UNIVERSITY OF AUCKLAND
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MEDICAL AND HEALTH SCIENCES
SCHOOL OF OPTOMETRY AND VISION SCIENCE

Eye care in Aotearoa New Zealand 2022

Eye Care Situation Analysis Tool (ECSAT)

Prepared for:

eye health AOTEAROA

With funding from:

Blind Low Vision NZ

Contents

Preface

This report is based on a tool recently revised by the World Health Organization (WHO), the Eye Care Situation Analysis Tool (ECSAT). This work was undertaken for Eye Health Aotearoa with funding from Blind Low Vision New Zealand.

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Finally, we acknowledge that the findings from the WAI2757 Te Tiriti o Waitangi claim have not been made explicit in this report, due to the use of a global tool. However, the principles of Tino Rangatiratanga (decision making), Equity, Active Protection, Options, and Partnership are embedded in the recommendations and are essential for any action that results from this report.

Suggested citation

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Acronyms used in this report

ACC	Accident and Compensation Commission
CPD	Continuing Professional Development
DHB	District health board
ECSAT	Eye Care Situation Analysis Tool
GP	General practitioner
HIS	Health information system
HPCA	Health Practitioners' Competency Act
HRC	Health Research Council
IPEC	Integrated people-centred eye care
MOH	Ministry of Health
NCD	Non-communicable diseases
NZ	New Zealand
ODOB	Optometrists and Dispensing Opticians Board of NZ
PHARMAC	Pharmaceutical Management Agency
PHO	Primary Health Organization
RANZCO	Royal Australian and New Zealand College of Ophthalmologists
ROP	Retinopathy of prematurity
SDG	Sustainable Development Goals
WHA	World Health Assembly
WHO	World Health Organization
WINZ	Work and Income NZ

Background on eye health globally

Globally, there was an estimated 1.1 billion people living with distance or near vision impairment in 2020, and this is expected to increase in the coming decades[1]. Eye conditions impact all stages of the life course, with young children and older people particularly affected. Cataract and refractive error—conditions with highly cost-effective interventions—were the cause of more than 90% of vision impairment in 2020[2].

The recent *Lancet Global Health* Commission on Global Eye Health[3] highlighted that vision impairment reduces mobility, affects mental well-being, exacerbates risk of dementia, increases likelihood of falls and road traffic crashes, increases need for social care, and ultimately leads to higher mortality rates. Further, the Commission showed that poor eye health has a negative impact on quality of life, education, and work, and estimated that addressing vision impairment through the provision of good eye health treatment and rehabilitation services would result in annual productivity gains of more than US$410 billion.

The Commission collated evidence that good vision and eye health unlocks human potential and reduces inequality by facilitating many activities of daily life, enabling better educational outcomes, and increasing work productivity. An increasingly compelling body of evidence demonstrates the potential for eye health services to advance the Sustainable Development Goals (SDGs), by contributing towards Poverty Reduction, Zero Hunger, Good Health and Well-Being, Quality Education, Gender Equality, and Decent Work[4]

Universal health coverage is a strategic priority of the World Health Organization (WHO); the concept of universal health coverage ensures that all people have access to the promotive, preventive, curative, and rehabilitative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship[5].

World Health Assembly resolution WHA73.4 (August 2020) on Integrated people-centred eye care (IPEC), urged Member States to make eye care an integral part of universal health coverage and to implement people-centred eye care in health systems. Integrated people-centred eye care refers to eye care services that are managed and delivered to assure a continuum of promotive, preventive, treatment, and rehabilitative interventions against the spectrum of eye conditions, coordinated across the different levels and sites of care within and beyond the health sector, and according to people's needs throughout the life course[6].

To develop integrated people-centred eye care, countries will need to understand which aspects of eye care services need to be strengthened. WHO has recently revised the Eye Care Situation Analysis Tool (ECSAT) to assist countries to summarise the current situation for eye health and support subsequent planning. We have used this tool to prepare this report.

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[1] Bourne R, Steinmetz JD, Flaxman S, et al. 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* 2021;9(2): e130-e143.

[2] Steinmetz JD, Bourne RR, Briant PS, et al. Causes of Blindness and Vision Impairment in 2020 and Trends over 30 Years, and Prevalence of Avoidable Blindness in Relation to Vision 2020: The Right to Sight: An Analysis for the Global Burden of Disease Study, *The Lancet Global Health* 2021;9(2): e144-e160.

[3] 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.

[4] Zhang JH, Ramke J, Jan C, et al. Advancing the Sustainable Development Goals through Improving Eye Health: A Scoping Review, *The Lancet Planetary Health*, accessed 2022/02/27, https://dx.doi.org/10.1016/S2542-5196(21)00351-X.

[5] World Health Organization. Universal Health Coverage, 2022, accessed 25 Feb, 2022, https://www.who.int/health-topics/universal-health-coverage#tab=tab_1.

[6] World Health Organization. Seventy-Third World Health Assembly Wha 73.4. Integrated People-Centred Eye Care, Including Preventable Vision Impairment and Blindness, 2020, accessed 25 Feb, 2022, https://apps.who.int/gb/ebwha/pdf_files/WHA73/A73_R4-en.pdf.

Development of this report

In 2021 WHO revised its Eye Care Situation Analysis Tool (ECSAT), which has 178 individual questions across 31 Items organised across six health system building blocks[7]. The following report is based on responses to each of these ECSAT questions.

