projects with long-term sustainability in mind, ensuring they can continue independently.	Avoid dependency and focus on capacity building.	Develop local leadership and infrastructure.
Transparency	Maintain open and honest communication throughout the partnership.	Foster trust and avoid miscommunication.	Regularly share updates, challenges, and successes.
Capacity Building	Focus on building the capacity of local partners to deliver eye care services independently.	Promote self-reliance and empowerment.	Provide training, resources, and support for local healthcare providers.
Resource Sharing	Ensure equitable sharing of resources, knowledge, and technology.	Avoid exploitation and ensure fair distribution.	Establish agreements on resource allocation /access.
Ethical Research	Conduct research in a way that benefits all partners, particularly local communities.	Obtain informed consent and ensure research ethics compliance.	Prioritize research that addresses local needs and respects local priorities.
Monitoring & Evaluation	Regularly assess the impact of partnership activities and adapt as needed.	Maintain accountability and continuous improvement.	Use participatory evaluation methods involving all partners.
Respect for Local Autonomy	Acknowledge and respect the sovereignty and decision-making authority of local partners.	Avoid paternalism and external imposition.	Support locally led initiatives and decision-making processes.

Appendix 7b – Skill building in global eye-health for ophthalmologists

Skill-building workshops

The training of eye health workers involves continuing education of primary carers in the community and other field staff. There are a variety of methods, from short in-person sessions to intensive workshops and on-the-job supervised practice. Alternatives involve distance learning through manuals, online content, video conferences and recorded video or audio.

Effective workshops that provide high quality patient eye health care depend on an adequate assessment of local needs encouraging consultation with the community in association with health-care workers in planning, delivery, and evaluation of programmes. Educators must approach this design in a systematic way and with a clear goal in mind, defining needs and roles best suited to the tasks (Anderson & Golnik, 2018). Communities in the global south seek to become primary actors and leaders in designing and owning programmes, as their experiences are as valid as those of other communities (Rasheed, 2023; Sharma & Sam-Agudu, 2023). Any community and their eye health care practitioners may benefit from designing training programmes.

Teaching and learning in eye health

Throughout the training programme, remind health care learners that this is a person-centred model which in practice will involve consultation and participation of the community in all stages of the process, from planning to evaluation.

The following table shows Hubley's examples and teaching methods for different types of learning.

Table 5. Teaching and learning for the promotion of eye health (Hubley, 2000).

Type or learning	Examples	Teaching method
Factual knowledge	Information about the impact, cause and prevention of conditions that affect the eyes. Facts may challenge beliefs, which should be explored through interaction with the people that will benefit from the programme (stakeholders).	Relate information to previous knowledge. Present information logically and avoid overload of new material. Use audio-visual aids.
Decision-making skills	Learn how to make decisions when: Promoting eye health in one's own family. Responding to client's needs during counselling. Setting up an eye health promotion programme at a workplace, school, or community.	Provide essential information. Present examples as case studies. Students should practice decision making using role-play of realistic situations and analysing field exercises.

Communication skills	Explain key health worker action to one's family and friends. Communicate effectively to clients about feelings and needs and give clear, realistic advice. Engage with the community to explore and resolve cultural and linguistic obstacles. Give a talk on eye health or lead a group discussion using visual aids.	Demonstrate good communication techniques. Trainees should practice teaching each other in groups and role-play. Trainees should practice counselling sessions in groups. Discuss and analyse a video recording of their performance.
Practical and manual skills	Examining the eyes properly. Handling examination instruments and tools. Fitting and taking care of spectacles.	Demonstrate examination techniques. Demonstrate eye procedures. Trainees should practice on each other and analyse performance.
Attitudes and values	Realising the importance of the intervention. Changes resulting from bringing services to communities. Develop sensitivity, compassion, tolerance, patience, and counselling relationships. Learn to be open to interact with the community to consider their perspective, values and understanding of the service.	Demonstrate importance of attitudes during role-play exercises, e.g., elderly woman receiving inappropriate advice at the clinic. Trainees should role-play and practice consideration, concern, tolerance, and commitment to service.

Online training in community eye health

Some of the training courses on community eye health are certified and may lead to work in the area. These examples of good practice could be replicated elsewhere.



An example is the certified online course on “Community eye health”, offered by the Lakshmi Vara Prasad Eye Institute (LVPEI) in India in collaboration with the University of Hyderabad in India and supported by The International Agency for the Prevention of Blindness (IAPB). The one-year course covers epidemiology, research methods, management of eye care programmes, health economics, mobilisation, advocacy, and social marketing. The course is aimed at health care providers, administrators, and managers.

The LVPEI course on **Community eye health** is available at:

<<https://www.lvpei.org/events/2023/dcceh-2023/index.html>>

Appendix 7c - Partnerships for global eye health

International organisations such as the International Agency for the Prevention of Blindness (IAPB), Sightsavers, The Fred Hollows Foundation, Light for the World, and CBM, along with interested governments, have been collaborating with each other with the common goal of promoting global eye health.



International Agency for the Prevention of Blindness (IAPB):

An alliance of over 200 member organisations worldwide including charities, eye hospitals, academic institutes, professional bodies, and corporate organisations. Since their foundation in 1975, IAPB has been the leader in eye health advocacy and coordination of promotional campaigns, including: World Sight Day (WSD), 2030 In Sight, UN Friends of vision, VISION 2020 and Vision for the Commonwealth.

Information on **IAPB** is available at <<https://www.iapb.org/>>



Sightsavers:

This organisation published several papers in "International Health" in collaboration with the Royal Society of Tropical Medicine and Hygiene (RSTMH) to raise the profile of eye health and demonstrate the relationship with anxiety, depression, and the role of digital technology. They formed partnerships with the Fred Hollows Foundation and PlenOptica for the improvement of eye services around the world.

Information on **Sightsavers** is available at <<https://www.sightsavers.org/>>



The Fred Hollows Foundation:

A development organisation based in Australia and working in more than 25 countries. It has developed a 5-year strategy (2024 to 2028) to reduce avoidable blindness and vision loss globally. This includes strengthening people centred eye care, providing transformative solutions, and addressing the social, economic, and developmental issues related to eye health.

Info on the **Fred Hollows Foundation** is available at <<https://www.hollows.org/uk/home>>



Light for the World:

A charitable organisation interested in enabling education for all, representing the voices of people with disabilities to break down unjust barriers and unlock the potential in everyone. They engage with stakeholders from public, private and non-profit organisation to promote global eye health.

Information on **Light for the World** is available at <<https://www.light-for-the-world.org/>>



The Christian Blind Mission (CBM): this international organisation operates in 50 countries with over 300 projects and focuses on those living in poverty to promote actions to prevent eye disease, facilitate treatment services and rehabilitation for those with permanent visual impairment. They address stigma, disability and barriers faced by women.

