

SUSTAINABILITY IN EYECARE

Climate action in eyecare

BY MITASHA YU AND IMRAN KHAN

Climate change will cause disruption to critical eyecare services and increases in rates of eye disease around the world. The International Agency for Prevention of Blindness has recommended 10 key areas of action on how the eyecare sector can address climate change.

In the past year, the world has shared the confronting reality of the COVID-19 pandemic. This global pandemic has illustrated how human health and planetary health are closely intertwined.

Climate change has a strong influence on our wellbeing as well as the stability of health systems, governments and local communities. It is an urgent problem that has no boundaries, affecting us all at a personal, community, national and global level.

We have already begun seeing some of the devastating impacts of climate change, such as severe storms and floods, prolonged heatwaves and droughts, new and emerging infectious diseases and compounding threats to food security. Climate change could drag more than 100 million people back into extreme poverty by 2030, with much of this leading to negative impacts on health [1].

Globally, all countries will experience the health impacts of climate change [2]. However, evidence shows us that poor populations are most vulnerable [3]. Marginalised groups such as women and girls [4], and people living with visual impairment and disabilities, will be disproportionately affected by climate change.



Figure 1: Mozambique flooding after cyclone Eloise. Photo supplied courtesy of Light for the World.

Eye health and climate change



Eye health will also be affected. Climate change is predicted to increase the incidence of trachoma infections [5], vitamin A deficiencies, cataracts [6,7], severe allergic eye diseases [8], glaucoma [9], age-related macular degeneration [10] and eye injuries. The increase in frequency of extreme weather events due to climate change will lead to a disruption of eyecare services and supply chains. We have seen a similar disruption in the last year during the COVID-19 global pandemic, where people have not had access to critical eyecare services such as cataract surgeries and spectacles. The *World Report*

on Vision highlights there are currently already 2.2 billion people globally that have vision impairment, with at least 1 billion that is still yet to be addressed [11]. Disruption to the critical eyecare services, in addition to the predicted increased in eye disease will further exacerbate the situation.

Our carbon footprint



Globally, healthcare is a massive consumer of resources and major emitter of greenhouse gas emissions, responsible for 2 billion tons of carbon dioxide equivalent (CO₂e), which is 4.4% of all global net greenhouse gas emissions (GHGs) [12].

Poor waste management contributes to our carbon footprint. Although 85% of healthcare waste is non-hazardous, its disposal still has an impact on the environment. For example, non-contaminated healthcare plastic will add to the plastic pollution if not recycled. And the GHG emissions produced by biodegradable waste in landfill are especially high as they include methane which is 21 times more potent than carbon dioxide. Within eye health, there have been studies which have looked at the carbon footprint of cataract surgery. Morris et al. estimated that the carbon footprint of cataract surgery by phacoemulsification in the UK is 182 kgCO₂e [13], whereas Thiel et al. found that the same surgery in India releases only 6 kgCO₂e [14].

International momentum

In the last decade, we have seen a tremendous shift in energy globally to tackle climate change. There is strong momentum from leading international agencies. The United Nations established the 17 interdependent Sustainable Development Goals (SDGs), several of which are directed towards addressing climate change. These goals provide a master plan for the global community to work towards an equitable and sustainable future. The World Health Organization has acknowledged that climate change affects the social and environmental determinants of health. More recently, The Lancet Commission on Global Eye Health stated that planetary health is a key component to improving quality of eyecare and emphasised that the eyecare community strongly consider environmentally sustainable eye health services to make progress towards the SDGs [11]. Given the significant role we play in generating carbon emissions, and the substantial impact climate change will have on eyecare – we do not want to be left behind.

Climate Action Working Group

The Climate Action Working Group (CAWG) was established in 2017 as an initiative of the members of the International Agency for the Prevention of Blindness (IAPB). The goal of the CAWG is to provide leadership and advocacy for increased adoption and action

on priority matters relating to climate action in eye health for IAPB members and other stakeholders. This active group is currently comprised of 17 members and meets several times a year.

Declaration of a climate emergency

In recognition of Earth Day, on 22 April 2021, IAPB declared a climate emergency [15] and released a *Call to Action for Environmentally Sustainable Practices in the Eye Health Sector* [16] and a *Guide for Environmentally Sustainable Practices in the Eye Health Sector* [17]. The two key resources not only highlight the need for climate action within the eye health sector, but also show how the sector can take efforts to 'Restore our Earth' which was the theme of this year's Earth Day.