To develop this report, between November 2021 and January 2022 we undertook a document review involving scholarly work (e.g. scientific peer reviewed publications), official documents (e.g. policy and policy directives), implementation documents (e.g. clinical protocols, training manuals, and evaluation reports), legal documents (e.g. regulations), working documents (e.g. PowerPoint presentations), and media communications (e.g. newspaper and magazine articles, newsletters, and webpages). We then engaged in a series of key informant interviews with members of the Technical Working Group or other colleagues (listed in acknowledgements) to verify information obtained and fill in any knowledge gaps. This draft report was shared with the Technical Working Group with a request for feedback, and further discussions took place until consensus on responses were reached.

This report provides a summary of the key aspects of the eye health situation in 2022. However, we recognise there may be some activities that were not readily available online and were unknown to our key informants and are therefore not reflected here. We welcome additional information being shared with us.

How to use this report

This report summarises the Eye Care Situation in Aotearoa New Zealand (hereafter referred to as New Zealand or NZ) in Q1 2022, according to the 178 individual questions across 31 Items in WHO's Eye Care Situation Analysis Tool (ECSAT).

These ***questions*** in the tool are numbered from (a) up to (j) for each Item, and we have added these letters at the end of each statement for ease of cross-reference to the ECSAT tool. In ECSAT, most questions call for a yes/no response. In this report, we have rephrased the question to be a statement, with elaboration where we felt this was warranted.

The tool also includes a series of statements to summarise the ***'maturity level'*** of each of the 31 Items, from "Level 4 Needs no immediate action" down to "Level 1 Needs establishing". We have made our assessment of the maturity level of eye care services in New Zealand based on the evidence we could identify for each Item (evidence statements are summarized in the blue box for each Item). For each of these statements, we include the level at which WHO has placed the situation (e.g. L1, L4). Where the statements outlined by WHO did not reflect our situation, we have added statements, and these are shown with (*). We have collated and visualised the maturity level for all 31 Items on the following page.

The tool also includes a series of ***possible actions*** for each Item. We have included what we consider to be the priority actions for each Item (shown in the green box for each Item). Where the actions outlined by WHO did not reflect what was needed in New Zealand, we have added actions, and these are shown with (*). We have collated the possible actions for all Items at the end of the report.

References are included to support our statements where these were available. If no citation is provided, the information was obtained from key informant interviews or knowledge of the Technical Working Group.

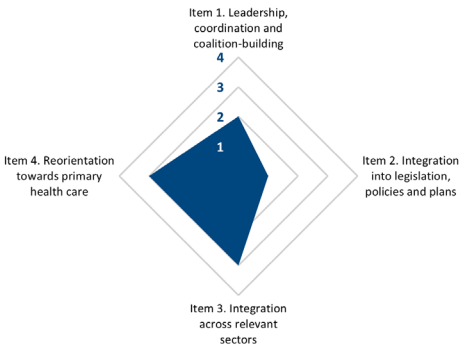
We have answered questions for services available to citizens / permanent residents / people with eligible visas.

[7] World Health Organization. *Eye Care Situation Analysis Tool (Ecsat)* Geneva: 2019, accessed 03 Nov 2021. https://www.who.int/news/item/14-10-2021-eye-care-situation-analysis-tool-(ecsat)-launch.

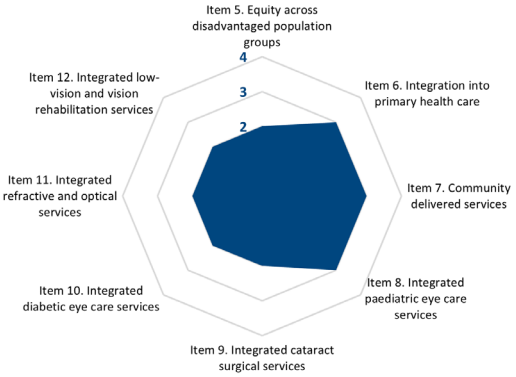
Summary of the eye care situation in Aotearoa New Zealand

To give a visual summary of the eye care situation in New Zealand in 2022, we have plotted the maturity level scores for each of the 31 items in ECSAT, categorised by the Health System Block to which they correspond. Items where our system is well-developed are reflected by scores of 4; the proportionately larger blue shaded areas reflect a more developed aspect of eye health services. The areas of Quality (Block 3) and Workforce and Infrastructure (Block 4) are strong or in need of only minor strengthening, whereas the areas of Leadership and Governance (Block 1), Financing (Block 5) and Information (Block 6) need major strengthening.