They **CMB Inclusive Eye Health Report**, 2020 is available at <<https://cbm-global.org/>>

Examples of institutional collaborations within the sector:

Light for the World is committed to collaborate with multiple partner organisations in programmes related to eye health and disability. Their partners can be: Institutional, e.g., European Commission, Global Affairs Canada, Australian Development Cooperation, Unesco, Unicef; International, e.g., Caritas, Brac, Red Noses, Sightsavers, The Fred Hollows Foundation; Networks, e.g., Concord, African disability forum, IAPB, The coalition for clear vision; Foundation and donors, e.g., Vision for life, IKEA foundation, Mastercard and others (LFW, 2024).

The “Love Eyes” campaign to enhance advocacy work on refractive error and cataract to avoid sight loss by 2030 was launched in 2023 as a joint programme between IAPB and Johnson & Johnson Vision. The latter is a major industrial company that produces medicines and implants for eyes (JJV, 2023).

2023 Report on the “Occupational safety and health programme”, developed by the International Labour Organization (ILO), IAPB and WHO to draw attention to worker’s eye health (WHO, 2023a).

Appendix 10a – Effective use of funding in eye health research

Effective use of funding depends on defined priorities for research in eye health. In 2013, the “James Lind Alliance (JLA)”, a non-profit organisation that works with patients, their representatives, and clinicians, joined “Sight Loss” and “Vision Priority Setting Partnerships (PSP)”, to launch a project to define research priorities in ophthalmology based on consensus from service users and providers. In 2024, JLA revised these priorities by surveying 2,240 people in the UK including patients (68%), carers (22%), eye professionals (2.1%). They identified 10 top eye health research priorities that can be used as references for future research projects (Bourne et al., 2024):

Cataract: Prevention.

Cornea: Improving microbial keratitis treatment.

Optometry: Impact of integration of ophthalmic primary and secondary care via community optometric care pathways.

Refraction: Factors influencing development and/or progression of refractive error.

Childhood onset: Improving early detection of visual disorders.

Glaucoma: Effective and improved treatments.

Neuro-ophthalmology: Improvements in prevention, diagnosis and treatment of neurodegeneration affecting vision.

Retina: Improving prevention, diagnosis, and treatment of dry age-related macular degeneration.

Uveitis: Effective treatments for ocular and orbital inflammatory diseases.

A report by the Lancet Global Health Commission on Global eye health, based on 470 people surveyed in 118 countries, identified 16 challenges in the global south, five of which were considered global guidelines for research in eye health (Ramke & Schmidt, 2022):

1. Develop models to encourage demand for, and ensure access to, accurate refraction and affordable, good quality spectacles.
2. Identify and implement strategies to improve cataract services in terms of quality, productivity, equity, and access.
3. Improve child eye health services for refractive error and amblyopia that are well integrated within education services.
4. Develop and implement services that are designed to prioritise reaching marginalised or vulnerable groups.
5. Develop and implement strategies that reduce out-of-pocket costs for those requiring eye care.

Appendix 10b - Who benefits from medical research?

People in the community are the ultimate beneficiaries of research. However, results emerging from studies need to be disseminated and translated to the different audiences for these conclusions to become implemented and turned into evidence-based healthcare behaviours and practices. Potential audiences should be considered from the initial design of the study and where possible engaged; methods and data collection should be transparent to establish trustworthiness and the message should be packaged in a method that is appropriate for a given audience, including under-resourced countries, e.g., using effective graphic design, communication science, considering the psychology of the audience, and translating into different languages (Derman & Jaeger, 2018).

Giving voice to those who are most directly affected is the goal of community engagement and the essential element of research translation. Despite the obstacles in the process of implementation of health research into its intended target (communities and patients are slow in adopting and maintaining lifestyles, physicians are slow in changing practices and organisations and government bureaucracies resist change), research translation can benefit and influence important decisions made by the following parties (Woolf et al., 2015):

1. People caring for their own health (or their caretakers), who can use research to make choices about healthy lifestyles, disease management, and injury prevention.
2. Clinicians, social workers, teachers, and other service providers, who can use research to determine how best to care for patients or clients.
3. Community members and organizations, who can form coalitions for collective impact on health outcomes, including advocacy organizations, interest groups, voluntary associations, and nonprofit organizations.
4. Investors, community foundations, and health plans, who can make investments to promote health and the social determinants of health.
5. Employers, who can implement policies to improve the health and safety of workers.
6. Manufacturers, who can make products and services safer and more healthful for consumers.
7. Urban planners and developers, who can modify the built environment to improve health and reduce harmful exposures.
8. Elected officials and voters, who can enact legislation and invest in policies and programs that can improve public health (Woolf et al., 2015).

Appendix 10c – Key issues of concern in research funding

Use these key issues as prompts for discussion and reflection on research funding activities.

Checkpoint	Key Issues and concerns about funding
Funder's primary motivation	Is the funder's primary goal aligned with public health interests, or is it driven by profit, political influence, or other self-serving motives? How does this motivation affect the type of research prioritised?
Influence on research agenda	Does the funder have control over the research agenda? Are there risks of prioritizing projects that serve the funder's interests over the needs of the community or global health priorities?
Potential conflicts of interest	Could the funder's interests (e.g., pharmaceutical companies) compromise the objectivity of the research? Are there any undisclosed financial ties between researchers and funders that could bias results or interpretations?
Equity and inclusivity	Does the funding support research that addresses health inequities, particularly in low- and middle-income countries (LMICs)? Are marginalized communities involved in setting the research agenda, or are their needs being overlooked?
Funding sustainability	Is the funding long-term and sustainable, or is it tied to short-term goals? What happens when the funding period ends? Will there be support for ongoing research or implementation?
Transparency and accountability	Are the funder's decision-making processes transparent? Is there accountability for how the funds are used and how decisions are made?
Ethical guidelines and oversight	Does the funding come with ethical guidelines that ensure the research is conducted responsibly? Is there adequate oversight to prevent unethical practices, such as exploitation of research subjects or communities?
Impact on local communities	Does the research funded by this source empower local communities, or does it reinforce dependency on external aid? Are there mechanisms in place to ensure that research findings are translated into real-world benefits for the communities involved?
Ownership of data and findings	Who owns the data generated by the research? Will the findings be accessible to the public, particularly in the communities where the research is conducted?
Cultural sensitivity	Does the funding source respect and promote culturally sensitive approaches in the research it supports? Are local cultural norms and values considered in the research design and implementation?
Post-colonial considerations	Does the funding reinforce colonial power dynamics, or does it seek to decolonize research practices by empowering local researchers and communities? How does the funding address historical injustices and promote fairness in global research partnerships?