Call to Action: 10 key areas of actions to promote and embed environmental sustainability

The *Call to Action for Environmentally Sustainable Practices in the Eye Health Sector* and supporting *Guide* sets out practical steps that organisations and individuals can prioritise to adapt to adverse climate events and decrease the negative effect that health services delivery has on the environment. Strong and informed leadership is needed to advocate and implement actions that support organisations along their journey towards environmental sustainability.

There are 10 key areas of action that organisations can focus on to promote and embed environmental sustainability across their strategy, operations and policies.

These 10 key areas of actions are:

- 1) **Lead:** Acknowledging there is a climate emergency is the first step in an organisation making a commitment to prioritise environmental sustainability. A policy can be developed and communicated both internally and externally. Frameworks can be established to set targets to reduce an organisation's carbon emissions, and climate change initiatives can be prioritised and resourced.
- 2) **Advocate:** Through advocating for environmentally sustainable practices with staff, partners and the wider sector, we can raise the awareness and urgency of climate change and influence others to take action to change their practices.
- 3) **Procure sustainably:** Supply chains for equipment and consumables used to deliver healthcare are the most significant contributor of greenhouse gas emissions, accounting for 71%. Therefore, through developing a sustainable procurement policy and engaging with suppliers who have a lower environmental impact based on production and delivery, organisations can significantly reduce their carbon footprints.
- 4) **Reduce the use of fossil fuels:** The use of energy in medical facilities accounts for 25% of the global carbon footprint of delivering healthcare. Energy consumption can be reduced through more efficient building design, including use of natural lighting and ventilation. Consider switching to renewal forms of energy, including solar energy.
- 5) **Conserve water:** Steps can be taken to reduce the amount of water used within a facility, including using water saving devices like low flow taps, toilets and fixtures in new and refurbished buildings.
- 6) **Reduce and safely dispose of waste:** Given the impact of poorly disposed medical waste on both health and the environment, there are steps that can be taken to reduce and / or safely dispose of waste. Organisations can consider the 'waste hierarchy' of reduce, reuse, repair, recycle.
- 7) **Reduce travel:** Travel can be reduced through use of video conferencing technology to reduce face-to-face meetings,



Figure 2: Call to Action for Environmentally Sustainable Practices in the Eye Health Sector [16].



Figure 3: Guide for Environmentally Sustainable Practices in the Eye Health Sector [17].

workshops and conferences. Patient travel can be reduced through employing telemedicine, where possible, and / or by locating services closer to communities.

- 8) **Follow the four principles of sustainable clinical practice [18]:** The four principles are: 1) disease prevention and health promotion, 2) patient education and empowerment, 3) lean eye health service delivery, and 4) use of medical procedures and technologies with lower environmental impact. These principles aim to maximise health outputs, while reducing the environmental impact of healthcare through decreasing the need for, and impact, of service delivery.
- 9) **Embed environmental sustainability in education:** Environmental sustainability can be embedded into the curriculum of various training programmes to ensure that healthcare workers have the knowledge and capacity to deliver environmentally sustainable programmes. Working groups can be set up within organisations and resources that promote sustainability can be shared externally.
- 10) **Focus your research:** To support advocacy and practice efforts, it is key that these are evidence-based. Given the gaps in research relating to environmental sustainability, there is an opportunity for organisations to strengthen the evidence base by supporting and / or conducting research within these areas.

Next steps

Readers can get involved by championing environmental sustainability within their organisations. The *Call to Action for Environmentally Sustainable Practice in the Eye Health Sector* and *Guide for Environmentally Sustainable Practices in the Eye Health Sector* serve as a useful starting point to help organisations along the journey to environmental sustainability and can be downloaded from the Climate Action Working Group page on the IAPB website (www.iapb.org).

If readers are interested in becoming involved with the Climate Action Working Group, joining the Communities of Practice or signing up for IAPB newsletters for the latest developments, please contact IAPB at communications@iapb.com

References

1. Watts N, Amann M, Arnell N, et al. The 2020 report of The Lancet Countdown on health and climate change: responding to converging crises. *The Lancet* 2021;**397**(10269):129-70.
2. Watts N, Amann M, Arnell N, et al. The 2019 report of The Lancet Countdown on health and climate change: ensuring that the health of a child born today is not defined by a changing climate. *The Lancet* 2019;**394**(10211):1836-78.
3. Yamada S, Galat A. Typhoon Yolanda/Haiyan and Climate Justice. *Disaster Med Public Health Prep* 2014;**8**(5):432-5.