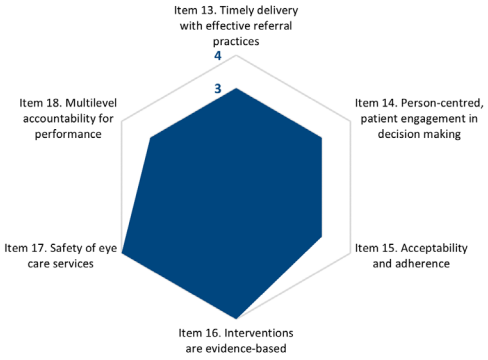
Block 1: Leadership and governance



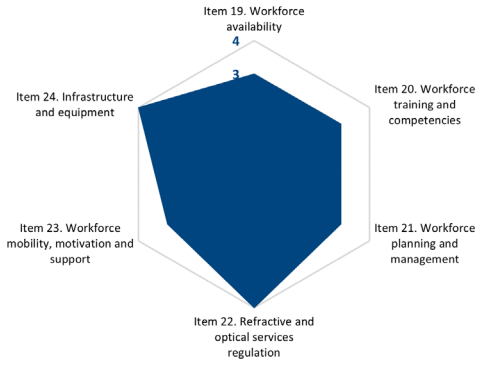
Block 2: Service delivery – access



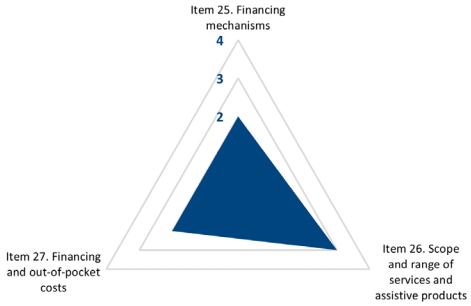
Block 3: Service delivery – quality



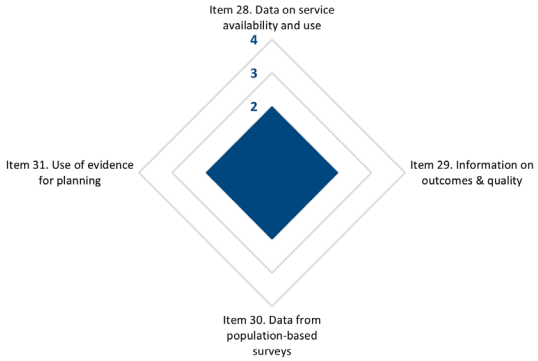
Block 4: Workforce and infrastructure



Block 5: Financing



Block 6: Information



Maturity level determined for New Zealand in 2022:
1 = Needs establishing; 2 = Needs major strengthening; 3 = Needs minor strengthening; 4 = Needs no immediate action

Block 1: Leadership and governance

1. Leadership, coordination and coalition-building for eye care

WHO Definition: Leadership refers to the process of influence through which leaders gain support from others to achieve goals associated with improving and strengthening eye care. Coordination relates to the organization of the different efforts to ensure they work together effectively. Coalition-building refers to uniting and aligning stakeholders to form groups, partnerships, networks and alliances that support eye care.

The proportion of eye care provided by level and sector is shown in the table below (a).

Type of eye care services provider	Primary (%)	Secondary (%)	Tertiary (%)**
Government	NA*	60-70%	50%
Private-for-profit	~100%	30-40%	50%
Private not-for-profit (including non-governmental organizations)	<1%	–	–
Total	**100%**	**100%**	**100%**

**GPs and optometrists are private providers who refer to public or private ophthalmology; some provide subsidised primary eye care to specific population groups; ** The estimations for tertiary care are based on evidence for cataract surgery[8].*

Eye care has no assigned **governance structure** within the Ministry of Health (MoH)[9] (b).

The main **coalitions of stakeholders for eye care** include non-governmental organizations (NGOs) such as Blind Low Vision NZ[10], Eye Health Aotearoa[11] and professional bodies such as RANZCO and NZ Association of Optometrists (c).

The government's **political and financial commitment** to eye care has not changed substantially in the past five years (d).

Data are available on the **projected growing and ageing population**[12], but not how it relates to eye care (e).

Proposed maturity level score = 2 **Needs major strengthening**

- Leadership for eye care is very limited, ad hoc or non-existent; it may or may not include the Ministry of Health; there is almost no direction for eye care and there is little influence on political commitment (L1).
- There is a moderate level of financial sustainability for eye care; its financing is integrated into health financing mechanisms and funding levels are moderately stable or rising (L3).
- There has been a little financial planning for future needs (L2).
- There is a small amount of intersectoral and/or interagency coordination for eye care; a small number of mechanisms, platforms and coalitions exist, and more are needed; and the roles and responsibilities are developing but need further attention (L2).

Possible actions – Leadership, coordination and coalition-building for eye care

- Create awareness at the Ministry of Health regarding unmet need for eye care. Support the Ministry of Health to advocate internally for eye care.
- Develop capacity and political support for eye care within the Ministry of Health.
- Create or strengthen intersectoral dialogue mechanisms. Develop the roles and responsibilities of each agency.
- Create clear mechanisms for coordinating eye care, such as steering groups, technical working groups, or committees, and support them to function effectively.

[8] Chilibeck C, Mathan JJ, Ng SG, et al. Cataract Surgery in New Zealand: Access to Surgery, Surgical Intervention Rates and Visual Acuity, The New Zealand Medical Journal 2020;133(1524): 40-6.

[9] Ministry of Health. New Zealand Health System, last modified 03 October 2021, 2021, accessed 05 Feb, 2021, https://www.health.govt.nz/new-zealand-health-system.

[10] Blind Low Vision NZ. Our Services, 2021, accessed 07 Dec, 2021, https://blindlowvision.org.nz/how-we-can-help/.

[11] Eye Health Aotearoa. About Us, accessed 07 Dec, 2021, https://www.eyehealthaotearoa.org.nz/about_us.

[12] Stats NZ. National Population Projections: 2020(Base)–2073, last modified 08 Dec 2020, 2020, accessed 09 Feb, 2022, https://www.stats.govt.nz/information-releases/national-population-projections-2020base2073#:~:text=In%202020%2C%2010%20percent%20of,79.1%E2%80%9383.3%20years%20in%202073.

2. Eye care integration into legislation, policies and plans

WHO Definition: Eye care legislation refers to the laws and policies developed within a country's constitutional frameworks and legal regimes that encompass eye care. It also includes plans and strategies that relate to eye care. These are commonly agency wide or sector wide, action orientated and aim to achieve specified goals and objectives.