REFERENCES

- AAO. (2020). Fundamental ethical issues in Global Ophthalmology. Retrieved 27 March 2024, from <https://www.aao.org/education/ethics-detail/global-ophthalmology>
- AAO. (2022). Code of Ethics - Global Ophthalmology. Retrieved 22 August 2024, from <https://www.aao.org/education/ethics-detail/code-of-ethics--global-ophthalmology>
- ABP. (2023). World Economic Forum: 39 organisations pledge to close gaps on Global Health Equity. Retrieved 20 August 2024, from <https://news.abplive.com/business/world-economic-forum-39-organisations-pledge-to-close-gaps-on-global-health-equity-1576765>
- Abubakar, T., Kyari, F., Abdull, M. M., & Sivasubramaniam, S. (2015). Poverty and blindness in Nigeria: Results from the National Survey of Blindness and Visual Impairment. *Ophthalmic Epidemiology*, 22(5), 333-341. <https://doi.org/http://dx.doi.org/10.3109/09286586.2015.1077259>
- ADHAC. (2024). Tips for eating well | Eat For Health. Retrieved 25 March 2024, from <https://www.eatforhealth.gov.au/eating-well/tips-eating-well>
- Alcon. (2024). *Clinical research*. Alconscience.com. Retrieved 04 September 2024 from <https://us.alconscience.com/clinical-research/>
- Alexa. (2023). The ethics of volunteering: Beyond good intentions. <https://blog.globalbrigades.org/evaluating-the-ethics-of-volunteering>
- Allsop, J. (2013). Competing paradigms and health research: Design and process. In M. Salks & J. Allsop (Eds.), *Researching health* (pp. 489). Sage.
- Anderson, L., & Golnik, K. (2018). Developing training programmes for eye teams. *Community Eye Health Journal*, 31(102), 43.
- Barton, C. (2020). How to choose the right medical indemnity provider for you. Retrieved 2020-11-04, from <https://medicfootprints.org/how-to-choose-the-right-medical-indemnity-provider-for-you/>
- Bauer, I. (2017). More harm than good? The questionable ethics of medical volunteering and international student placements. *Tropical Diseases, Travel Medicine and Vaccines*(8), 5. <https://doi.org/10.1186/s40794-017-0048-y>
- Bechange, S., Schmidt, E., Ruddock, A., Khan, I. K., Gillani, M., Roca, A.,...Jolley, E. (2021). Understanding the role of lady health workers in improving access to eye health services in rural Pakistan – findings from a qualitative study [OriginalPaper]. *Archives of Public Health*, 79(1), 1-12. <https://doi.org/doi:10.1186/s13690-021-00541-3>
- Bernhisel, A. A. (2022). Three keys for successful experiences in global ophthalmology. Retrieved 07 July 2024, from <https://www.aao.org/young-ophthalmologists/yo-info/article/3-keys-successful-experiences-global-ophthalmology>
- Berry, S. (2024). What is astigmatism? Retrieved 21 May 2024, from <https://patient.info/news-and-features/what-is-astigmatism-2>
- Biography. (2024). Eleanor Roosevelt. Retrieved 28 August 2024., from <https://www.biography.com/history-culture/eleanor-roosevelt>
- Black, J., Cooper, B., McGeoch, A., & Milne, K. (2022). *The contribution of medical funding by charities to the UK economy*. Fraser of Allander Institute & University of Strathclyde Glasgow.
- Bourne, R., Steinmetz, J., Flaxman, S., Briant, P., Taylor, H., Resnikoff, S., Casson, Robert James, & Abdoli, A., et al. (2020). Trends in prevalence of blindness and distance and near vision impairment over 30 years: an analysis for the Global Burden of Disease Study. *The Lancet Global Health*, 9(2), e130-e143. [https://doi.org/doi:10.1016/S2214-109X\(20\)30425-3](https://doi.org/doi:10.1016/S2214-109X(20)30425-3)

- Bourne, R. R. A., Moledina, M., Azuara-Blanco, A., Saleh, G. M., Self, J. E., Sivaprasad, S.,...Poustie, V. (2024). The UK clinical eye research strategy: Refreshing research priorities for clinical eye research in the UK [OriginalPaper]. *Eye*, 38(10), 1947-1957. <https://doi.org/doi:10.1038/s41433-024-03049-6>
- Burck, J., Hagen, U., Bals, C., Höhne, N., Nascimento, L., Essop, T.,...Lucas, B. (2021). *Climate change performance index (CCPI) results 2021*. Germanwatch & Climate Action Networks Europe (CAN).
- Burck, J., Marten, F., & Bals, C. (2017). *Climate change performance index (CCPI) results 2017*. Germanwatch & Climate Action Networks Europe (CAN).
- Burck, J., Uhlich, T., Bals, C., Höhne, N., Nascimento, L., Kumar, C. H.,...Riebandt, M. (2024). *Climate change performance index (CCPI) results 2024*. Germanwatch & Climate Action Networks Europe (CAN).
- Burton, M. J., Ramke, J., Marques, A. P., Bourne, R. R., Congdon, N., Jones, I.,...Buchan, J. C. (2021). The Lancet Global Health Commission on Global Eye Health: Vision beyond 2020. *The Lancet Global Health*, 9(4), E489-E551. [https://doi.org/doi:10.1016/S2214-109X\(20\)30488-5](https://doi.org/doi:10.1016/S2214-109X(20)30488-5)
- CDC. (2024). Poor Nutrition - CDC. Retrieved 25 March 2024, from <https://www.cdc.gov/chronicdisease/resources/publications/factsheets/nutrition.htm>
- Chambers, R. (2007). *Who counts? The quiet revolution of participation and numbers*. Institute of Development Studies (IDS), University of Sussex.
- Christodoulou, D. (2014). *Seven myths about education*. Routledge.
- Clapp, J. (2012). *Food*. Polite Press.
- Clark, T., Foster, L., Sloan, L., & Bryman, A. (2021). *Bryman's social research methods*. Oxford University Press.
- COE. (2024). *4.7 Education for sustainable development and global citizenship*. Council of Europe (COE). Retrieved 13 August 2024 from <https://www.coe.int/en/web/education/4.7-education-for-sustainable-development-and-global-citizenship>
- Cornwall, A., & Jewkes, R. (1995). What is participatory research? *Social Science & Medicine*, 41(12), 1667-1676. [https://doi.org/https://doi.org/10.1016/0277-9536\(95\)00127-S](https://doi.org/https://doi.org/10.1016/0277-9536(95)00127-S)
- Correa, C., & Matthews, D. (2011). The Doha declaration, ten years on and its impact on access to medicines and the right to health. Retrieved 10 July 2024, from <https://www.undp.org/publications/doha-declaration-10-years-and-its-impact-access-medicines-and-right-health>
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. (4th ed.). SAGE Publications.
- Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.
- CUGH. (2024). *Global Health Competencies Toolkit*. Consortium of Universities for Global Health (CUGH).
- Dandona, R., & L., D. (2001). Review of findings of the Andhra Pradesh eye disease study: Policy implications for eye-care services. *Indian Journal of Ophthalmology*, 49(4), 215–234.
- Davidson, A. (1999). *The Oxford companion to Food*. Oxford University Press. <https://doi.org/doi:10.1038/s41433-023-02815-2>
- Davis, J. A., & Serrata Malfitano, A. P. (2018). Supporting research dissemination across languages and cultures: Working beyond Western and Anglocentric lines [editorial]. *Canadian Journal of Occupational Therapy*, 84(4-5). <https://doi.org/https://doi.org/10.1177/0008417417745843>
- DeCamp, M. (2011). Ethical review of Global Short-term Medical Volunteerism [OriginalPaper]. *HealthCare Ethics Committee (HEC) Forum*, 23(2), 91-103. <https://doi.org/doi:10.1007/s10730-011-9152-y>