4. United Nations Framework Convention on Climate Change (2019). Gender and climate change: Enhanced lima work programme on gender and its gender action plan, FCCC/CP/2019/L.3.
5. Ramesh A, Kovats S, Haslam D, et al. The impact of climatic risk factors on the prevalence, distribution, and severity of acute and chronic trachoma. *PLoS Negl Trop Dis* 2013;**7**(11):e2513.
6. Johnson GI. The environment and the eye. *Eye* 2004;**18**:1235-50.
7. Jaggernath J, Haslam D, Naidoo KS. Climate change: Impact of increased ultraviolet radiation and water changes on eye health. *Health* 2013;**5**(5):921-30.
8. Miyazaki D, Fukagawa K, Fukushima A, et al. Air pollution significantly associated with severe ocular allergic inflammatory diseases. *Nature* 2019;**9**:18205.
9. Chua SYL, Khawaja AP, Morgan J, et al. The Relationship Between Ambient Atmospheric Fine Particulate Matter (PM2.5) and Glaucoma in a Large Community Cohort. *Invest Ophthalmol Vis Sci* 2019;**60**(14):4915.
10. Chua SYL, Warwick A, Peto T, et al. Association of ambient air pollution with age-related macular degeneration and retinal thickness in UK Biobank. *Brit J Ophthalmol* 2021; Epub ahead of print.
11. Burton MJ, Ramke J, Marques AP et al. The Lancet Global Health Commission on Global Eye Health: vision beyond 2020. *The Lancet Global Health* 2021;**9**(4):e489-e551.
12. Healthcare's Climate Footprint. Healthcare without Harm. Arup, 2019.
13. Morris DS, Wright T, Somner JE, Connor A. The carbon footprint of cataract surgery. *Eye (Lond)* 2013;**27**(4):495-501.
14. Thiel CL, Schehlein E, Ravilla T, et al. Cataract surgery and environmental sustainability: Waste and lifecycle assessment of phacoemulsification at a private healthcare facility. *J Cataract Refract Surg* 2017;**43**(11):1391-8.
15. Global Sight Alliance declares Climate Emergency and Calls for Urgent Action. IAPB, 2021: <https://www.iapb.org/news/global-sight-alliance-declares-climate-emergency-and-calls-for-urgent-action/>
16. Call to Action for Environmentally Sustainable Practices in the Eye Health Sector. IAPB, 2021: https://www.iapb.org/wp-content/uploads/2021/04/IAPB_CAWG_CTA-document.pdf
17. Guide for Environmentally Sustainable Practices in the Eye Health Sector. IAPB, 2021: https://www.iapb.org/wp-content/uploads/2021/04/IAPB_CAWG_GUIDE-document.pdf
18. Mortimer F. The sustainable physician. *Clinical Medicine (Lond)* 2010;**10**(2):110-1. (All links last accessed June 2021)

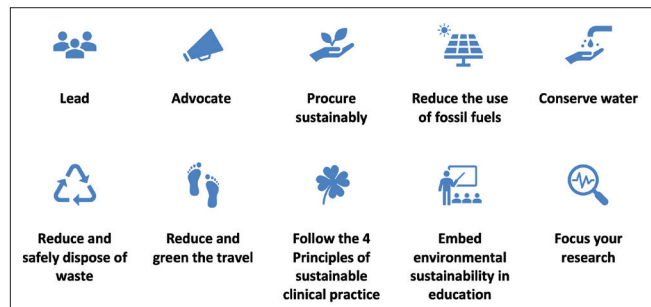


Figure 4: Ten Key areas of action that organisations can focus on to promote and embed environmental sustainability across their strategy, operations and policies.

AUTHORS



Mitasha Yu,

Co-chair of the Climate Action Working Group for the International Agency for the Prevention of Blindness.



Imran Khan,

Co-chair of the Climate Action Working Group for the International Agency for the Prevention of Blindness.

TAKE HOME MESSAGE

- Climate change has a strong influence on our wellbeing and the stability of health systems.
- The combination of predicted increases in eye diseases and disruption of eye health services due to climate change, will exacerbate the number of people suffering with vision impairment.
- Globally, healthcare is a massive consumer of resources and major emitter of greenhouse gas emissions, responsible for 4.4% of all global net greenhouse gas emissions.
- There are 10 key areas of actions organisations can take to decrease the negative effects of delivering eye care on the environment.
- Readers can get involved by championing environmental sustainability within their organisations and downloading the *Call to Action* and *Guide for Environmentally Sustainable Practices in the Eye Health Sector*.