There is a current national **health strategic plan**[13], but eye care is not specifically included (a).

There is no **national eye care strategy** or action plan (b).

There is no **designated unit or coordinator for eye care** at the Ministry of Health (c).

New Zealand is a signatory to the Sustainable Development Goals[14] but does not have a **development agenda** (d).

New Zealand has a **disaster management plan** that is disability inclusive[15] (e).

Proposed maturity level score = 1 **Needs establishing**

- Legislation and policy frameworks are absent or encompass eye care inadequately (L1).
- Eye care is not integrated into health policies and agendas (L1).
- There has been only a small amount, or no amount of stakeholder consultation to date (L1).

Possible actions – Eye care integration into legislation, policies and plans

- Integrate eye care into the national health strategic plan, including targets.
- Integrate eye care into health legislation and relevant policies.
- Clarify eye care within legislation, policies and plans.
- Develop a national plan for eye health and the prevention of blindness, in collaboration with relevant sectors, programmes and government stakeholders, if integration into the national health strategic plan is lacking.
- Develop standards and/or a masterplan for the development/expansion of eye care across health care.

[13] Ministry of Health. Strategic Frameworks, last modified 19 May 2021, 2021, accessed 05 Feb, 2022, https://www.health.govt.nz/our-work/populations/pacific-health/strategic-frameworks.

[14] New Zealand Foreign Affairs and Trade. Sustainable Development Goals, accessed 08 Feb, 2022, https://www.mfat.govt.nz/en/peace-rights-and-security/our-work-with-the-un/sustainable-development-goals/#bookmark1.

[15] Ministry of Health. National Health Emergency Plan: A Framework for the Health and Disability Sector. Wellington: Ministry of Health, 2015. https://www.health.govt.nz/publication/national-health-emergency-plan-framework-health-and-disability-sector.

3. Integration of eye care across relevant sectors and programmes

WHO Definition: Eye care services require integration with relevant sectors and programmes (health and non-health) to provide services that are effective, equitable and of high quality.

There are no formal mechanisms for the **coordination of eye care** between ministries (a).

There is a **non-communicable diseases (NCD) plan**[16]; it does not include eye care (b).

There is no **NCD multisectoral committee,** though this has been proposed[17] (c).

There are a range of **NCD related guidelines**[18], including one on diabetic retinal screening[19] (d).

There is a **Healthy Ageing Strategy**[20] which does not explicitly include cataract services or refractive and optical services (e).

The national *Year 7 Vision Checks* program funded by the Ministry of Health was recently reviewed; the current program includes the checking of distance visual acuity of school children when they are aged 11 or 12 years[21]. This **school vision screening** tends to be connected to services that provide refraction and glasses, though this does not include broader 'healthy school' elements (f).

Representatives from relevant **non-health sectors and the eye care sector** rarely engage over policy development (g).

Representatives from relevant **health programmes and the eye care sector** rarely engage over policy development (h).

Proposed maturity level score = 3 **Needs minor strengthening**

- Eye care services are partially integrated across relevant sectors and programmes. There is some engagement for planning and coordination of services at the national level or subnational level (L3).
- Non-health sector representatives are sometimes involved in the preparation of eye health policies (L3).

Possible actions – Integration of eye care across relevant sectors and programmes

- Identify priority sectors and programmes for integration strengthening.
- Actively engage stakeholders from relevant sectors and programmes in eye care planning.
- Ensure representatives from the eye care sector contribute to strategy planning meetings and discussions among relevant sectors and programmes, including those describing noncommunicable diseases.
- Ensure eye care indicators are included within frameworks of relevant sectors and programmes, including noncommunicable diseases.

[16] Nationwide Service Framework Library. Long Term Conditions Outcomes Framework, Ministry of Health, last modified 05 June 2019, 2019, accessed 07 Dec, 2021, https://nsfl.health.govt.nz/dhb-planning-package/long-term-conditions-outcomes-framework.

[17] Bullen C, Beaglehole R, Daube M, et al. Targets and Actions for Non-Communicable Disease Prevention and Control in New Zealand, New Zealand Medical Journal 2016;128(55-60.

[18] Ministry of Health. Long-Term Conditions, last modified 09 Dec 2020, 2020, accessed 28 Jan, 2022, https://www.health.govt.nz/our-work/diseases-and-conditions/long-term-conditions.

[19] Ministry of Health. Diabetic Retinal Screening, Grading, Monitoring and Referral Guidance. Wellington: Ministry of Health, 2016. https://www.health.govt.nz/publication/diabetic-retinal-screening-grading-monitoring-and-referral-guidance.

[20] Ministry of Health. Healthy Ageing Strategy: Update, Ministry of Health, last modified 05 Sept 2021, 2021, accessed 07 Dec, 2021, https://www.health.govt.nz/our-work/life-stages/health-older-people/healthy-ageing-strategy-update.

[21] Ministry of Health. Free Vision Checks for Children, last modified 26 October 2016, 2016, accessed 05 Feb, 2022, https://www.health.govt.nz/your-health/services-and-support/health-care-services/free-vision-checks-children.

4. Reorientation of eye care services towards primary eye care within primary health care

WHO Definition: Reorienting the model of care involves ensuring that health care services prioritize primary and community eye care services. Prioritization includes adequate funding, workforce training and coordination with other services to ensure effective referral systems. Primary health care services are delivered in settings such as general practices, community health centres, allied health practices and via communication technologies such as telehealth and video consultations.