- Derman, R. J., & Jaeger, F. J. (2018). Overcoming challenges to dissemination and implementation of research findings in under-resourced countries. *Reproductive Health*, 15(1), 86-86. <https://doi.org/https://doi.org/10.1186/s12978-018-0538-z>
- Dewing, J. M., Lotery, A. J., & Ratnayaka, J. A. (2023). The disparity between funding for eye research vs. the high cost of sight-loss in the UK [BriefCommunication]. *Eye*, 37(4), 584-586. <https://doi.org/doi:10.1038/s41433-022-02228-7>
- Dodson, S., Perez-Hazel, Y., Beauchamp, A., Jennings, C., Trezona, A., & Hillgrove, T. (2020). The Community Engagement in Eye Health Assessment Tool (CEEHAT). Retrieved 21 May 2024, from <https://www.infontd.org/resource/community-engagement-eye-health-assessment-tool-ceedhat>
- Elabed, S., Belal, A., & Shamayleh, A. (2024). *Sustainability of medical equipment in the healthcare industry: An overview* 2019 Fifth International Conference on Advances in Biomedical Engineering (ICABME), Tripoli, Lebanon. <https://ieeexplore.ieee.org/abstract/document/8940239/>
- Esaki, R. K., & Macario, A. (2009). Wastage of supplies and drugs in the operating room. *Medscape Anesthesiology*.
- FAI. (2022). *The contribution of medical research funding by charities to the UK economy*. Fraser of Allender Institute (FAI), University of Strathclyde.
- Farlex. (2012). *Ophthalmology - Definition*. Farlex Partner Medical Dictionary. Retrieved 19 February 2024 from <https://medical-dictionary.thefreedictionary.com/ophthalmology>
- Feach. (2024). Our Vision, Our Voice. Retrieved 03 September 2024, from <https://feach.ie/2024/07/our-vision-our-voice/>
- Fergusson, S., & McFarlane, G. A. (2022). Global health engagement in the Scottish health service: A journey towards global citizenship. *The Surgeon*, 20(1), 48-56. <https://doi.org/https://doi.org/10.1016/j.surge.2021.11.004>
- FHF. (2024). *Rwanda, where we work*. The Fred Hollows Foundation (FHF). Retrieved 15 August 2024 from <https://www.hollows.org/us/where-we-work/africa/rwanda-2>
- Fraser, N. (2008). *Scales of justice: Reimagining political space in a globalizing world*. Polity.
- Frehywot, S., Mullan, F., Payne, P. W., & Ross, H. (2010). Compulsory service programmes for recruiting health workers in remote and rural areas: Do they work? *Bulletin of the World Health Organization*, 88, 364-370.
- Freire, P. (1970). *Pedagogy of the oppressed* (M. B. Ramos, Trans.). Blumsbury Publishing Inc.
- Frenk, J., Chen, L., Bhutta, Z. A., Cohen, J., Crisp, N., Evans, T.,...Zurayk, H. (2010). Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. *The Lancet*, 376(9756), 1923-1958. [https://doi.org/10.1016/S0140-6736\(10\)61854-5](https://doi.org/10.1016/S0140-6736(10)61854-5)
- Fricke, T. R., Tahhan, N., Resnikoff, S., Papas, E., Burnett, A., May Ho, S.,...Naidoo, K. S. (2018). Global Prevalence of Presbyopia and Vision Impairment from Uncorrected Presbyopia: Systematic Review, Meta-analysis, and Modelling. *Ophthalmology*, 125(10), 1492-1499. <https://doi.org/https://doi.org/10.1016/j.ophtha.2018.04.013>
- GCSF. (2014). *Myanmar*. Global Community Service Foundation (GCSF). Retrieved 04 August 2024 from <https://globalcommunityservice.org/our-work/myanmar/>
- GCSF. (2016). Restore eye sight to 300 in Myanmar (Burma). Retrieved 04 August 2024, from <https://www.globalgiving.org/projects/eye-sight-cataract-medical-mission-myanmar-burma-gcsf/>
- GEM. (2018, 2018-11-08). *Target 4.7: Sustainable development and global citizenship*. Global Education Monitoring Report (GEM). Retrieved 13 August 2024 from <https://gem-report-2019.unesco.org/chapter/monitoring-progress-in-sdg-4/sustainable-development-and-global-citizenship-target-4-7/>
- Gilden, D. J., Scissors, K. N., & Reuler, J. B. (1992). Disposable products in the hospital waste stream. *Western Journal of Medicine*, 156(3), 269-272.