Primary eye care is not prioritised within **wider eye care service planning** (a).

Evidence-based guidelines are available for the **diagnosis and treatment of eye conditions through a primary care approach**[22] (b).

The country has a **defined list of medical equipment**, including ophthalmic equipment for the public sector[23] (c).

The Ministry of Health considers primary health care to be the professional health care provided in the community, usually from a general practitioner (GP), practice nurse, nurse practitioner, pharmacist or other health professional working within a general practice[24]. There are service packages that define what **services primary providers should deliver at the primary level** e.g. GPs and optometrists. For eye care, the services/interventions delivered by optometrists at the primary level include refractive testing and comprehensive eye examinations, prescription of glasses, contact lenses and some medicines (for therapeutically trained practitioners), and referral; services by GPs include prescription of eye medicine (e.g. chloramphenicol eye drops) and referral[25] (d,e).

There are examples of **national programmes for community health workers,** e.g. *B4 School Check* and *School-based vision screening*[26] (f).

Eye care features in **training of primary care providers** (doctors, nurses) but it is minimal (g).

Proposed maturity level score = 3 **Needs minor strengthening**

- Primary eye care services are available via primary health care settings (GPs, optometrists) throughout the country (L4).
- There are some frameworks in place to guide the scope and type of eye care delivered at the primary level (by optometrists and GPs) (L3).
- Non-health sector representatives are not involved in the preparation of eye health policies (L1).

Possible actions – Reorientation of eye care services towards primary eye care within primary health care

- Advocate for adequate funding of eye care in primary health care, with an emphasis on comprehensive care by optometrists.
- Assess the cost-effectiveness of primary eye care in the country and use this to advocate for prioritizing primary eye care.

[22] Ministry of Health. Ngā Paerewa Health and Disability Services Standard, New Zealand Government,, last modified 30 June 2021, 2021, accessed 07 Dec, 2021, https://www.standards.govt.nz/shop/nzs-81342021/.
[23] PHARMAC. About Pharmac, last modified 02 Dec 2021, 2021, accessed 07 Dec, 2021, https://pharmac.govt.nz/about/contact/.
[24] Ministry of Health. Primary Health Care, last modified 03 Feb 2020, 2020, accessed 25 Feb, 2022, https://www.health.govt.nz/our-work/primary-health-care.
[25] NZ Association of Optometrists (NZAO). Resources for GPs and Other Health Care Professionals, NZAO, accessed 07 Dec, 2021, https://www.nzao.nz/home/resources-for-gps/.
[26] Ministry of Health. Free Vision Checks for Children, last modified 26 October 2016, 2016, accessed 05 Feb, 2022, https://www.health.govt.nz/your-health/services-and-support/health-care-services/free-vision-checks-children.

Block 2: Service delivery – access

5. Equity of eye care services coverage across disadvantaged population groups

WHO Definition: Equity is the absence of avoidable, unfair or remediable differences among groups of people, whether those groups are defined socially, economically, demographically or geographically or by other means of stratification. Equity is considered in terms of the eye care services coverage of marginalized or vulnerable groups that exist in the population, e.g. women, poor communities, indigenous people, ethnic minorities, people with disabilities, people in aged care, prisons, refugee camps.

Health equity is a priority in New Zealand, featuring prominently in **policy documents**[27] (a).

There is some evidence of **inequity in eye care and service coverage**, and this evidence base is growing; underserved groups include Māori, Pacific people, younger people, and people living in the most deprived areas[28]; generally, this evidence has not been used to advocate for improved equity of eye services, although there has been recent activity in this area (b).

There are systems and strategies in place to ensure that **primary health care** effectively serves the most marginalized and underserved groups (e.g. *Zero fees*, *Very Low Cost Access scheme*, *Services to Improve Access*, *Rural Primary Health Care*)[29]; there are no strategies to improve access to primary eye care consultations with optometrists, though there is a subsidy for high prescription spectacles and contact lenses[30] for which few people are eligible (c).

No policies are in place to **regulate the private sector to ensure equitable access** to quality health care (d).

Data on eye care services are collected in the public sector but not analysed; these data generally include sex/gender, age, District Health Board (DHB), ethnicity and area-level deprivation (e).

Progress to address inequity/reduce inequality are not regularly reviewed, but a series of projects underway at the School of Optometry aim to address this[31] (f).

Proposed maturity level score = 2 **Needs major strengthening**

- There is a low level of equitable access to eye care. There are some disadvantaged population groups that miss out on the eye care they need. The gap between groups is reasonably large (L2).
- Inequities in eye care services coverage are infrequently assessed and not well understood or addressed (L2).
- There is increased recognition of the problem of inequity, but much less action to address it (*).

Possible actions – Equity of eye care services coverage across disadvantaged population groups

- Identify groups that may not be accessing the eye care they need or are provided lower quality of care.
- Develop the necessary legislation and regulations to strengthen joint accountability for equity in eye care, across sectors and decision-makers and within and outside of government.
- Ensure regular joint review of progress, which fosters common understanding and sustains commitment to deliver shared results over time.
- Implement strategies that actively promote leadership and involvement of Iwi, service users and stakeholders in problem definition and solution development (*).
- Promote eye health with ongoing health sector reforms, particularly with Health NZ and Māori Health Authority (*).

[27] Ministry of Health. Achieving Equity, last modified 01 October 2019, 2019, accessed 05 Feb, 2022, https://www.health.govt.nz/about-ministry/what-we-do/work-programme-2019-20/achieving-equity#:~:text=The%20Ministry's%20definition%20of%20equity,to%20get%20equitable%20health%20outcomes.

[28] Ramke J, Jordan V, Vincent AL, et al. Diabetic Eye Disease and Screening Attendance by Ethnicity in New Zealand: A Systematic Review, Clinical & experimental ophthalmology 2019;47(7): 937-947.

[29] Ministry of Health. Primary Health Care Subsidies and Services, last modified 02 June 2021, 2021, accessed 05 Feb, 2022, https://www.health.govt.nz/our-work/primary-health-care/primary-health-care-subsidies-and-services.

[30] Ministry of Health. Hearing and Vision Services, MOH, last modified 11 December 2015, 2015, accessed 05 Feb, 2022, https://www.health.govt.nz/your-health/services-and-support/disability-services/types-disability-support/hearing-and-vision-services.

[31] University of Auckland. Community Eye Health: Working Towards Equity, accessed 09 Feb, 2022, https://communityeyehealth.auckland.ac.nz/.

6. Primary level eye care services integrated into primary health care

WHO Definition: Primary care is that level of a health system that provides entry into the system for all new needs and problems, provides person-focused (not disease-oriented) care over time, provides care for all but very uncommon or unusual conditions, and coordinates or integrates care provided elsewhere or by others. It is a whole-of-society approach that includes health promotion, disease prevention, treatment, rehabilitation and palliative care. Most eye conditions can be addressed at the primary level and eye care services need to be fully integrated.

Refractive and optical services are not available at public primary level health facilities (which do not exist in New Zealand) (a).

Primary health facilities are run by Primary Health Organizations (PHO) and Practices; there are processes to **assess functioning** of staff and systems; however, these do not include eye care (b).

Research on barriers to accessing primary eye care is rare/non-existent (c).

The **availability of essential drugs at the primary level** is monitored, and this includes the approved ophthalmic drugs[32] (d).

There are examples of **e-health and mhealth** solutions being used at the primary level[33], but these do not include strategies to facilitate access to eye care (e).

Proposed maturity level score = 3 **Needs minor strengthening**

- Most primary eye care is delivered by optometrists in the private sector; they are well-distributed in major and minor urban centres, although some communities have long travel distances (*).
- The most disadvantaged patients have little access to eye care outside ophthalmic clinics and hospitals (L2).
- There is a low level of integration of eye care into primary health care (L2):
  - GPs provide treatment for some conditions (e.g. conjunctivitis) and otherwise refer to optometrists and ophthalmologists (*)
  - Optometrists are rarely co-located or working in close partnerships with GPs or PHOs (*).

Note: We chose level 3 despite several level 2 scores here, as the limited financial protection for primary care is covered elsewhere; distribution of GPs and optometrists is good and integration is reasonable.

Possible actions – Primary level eye care services integrated into primary health care

- Develop and/or strengthen outreach and mobile clinic programmes to deliver primary eye care to communities with major barriers.
- Assess who is not accessing care due to financial constraints and develop strategies to improve financial access, e.g. removal or reduction of user fees, voucher programmes.

[32] Ministry of Health. Certification of Health Care Services, last modified 07 January 2020, 2020, accessed 05 Feb, 2022, https://www.health.govt.nz/our-work/regulation-health-and-disability-system/certification-health-care-services.

[33] Ministry of Health. Digital Health, last modified 16 Dec 2021, 2020, accessed 05 Feb, 2022, https://www.health.govt.nz/our-work/digital-health.

7. Community-delivered eye care services

WHO Definition: Community health services provide support across a range of needs and age groups but are most often used by children and older people. Community services often support people with multiple, complex health needs. Community-delivered eye care refers to programmes or services that are integrated into other community-delivered health programmes. The defining feature is that they are delivered in community settings and usually are a form of secondary care. Delivery settings commonly include local health facilities, homes, schools and child care settings.

There are examples of **government-funded eye care services delivered in the community**, but these tend to be targeted to only a select population group, e.g. *Year 7 Vision Checks* at school when the children are aged 11 or 12 years[34]. Some of the community-delivered eye care services are part of wider community health care programmes, e.g. the Well Child/Tamariki Ora service (delivered by Plunket and other Well Child providers) is offered free to children aged from 4–6 weeks up to five years and includes questions about the child's vision[35], and vision screening as part of the *B4 School Check*. This service is distributed evenly across geographic areas, but it is only for children less than five years old. Refractive services are provided by community optometrists on a fee for service basis (a).

World sight day is observed by some stakeholders (b).

Proposed maturity level score = 3 **Needs minor strengthening**

- There is a high level of coverage of community-delivered eye care across the country (L4).
- There is a very small mix of community-delivered eye care programmes based on population need; these programmes may be—but are not necessarily—integrated into a wide range of other community-delivered health programmes, although there are large gaps (L2).

Note: We selected level 3 as despite high coverage of the existing programs, they are limited in scope/ eligible population groups.

Possible actions – Community-delivered eye care services

- Integrate eye care into other health programmes delivered to communities.
  Undertake community awareness-raising actions, e.g. television, radio, the internet, social media, billboards and brochures to emphasize the importance of eye care; raise awareness about the availability of effective interventions that address all eye care needs across the life course; and raise awareness of the availability of vision rehabilitation.
- Governments may contract non-governmental organizations to deliver flexible community-delivered eye care.