- GMC. (2024). Generic professional capabilities framework. Retrieved 20 August 2024, from <https://www.gmc-uk.org/education/standards-guidance-and-curricula/standards-and-outcomes/generic-professional-capabilities-framework>
- Gomes, M. P., Zolnikov, T. R., Neves, A. C., Roriz, G., Lopez, J. L., Tobias, R., & Heller, L. (2022). Healthcare waste generation in hospitals per continent: a systematic review. *Environmental Science and Pollution Research*, 29, 42466–42475. <https://doi.org/https://doi.org/10.1007/s11356-022-19995-1>
- Green, J., & Thorogood, N. (2014). *Qualitative methods for health research* (3rd ed.). SAGE.
- Green, M., Parrott, T., & Crook, G. (2012). Improving your communication skills. *British Medical Journal*, 344. <https://doi.org/https://doi.org/10.1136/bmj.e357>
- Hart, T. (2021). Brighter Thinking Pod - Ep 12: Assessment for learning. Retrieved 07 June 2024, from <https://www.cambridge.org/gb/education/blog/2021/06/21/brighter-thinking-pod-ep-12-assessment-for-learning/>
- Hawkes, C. (2007). The role of foreign direct investment in the nutrition transition. *Public Health Nutrition*, 8(4), 357-365. <https://doi.org/10.1079/PHN2004706>
- Hayes, M., & Hadley, J. (2021). Global Citizenship Education: What, why and how? In *Macmillan Education ETL: Advancing learning webinar*. Macmillan Education.
- Hemingway. (2024). *The Hemingway Editor*. hemingwayapp.com. Retrieved 20 June 2024 from <https://hemingwayapp.com/help/docs/intro>
- Holden, B. A., Fricke, T. R., Wilson, D. A., Jong, M., Naidoo, K. S., Sankaridurg, P.,...Resnikoff, S. x. h. w. s. c. s. a. p. S. (2016). Global prevalence of myopia and high myopia and temporal trends from 2000 through 2050. *Ophthalmology*, 123(5), 1036-1042. <https://doi.org/https://doi.org/10.1016/j.ophtha.2016.01.006>
- Hubley, J. (2000). An introduction. Training: Essential for effective eye health promotion. *Community Eye Health Journal*, 13(33), 13 - 14.
- Hudelson, P., Perron, N. J., & Perneger, T. (2011). Self-assessment of intercultural communication skills: A survey of physicians and medical students in Geneva, Switzerland [OriginalPaper]. *BMC Medical Education*, 11(1), 1-9. <https://doi.org/doi:10.1186/1472-6920-11-63>
- IAPB. (2021). 2030 In Sight: Ending avoidable sight loss. <https://www.iapb.org/about/2030-in-sight/>
- IAPB. (2024). *GBD Super Region Map & Estimates of Vision Loss*. The International Agency for the Prevention of Blindness (IAPB). Retrieved 27 May 2024 from <https://www.iapb.org/learn/vision-atlas/magnitude-and-projections/gbd-super-regions/>
- ICO. (2024a). A Career as an Eye Doctor. <https://www.eyedoctors.ie/trainees/a-Career-as-an-Eye-Doctor.asp>
- ICO. (2024b). Code of Ethical Practice. Retrieved 03 April 2024, from <https://www.eyedoctors.ie/members/Code-of-Conduct.asp>
- ICO. (2024c). Eye care standards, ethics & research. Retrieved 22 August 2024, from <https://icoph.org/eye-care-delivery/eye-care-standards-ethics-research/>
- ICO. (2024d). ICO Guidelines on the Consent Process. <https://www.eyedoctors.ie/members/ICO-Guidelines-on-the-Consent-Process.asp>
- ICO. (2024e). Sustainability in Ophthalmology Education resource launched on ICO members portal. Retrieved 03 September 2024, from <https://www.eyedoctors.ie/press-release/June-26-2024/Sustainability-in-Ophthalmology-Education-Resource-launched-on-ICO-Members-Portal/1160.html>
- IDEA. (2024). *Code of good practice for development education*. Irish Development Education Association (IDEA). <https://www.ideaonline.ie/Code-of-good-practice-development-education>
- Irish-Aid. (2022a). Annual Report 2022 [Annual Report Summary 2022]. Retrieved 09 February 2024, from <https://www.ireland.ie/en/irish-aid/news-and-publications/annual-reports/annual-report-archive/annual-report-2022/>
- Irish-Aid. (2022b). *Government of Ireland official development assistance. Annual Report 2022*. Dublin, Ireland: Irish Aid Retrieved from <https://prod-ireland-ie->

- assets.s3.amazonaws.com/documents/Government of Ireland Official Development Assistance Annual Report 2022.pdf
- Israel, M., & Hay, I. (2006). *Research ethics for social scientists: Between ethical conduct and regulatory compliance*. SAGE.
- IUA. (2024). *Research funding*. Irish Universities Association (IUA). Retrieved 18 July 2024 from <https://www.iua.ie/for-researchers/research-funding/>
- James, M., & Pollard, A. (2011). TLRP's ten principles for effective pedagogy: rationale, development, evidence, argument and impact. *Research papers in education*, 26(3), 275-328. <https://doi.org/https://doi.org/10.1080/02671522.2011.590007>
- Jing, W. (2019). The role of schoolteachers in community eye health. <https://www.iapb.org/news/the-role-of-schoolteachers-in-community-eye-health/>
- JJV. (2023). *IAPB announces that Johnson & Johnson Vision will join efforts to advocate for better eye health*. Retrieved 17 July 2024 from <https://www.ijvision.com/press-release/iapb-announces-johnson-johnson-vision-will-join-efforts-advocate-better-eye-health>
- Kagoma, Y., Stall, N., Rubinstein, E., & Naudie, D. (2012). People, planet and profits: the case for greening operating rooms. *Canadian Medical Association Journal (CMAJ)*, 184(17), 1905-1911. <https://doi.org/10.1503/cmaj.112139>
- Keel, S., & Cieza, a. (2022). Universal eye health coverage: from global policy to country action. *International Health*, 14(1), i3-i5. <https://doi.org/https://doi.org/10.1093/inthealth/ihab063>
- Kendi, I. X. (2019). *How to be an antiracist*. The Bodley Head.
- Khanna, R. C., Sabherwal, S., Sil, A., Gowth, M., Dole, K., Kuyyadiyil, S., & Chase, H. (2020). Primary eye care in India – The vision center model. *Indian Journal of Ophthalmology*, 68(2), 333-339. https://doi.org/10.4103/ijo.IJO_118_19
- Kirk, A., Grenfell, P., & Murage, P. (2021). A planetary health perspective to decarbonising public hospitals in Ireland: A health policy report [PeerReviewed]. *European Journal of Environment and Public Health*, 5(1), em0067-em0067. <https://doi.org/https://doi.org/10.21601/ejeph/9368>
- Kumar, S., Mohanraj, R., Raman, R., Kumar, G., Luvies, S., Machhi, S. S.,...Sivaprasad, S. (2023). 'I don't need an eye check-up'. A qualitative study using a behavioural model to understand treatment-seeking behaviour of patients with sight threatening diabetic retinopathy (STDR) in India | PLOS ONE. *Plos One*. <https://doi.org/10.1371/journal.pone.0270562>
- Kwete, X., Tang, K., Chen, L., Ren, R., Chen, Q., Wu, Z.,...Li, H. (2022). Decolonizing global health: what should be the target of this movement and where does it lead us? [Report]. *Global Health Research and Policy*, 7(1), 1-6. <https://doi.org/doi:10.1186/s41256-022-00237-3>
- Languageknowledge. (2024). *Top languages in Europe*. languageknowledge.eu. Retrieved 30 August 2024 from <http://languageknowledge.eu/>
- Laverack, G., & Labonte, R. (2000). A planning framework for community empowerment goals within health promotion. *Health Policy and Planning*, 15(3), 255-262. <https://doi.org/10.1093/heapol/15.3.255>
- Lewthwaite, S. (2015). NCRM quick start guide: Principles for effective pedagogy. *The pedagogy of methodological learning*. Retrieved 10 July 2024, from <https://pedagogy.ncrm.ac.uk/2015/10/20/ncrm-quick-start-guide-principles-for-effective-pedagogy/>
- LFTW, Sightsavers, IAPB, & ICO, S., Coecsa, WACS. (2021). A toolkit for glaucoma management in Sub-Saharan Africa. Retrieved 10 July 2024, from <https://www.light-for-the-world.org/publications/a-toolkit-for-glaucoma-management-in-sub-saharan-africa/>
- LFW. (2024). *Partnerships, NGOs, and Donors*. Light for the World International (LFW). Retrieved 17 July 2024 from <https://www.light-for-the-world.org/our-work/our-approach/partnerships/>