[34] Ministry of Health. Free Vision Checks for Children, last modified 26 October 2016, 2016, accessed 05 Feb, 2022, https://www.health.govt.nz/your-health/services-and-support/health-care-services/free-vision-checks-children.
[35] Ministry of Health. B4 School Check Information for the Health Sector, last modified 04 Oct 2016, 2016, accessed 28 Jan, 2022, https://www.health.govt.nz/our-work/life-stages/child-health/b4-school-check/b4-school-check-information-health-sector.

8. Integrated paediatric eye care services

WHO Definition: This refers to the accessibility of paediatric eye care, including screening at maternity facilities and schools. Target populations include newborn infants, low-birth weight infants at risk of retinopathy of prematurity, and school-aged children.

There are **guidelines for routine eye examinations of newborn infants**, which include early detection and treatment of ophthalmia neonatorum[36] (a).

All newborn infants are given **routine examinations [red reflex] for congenital** and other eye conditions[36] (b).

There are **guidelines for screening and management of retinopathy of prematurity**[37] (ROP) with some variation across DHBs (c).

All **pre-term and low birth weight infants** are screened for retinopathy of prematurity[36] (d).

There are ~10 **tertiary centres** for management of retinopathy of prematurity and these services are available at no cost in the public sector (e,f).

Current vision screening in New Zealand includes formal vision screening at birth, six weeks, four years and eleven years[38]:

- There are guidelines for **screening school-aged children** at 11 and 12 years of age[39] (g).
- Screening for **eye conditions, including amblyopia** is part of the *B4 school check*[40] which is conducted in pre-school and had coverage of 92% in 2019[41] (h).
- **Children at primary or secondary school undergo vision screening** via a national programme at 11 and 12 years old (see g above) but this does not include specific tests for uncorrected refractive error; non-profit providers deliver a small amount of additional services, but not in a systematic, coordinated way and data are not collated to monitor coverage or outcomes; providers include Essilor Vision Foundation[42], Mr Foureyes[43], OneSight (*school screening*)[44], and *SOVS screening programme*[45] (i).

Proposed maturity level score = 3 **Needs minor strengthening**

- Paediatric eye care services are available throughout the country, but do not reach some of the population (L3).
- Services are available in most rural and urban areas providing care at district, regional, provincial and tertiary levels; however, costs and transport are barriers for some patients (L3).

Possible actions – Integrated paediatric eye care services

- Develop a nationally integrated model for ROP screening, ensuring protocols avoid missing cases when children are transferred from tertiary to secondary/district care (*).
- Develop strategies to ensure children can access follow-up care after a referral from a vision screening programme e.g. vouchers for services, provision of school-based services (*).
- Regularly audit, evaluate and optimise for equity and effectiveness (*).

[36] Starship. Eye Checks for Newborn Babies, 2019, accessed 05 Feb, 2022, https://starship.org.nz/eye-checks-for-newborn-babies/.
[37] Dai S. Screening of Retinopathy of Prematurity in New Zealand, Retina Today 03/20 2014.
[38] Hamm L, Findlay R, and Black J. Vision Screening in Infancy and Childhood. 2019, accessed 21 Feb 2022. https://www.health.govt.nz/system/files/documents/publications/wcto-domain-7-vision-screening-in-infancy-and-childhood.pdf.
[39] Ministry of Health. National Vision and Hearing Screening Protocols, last modified 29 Nov 2021, 2021, accessed 05 Feb, 2022, https://www.health.govt.nz/publication/national-vision-and-hearing-screening-protocols.
[40] Ministry of Health. B4 School Check Information for the Health Sector, last modified 04 Oct 2016, 2016, accessed 28 Jan, 2022, https://www.health.govt.nz/our-work/life-stages/child-health/b4-school-check/b4-school-check-information-health-sector.
[41] Gibb S, Milne B, Shackleton N, et al. How Universal Are Universal Preschool Health Checks? An Observational Study Using Routine Data from New Zealand's B4 School Check, BMJ Open 2019;9(4): e025535, https://dx.doi.org/10.1136/bmjopen-2018-025535.
[42] Essilor Vision Foundation. Changing Life through Lenses, accessed 09 Feb, 2022, https://changinglifethroughlenses.org/.
[43] Mr Foureyes. Eyecare About Social Impact, accessed 09 Feb, 2022, https://mrfoureyes.co.nz/.
[44] OPSM. Onesight. Help the World See Better. Help the World Live Better., accessed 09 Feb, 2022, https://www.opsm.co.nz/eye-care/onesight.
[45] University of Auckland. School Eye Screening and the NZ Vision Bus, last modified Jul 2, 2019, 2020, accessed 01 Feb, 2022, https://sovs-newsletter.blogs.auckland.ac.nz/2019/07/02/school-eye-screening-and-the-nz-vision-bus/.

9. Integrated cataract surgical services

WHO Definition: This refers to the accessibility, quality and affordability of cataract surgical services to all people in need, regardless of the level of vision loss due to cataract.

Eligibility for cataract surgery is based on visual acuity and this varies by DHB (between 6/6 to 6**/**36 Snellen) which leads to inequities[46]; there can be major delays in getting onto the surgical waiting list (a).

There is no official definition of an 'effective' cataract surgical outcome, but **post-operative visual acuity is generally 6/6 or better**[47] (b).

Data on the **number of surgeries** by sector and type are not readily available (c,d).

Data to calculate the **cataract surgical rate or effective cataract surgical coverage** were not available. A total of 61,095 surgeries were conducted between 2014 and 2019[46]. Data are not readily available to calculate change over time (e,f).