- Magyezi, J., & Arunga, S. (2020). Eye care where there are no ophthalmologists: The Uganda experience. *Community Eye Health*, 33(110), 48-50.
- Marmamula, S., Varada, R., Williams, J. D., & Khanna, R. C. (2022). Vision guardians for community eye health: The LV Prasad Eye Institute model in India. *Community Eye Health*, 35(115), s18-s20.
- Marmot, M., & Wilkinson, R. (2011). *Social determinants of health* (2nd ed.). Oxford University Press.
- Mathenge, W., Kuper, H., Limburg, H., Polack, S., Onyango, O., Nyaga, G., & Foster, A. (2007). Rapid assessment of avoidable blindness in Nakuru district, Kenya. *Ophthalmology*, 114(3), 599–605. <https://doi.org/https://doi.org/10.1016/j.ophtha.2006.06.057>
- McCarty, C. A. (2012). Vision-related research priorities and how to finance them. *Indian Journal of Ophthalmology*, 60(5), 460–463. <https://doi.org/10.4103/0301-4738.100550>
- McCrorry, C., & Layte, R. (2012). Breastfeeding and risk of overweight and obesity at nine-years of age. *Social Science & Medicine*, 75(2), 323-330. <https://doi.org/https://doi.org/10.1016/j.socscimed.2012.02.048>
- McMichael, P. (2012). *Development and social change: A global perspective* (5th ed.). SAGE.
- Merritt, W. (2016). Myanmar eye mission update. Retrieved 04 August 2024, from <https://www.globalgiving.org/projects/eye-sight-cataract-medical-mission-myanmar-burma-gcsf/reports/>
- Merson, M. H., Black, R. E., & Mills, A. J. (2020). *Global health: diseases, programs, systems and policies*. (4th ed.). Jones & Bartlett Learning.
- Mezirow, J. (2000). *Learning as transformation: Critical perspectives on a theory in progress*. John Wiley & Sons Inc.
- Mohnasky, M., & Rennie, S. (2023). Restoring sight, but short-sighted? Ethical considerations in global cataract missions. *World Medical & Health Policy*, 16(2), 244-253. <https://doi.org/https://doi.org/10.1002/wmh3.587>
- Murthy, G. V. (2017). Eye care in South Asia, 1988–2018: developments, achievements and future challenges. *Community Eye Health*, 30(100), 99-101.
- Murthy, G. V. S., Gupta, S. K., Bachani, D., Jose, R., & John, N. (2005). Current estimates of blindness in India. *The British Journal of Ophthalmology (BMJ)*, 89(3), 257–260. <https://doi.org/10.1136/bjo.2004.056937>
- NHS. (2024). *How we write*. National Health Service (NHS) UK. Retrieved 07 June 2024 from <https://service-manual.nhs.uk/content/how-we-write>
- Nind, M., & Lewthwaite, S. (2015). Principles for effective pedagogy - NCRM quick start guide. Retrieved 10 July 2024, from <https://pedagogy.ncrm.ac.uk/2015/10/20/ncrm-quick-start-guide-principles-for-effective-pedagogy/>
- Norton, D. (2022). Optometrists call for expansion of eye-care services in the community. Retrieved 27 May 2024, from <https://hospitalprofessionalnews.ie/2022/05/13/optometrists-call-for-expansion-of-eye-care-services-in-the-community/>
- Novartis. (2024). Ophthalmology research at Novartis. Retrieved 04 September 2024, from <https://www.novartis.com/research-and-development/research-disease-areas/ophthalmology-research-novartis>
- Pashby, K., Da Costa, M., Stein, S., & Andreotti, V. (2020). A meta-review of typologies of global citizenship education [research-article]. *Comparative Education*, 56(2). <https://doi.org/https://doi.org/10.1080/03050068.2020.1723352>
- Patel, R. (2012). *Stuffed and starved: From farm to fork, the hidden battle for the world food system* (2nd ed.). Portobello Books.
- PE. (2024). *Primary Eyecare Services*. Primary Eyecare (PE). Retrieved 27 May 2024 from <https://primaryeyecare.co.uk/services/>
- Pichler, P.-P., Jaccard, I. S., Weisz, U., & Weisz, H. (2019). International comparison of health care carbon footprints [Text]. *Environmental Research*, 14(6), 14 064004. <https://doi.org/doi:10.1088/1748-9326/ab19e1>

- Popkin, B. M., Corvalan, C., & Grummer-Strawn, L. M. (2020). Dynamics of the double burden of malnutrition and the changing nutrition reality. *The Lancet*, 395(10217), 65-74. [https://doi.org/10.1016/S0140-6736\(19\)32497-3](https://doi.org/10.1016/S0140-6736(19)32497-3)
- Powell, S. (2022). 46,000 patients waiting for ophthalmology treatment in Ireland. <https://www.aop.org.uk/ot/professional-support/health-services/2022/01/26/46000-patients-waiting-for-ophthalmology-treatment-in-ireland>
- Pratt, B., & Hyder, A. A. (2017). Fair resource allocation to health research: Priority topics for bioethics scholarship. *Bioethics*, 31(6), 454-466. <https://doi.org/https://doi.org/10.1111/bioe.12350>
- PRAXIS. (2024). *GCDE Terminology used by Praxis*. PRAXIS, Development and Global Citizenship. Retrieved 20 March 2024 from <https://praxisucc.ie/about/global-citizenship-and-development-education/gcde-terminology/>
- Ramke, J., & Schmidt, E. (2022). Eye health: What research is needed, and where? *Community Eye Health Journal South Asia*, 35(117), s9.
- Ramke, J., Tong, B., Stern, J., Swenor, B. K., Faal, H. B., & Burton, M. J. (2021). Defining eye health for everyone. *Ophthalmic and Physiological Optics*(42), 1-3. <https://doi.org/10.1111/opo.12922>
- Rao, G. N. (2020). Universal health care: Can Indian ophthalmologist community set an example? *Indian J Ophthalmol.*, 68(2), 281-284. https://doi.org/10.4103/ijo.IJO_83_20
- Rasheed, M. (2023). The case for a Global South centred model in global health. (383), 2256. <https://doi.org/https://doi.org/10.1136/bmj.p2256>
- RCOPHTH. (2024a). Ophthalmic specialist training. <https://www.rcophth.ac.uk/training/ophthalmic-specialist-training/>
- RCOPHTH. (2024b). Syllabi, patient management and other domains. Retrieved 20 August 2024, from <https://www.rcophth.ac.uk/training/ophthalmic-specialist-training/syllabi/syllabi-by-sia/>
- RCPI. (2024). Professional competence: Guidelines and resources. <https://www.rcpi.ie/Learn-and-Develop/Lifelong-Learning/Professional-Competence/Professional-Competence-Guidelines-and-Resources/Eight-Domains-of-Good-Professional-Practice>
- RCSI. (2024). *Cross-cultural competence and effective communication workshop*. Royal College of Surgeons in Ireland (RCSI). Retrieved 31 August 2024 from <https://www.rcsi.com/dublin/professional-cpd/cpdss/cross-cultural-competence-and-effective-communication-workshop/course-details>
- ROR. (2020). *Vision 2050*. Republic of Rwanda (ROR).
- Sarker, M., Rabbani, A., Engels, T., Gayen, P., Islam, M. N., & Hossain, S. (2015). *Understanding demand and provision of eye care services among slum-dwellers in Dhaka, Bangladesh*. <https://www.iapb.org/wp-content/uploads/Bangladesh-Report-final-version-02-06-2015.pdf>
- Semba, R. D., de Pee, S., Sun, K., Bloem, M. W., & Raju, V. K. (2008). Coverage of the National Vitamin A Supplementation Program in Ethiopia. *Journal of Tropical Pediatrics*, 54(2), 141-144. <https://doi.org/10.1093/tropej/fmm095>
- SEVA. (2024a). *Global Sight Initiative*. Seva Foundation. Retrieved 14 August 2024 from <https://www.seva.org/site/SPageNavigator/programs/gsi>
- SEVA. (2024b). *Our work: Where we work*. Seva Foundation. https://www.seva.org/site/SPageServer/?pagename=where_we_work
- Sharma, D., & Sam-Agudu, N. A. (2023). Decolonising global health in the Global South by the Global South: Turning the lens inward. *British Medical Journal (BMJ) Global Health*, 8(9), e013696. <https://doi.org/10.1136/bmjgh-2023-013696>
- Shiva, V. (2016). *Staying alive: Women, ecology, and development*. North Atlantic Books.
- Shukla, K. (2022). Community engagement in eye care: Working with and for communities. *Community Eye Health*, 35(115), 1-2.
- Shweikh, Y., & Rathee, M. (2022). *Eye Heroes*. Moorfields Eye Hospital / EyeHeroes.org.uk. Retrieved 27 May 2024 from <https://www.eyeheroes.org.uk>
- Skolnik, R. (2016). *Global health 101* (3rd ed.). Jones & Bartlett Learning.

- Steele, A. (2019). What is assessment for learning and what are the benefits? Retrieved 07 June 2024, from <https://www.cambridge.org/gb/education/blog/2019/07/02/what-assessment-learning-and-what-are-benefits/>
- Stern, J., Yasmin, S., Qureshi, M. B., & Bourne, R. (2023). 2030 In Sight: the future of global eye health (Comment) [BriefCommunication]. *Nature - Eye*, 1-2. <https://doi.org/doi:10.1038/s41433-023-02815-2>
- Su, C., Wang, Z., Dong, X., & Ma, X. (2024). Experiences of seeking diabetic eye care among patients with diabetes in China: a community-based convergent mixed methods study. *Public Health*, 234, 24-32. <https://doi.org/https://doi.org/10.1016/j.puhe.2024.05.021>
- Tennison, I., Roschnik, S., Ashby, B., Boyd, R., Hamilton, I., Oreszcyn, Tadj, Owen, A.,...Eckelman, M. J. (2021). Health care's response to climate change: A carbon footprint assessment of the NHS in England - The Lancet Planetary Health. *The Lancet: Planetary Health*, 5(2), E84-E92. [https://doi.org/doi:10.1016/S2542-5196\(20\)30271-0](https://doi.org/doi:10.1016/S2542-5196(20)30271-0)
- Tham, Y.-C., Li, X., Y, W. T., Quigley, H. A., Tin, A., & Ching-Yu., C. (2014). Global prevalence of glaucoma and projections of glaucoma burden through 2040: A systematic review and meta-analysis. *Ophthalmology*, 121(11), 2081–2090. <https://doi.org/https://doi.org/10.1016/j.ophtha.2014.05.013>
- Thiel, C. L., Schehlein, E., Ravilla, T., Ravindran, R. D., Robin, A. L., Saeedi, O. J.,...Vanketesh, R. (2017). Cataract surgery and environmental sustainability: Waste and lifecycle assessment of phacoemulsification at a private healthcare facility. *J Cataract Refract Surg*, 43(11), 1391-1398. <https://doi.org/10.1016/j.jcrs.2017.08.017>
- Thornton, J., Edwards, R., Mitchell, P., Harrison, R. A., Buchan, I., & Kelly, S. P. (2005). Smoking and age-related macular degeneration: a review of association [ReviewPaper]. *Eye*, 19(9), 935-944. <https://doi.org/doi:10.1038/sj.eye.6701978>
- Tieszen, M. E., & Guenberg, J. C. (1992). A quantitative, qualitative, and critical assessment of surgical waste. *JAMA*, 267(20), 2765-2768. <https://doi.org/10.1001/jama.1992.03480200073027>
- Tyler, P. (2013). The dissemination of science: Overcoming problems of publication in low income countries. [Editorial]. *Journal of Pakistan Psychiatric Society*, 10(2), 63-66.
- UN. (2024). *The 17 goals - Sustainable Development*. United Nations (UN). Retrieved 20 June 2024 from <https://sdgs.un.org/goals>
- UNCTAD. (2023). *Trade and development report 2023*. United Nations Conference on Trade and Development (UNCTAD).
- UNESCO. (2015). *Global Citizenship Education: Topics and learning objectives*. United Nations Educational, Scientific and Cultural Organization (UNESCO). <https://doi.org/https://doi.org/10.54675/DRHC3544>
- UNESCO. (2023a). 250 million children out-of-school: What you need to know about UNESCO's latest education data. Retrieved 22 August 2024, from <https://www.unesco.org/en/articles/250-million-children-out-school-what-you-need-know-about-unescos-latest-education-data>
- UNESCO. (2023b). What you need to know about global citizenship education. Retrieved 08 February 2024, from <https://www.unesco.org/en/global-citizenship-peace-education/need-know>
- UNICEF. (2023). *Levels and trends in child malnutrition: UNICEF/WHO/World Bank Group joint child malnutrition estimates: Key findings of the 2023 edition*. United Nations Children's Fund (UNICEF), World Health Organisation (WHO) & International Bank for Reconstruction and Development/The World Bank Group (WB).
- WAI. (2024). *Accessibility Principles*. W3C Web Accessibility Initiative (WAI) & World Wide Web Consortium (W3C). Retrieved 30 August 2024 from <https://www.w3.org/WAI/fundamentals/accessibility-principles/>
- Watts, K. J., Meiser, B., Zilliacus, E., Kaur, R., Taouk, M., Girgis, A.,...Kissane, D. W. (2017). Communicating with patients from minority backgrounds: Individual challenges

- experienced by oncology health professionals. *European Journal of Oncology Nursing*, 26, 83-90. <https://doi.org/https://doi.org/10.1016/j.ejon.2016.12.001>
- WB. (2023). Measuring Poverty. Retrieved 22 August 2024, from <https://www.worldbank.org/en/topic/measuringpoverty>
- WB. (2024). *Global Subnational Atlas of Poverty (GSAP)*. World Bank Group (WB) & Poverty & Inequality Platform (PIP). Retrieved 22 August 2024 from <https://pipmaps.worldbank.org/en/data/datatopics/poverty-portal/poverty-geospatial?dataset=PovertyRate2.15-gsap&zoomLevel=3&lat=19.53676432208408&lng=15.02343750000001>
- WBG. (2024). Transforming challenge to action: New health target announced at spring meeting. Retrieved 20 June 2024, from <https://www.worldbank.org/en/news/feature/2024/04/22/transforming-challenge-to-action-new-health-target-announced-at-spring-meetings>
- WEF. (2017). Why collaboration will be key to achieving the Sustainable Development Goals. Retrieved 30 August 2024, from <https://www.weforum.org/agenda/2017/01/realising-the-potential-of-cross-sector-partnerships/>
- WEF. (2021). 3 Priorities for stronger and more inclusive health systems. Retrieved 20 June 2024, from <https://www.weforum.org/agenda/2021/12/uhc-priorities-resilient-inclusive-health-systems/>
- WEF. (2023). 39 Organizations pledge to close gaps on Global Health Equity. <https://www.weforum.org/press/2023/01/39-organizations-pledge-to-close-gaps-on-global-health-equity/>
- WHO. (2013). *Universal eye health: A global action plan 2014-2019*. World Health Organisation (WHO).
- WHO. (2016). *Eye care service assessment tool* [Publications]. World Health Organization (WHO). <https://doi.org/https://iris.who.int/handle/10665/250640>
- WHO. (2019). *World Report on Vision*. W. H. O. (WHO). <https://www.who.int/publications/i/item/9789241516570>
- WHO. (2021a). *Building health systems resilience for universal health coverage and health security during the COVID-19 pandemic and beyond: A brief on the WHO position*. World Health Organisation (WHO).
- WHO. (2021b). *Ending the neglect to attain the Sustainable Development Goals: A road map for neglected tropical diseases 2021–2030*. World Health Organisation (WHO), Team: Control of Neglected Tropical Diseases (NTD).
- WHO. (2021c). Global eye care targets endorsed by Member States at the 74th World Health Assembly. <https://www.who.int/news/item/27-05-2021-global-eye-care-targets-endorsed-by-member-states-at-the-74th-world-health-assembly>
- WHO. (2022). WHO launches new guide on integrating eye care in health systems. Retrieved 12 July 2024, from <https://www.who.int/news/item/24-05-2022-who-launches-new-guide-on-integrating-eye-care-in-health-systems>
- WHO. (2023a). *ILO/IAPB Eye health and the world of work*. World Health Organisation (WHO). Retrieved 17 July 2024 from <https://www.who.int/news/item/15-09-2023-ilo-iapb-eye-health-and-the-world-of-work>
- WHO. (2023b). *Tracking Universal Health Coverage: 2023 Global monitoring report*. World Health Organisation (WHO).
- WHO. (2024a). SDG Target 3.8. Retrieved 06 March 2024, from [https://www.who.int/data/gho/data/themes/topics/indicator-groups/indicator-group-details/GHO/sdg-target-3.8-achieve-universal-health-coverage-\(uhc\)-including-financial-risk-protection](https://www.who.int/data/gho/data/themes/topics/indicator-groups/indicator-group-details/GHO/sdg-target-3.8-achieve-universal-health-coverage-(uhc)-including-financial-risk-protection)
- WHO. (2024b). WHO called to return to the Declaration of Alma-Ata. Retrieved 10 July 2024, from <https://www.who.int/teams/social-determinants-of-health/declaration-of-alma-ata>
- WHS. (2021). D 06 - Eye Health: An Underestimated Global Health Challenge. Retrieved 28 March 2024, from <https://www.youtube.com/watch?v=2hqJxfEaM-s>

- Wilkinson, R., & Marmot, M. (2003). *Social determinants of health - the solid facts* (2nd ed.). World Health Organization (WHO) Regional Office for Europe.
- Williams, L. B., Prakash, S. G., Ansari, Z., & Goldhardt, R. (2020). Impact and trends in global ophthalmology [Review Paper]. *Current Ophthalmology Reports*, 8(3), 136-143. <https://doi.org/doi:10.1007/s40135-020-00245-x>
- Wong, W. L., Su, X., Li, X., Cheung, C. M., Klein, R., Cheng, C.-Y., & Wong, T. Y. (2014). Global prevalence of age-related macular degeneration and disease burden projection for 2020 and 2040: a systematic review and meta-analysis - The Lancet Global Health. *The Lancet Global Health*, 2(2), E106-E116. [https://doi.org/doi:10.1016/S2214-109X\(13\)70145-1](https://doi.org/doi:10.1016/S2214-109X(13)70145-1)
- Woolf, S. H., Purnell, J. Q., Simon, S. M., Zimmerman, E. B., Camberos, G. J., Haley, A., & Fields, R. P. (2015). Translating evidence into population health improvement: Strategies and barriers. *Annual Review of Public Health*, 36, 463-482. <https://doi.org/https://doi.org/10.1146/annurev-publhealth-082214-110901>
- Worldometers. (2024). *World population clock*. Retrieved 20 June 2024 from <https://www.worldometers.info/world-population/>
- WTO. (2001). Declaration on the TRIPS agreement and public health. Retrieved 17 August 2024, from https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_trips_e.htm
- WWGS. (2024). What is Global Citizenship Education. Retrieved 19 June 2024, from <https://www.worldwiseschools.ie/development-education/>
- Yasmin, S., Faal, H., Ravilla, T., Murthy, G., & Shamanna, B. (2022). Community involvement in eye care: A health system perspective. *Community Eye Health Journal*, 35(115), 35-36.
- Ye, J., Department of Ophthalmology, t. n. A. H. o. Z. U., College of Medicine, Hangzhou, Zhejiang, China, and, Institute of Vision Research, D. o. O., Yonsei University College of Medicine, Seoul, Korea., He, J., Department of Ophthalmology, t. n. A. H. o. Z. U., College of Medicine, Hangzhou, Zhejiang, China,...Institute of Vision Research, D. o. O., Yonsei University College of Medicine, Seoul, Korea. (2024). Smoking and Risk of Age-Related Cataract: A Meta-Analysis. *Investigative Ophthalmology & Visual Science*, 53(7), 3885-3895. <https://doi.org/10.1167/iovs.12-9820>
- Young, R. J. C. (2004). *Postcolonialism: An historical introduction*. Blackwell Publishing.
- Zhang, J. H., Ramke, J., Jan, C., Bascaran, C., Mwangi, N., Furtado, Joao M, Yasmin, S., Ogundo, Cynthia,...Burton, M. J. (2022). Advancing the Sustainable Development Goals through improving eye health: A scoping review. *Lancet Planet Health*, 6, e270-280. [https://doi.org/https://doi.org/10.1016/S2542-5196\(21\)00351-X](https://doi.org/https://doi.org/10.1016/S2542-5196(21)00351-X)