Data on **barriers to cataract surgical services** are not periodically collected; we found no evidence that this has ever occurred (g).

Data on **post-operative visual acuity** are collected in health facility data, but these are not routinely monitored (h).

The government provides cataract surgery in the public sector that incurs **no out-of-pocket costs** from the patient (i).

Cataract surgery is rationalised by each DHB, which is a cause of inequity[48] (j).

Proposed maturity level score = 2 **Needs major strengthening**

- Services are available everywhere but do not reach some of the population (L3).
- There is major inequity in access to surgery based on the DHB in which people live, with major variation in visual acuity thresholds and waiting times across the country (*).
- There is insufficient data collection and monitoring to understand the status of cataract vision impairment and cataract services (*).

Note: Level 2 was chosen because despite quality of services and financial protection being good, the wait for surgery is long in many DHBs and there are large differences based on the DHB in which patients live.

Possible actions – Integrated cataract surgical services

- Review cataract surgical services performance and outcomes, including patient perception of services.
- Identify strategies to make services more accessible to underserved groups (*).
- Strengthen the collection and use of data to understand the status of cataract vision impairment and cataract services, including effective cataract surgical coverage (*).

[46] Chilibeck C, Mathan JJ, Ng SG, et al. Cataract Surgery in New Zealand: Access to Surgery, Surgical Intervention Rates and Visual Acuity, The New Zealand Medical Journal 2020;133(1524): 40-6.

[47] Kim BZ, Patel DV, and McGhee CN. Auckland Cataract Study 2: Clinical Outcomes of Phacoemulsification Cataract Surgery in a Public Teaching Hospital, Clinical & experimental ophthalmology 2017;45(6): 584-591.

[48] Jones N. Optometrists Want End to Cataract 'Postcode Care': 'It's Affecting People's Quality of Life', nzherald.co.nz, 9 Apr 2019, 2019, https://www.nzherald.co.nz/nz/optometrists-want-end-to-cataract-postcode-care-its-affecting-peoples-quality-of-life/VEIFRYVV2WZ7JPCAFDUAGLYXWM/.

10. Integrated diabetic eye care services

WHO Definition: Prevention of vision impairment from diabetic retinopathy is achieved principally through control of diabetes, early detection of retinal changes and timely treatment. Population awareness, adherence, detection and early treatment rely on eye care being integrated into diabetes programmes and services at all levels.

The **prevalence of diabetes** was estimated to be 5.4% in 2020[49]; the estimated prevalence of retinopathy among the total population diagnosed with diabetes was estimated to be 20-25% in 2006[50]. Attendance at biennial retinal screening between 2006 and 2019 was 56%, though this analysis identified large data gaps[51] (a).

There are **programmes for diabetes eye care**, generally at the DHB level; there is large variation across the country in terms of how screening and treatment are provided (b).

There are **clinical guidelines for diabetes and diabetic retinopathy** which are widely used, and include retinal screening guidelines[50] (c,d).

Retinal laser therapy is available with **no out-of-pocket costs** in the public sector (e).

Intravitreal avastin injections were introduced across the country from 2014; these are provided with no out-of-pocket costs, though their use varies by DHB, being rationalised in some locations (*).

The **WHO Tool for the assessment of diabetic retinopathy** and diabetes management systems (TADDS) has not been implemented (f).

Proposed maturity level score = 2 **Needs major strengthening**

- Diabetic eye care services are available everywhere but do not reach some of the population (L3).
- Services are available in most rural and urban areas providing care at district, regional, provincial and tertiary levels, however, costs and transport are barriers for some patients (L3).
- There is no uniformity of models and no monitoring of programme implementation or effectiveness (*).
- There are delays for people with diabetes requiring surgery which often reduces their post-operative vision (*).

Note: We chose level 2 due to the lack of information on process or outcome indicators of diabetes eye care—while services are available, we could find no robust data on the prevalence of diabetic retinopathy and no data on vision loss from retinopathy.

Possible actions – Integrated diabetic eye care services

- Standardise retinal screening service into one system nationwide, including regular audit and evaluation (*).
- Assess the feasibility and acceptability of AI (artificial intelligence) for screening (*).
- Reduce waiting times and eliminate loss from the system for people with diabetes requiring ophthalmology review or treatment (*).
- Monitor patient adherence to ensure periodic eye examinations for people with diabetes, even if asymptomatic.

[49] Health Quality and Safety Commission. Atlas of Healthcare Variation - Diabetes, 2020, accessed 05 Feb, 2022, https://public.tableau.com/app/profile/hqi2803/viz/DiabetesAtlas2020/AtlasofHealthcareVariationDiabetes?publish=yes.

[50] Ministry of Health. Diabetic Retinal Screening, Grading, Monitoring and Referral Guidance. Wellington: Ministry of Health, 2016. https://www.health.govt.nz/publication/diabetic-retinal-screening-grading-monitoring-and-referral-guidance.

[51] Silwal PR, Lee A, Squirrell D, et al. Use of Public Sector Diabetes Eye Services in New Zealand 2006-2019: Analysis of National Routinely Collected Datasets, Journal manuscript, 2021, School of Optometry and Vision Science, University of Auckland.

11. Integrated refractive and optical services

WHO Definition: Refractive services refer to an assessment of the corrective needs of a person with uncorrected refractive error. Optical services refer to provision of correction spectacles or contact lenses.

Refractive services are primarily provided by optometrists in the private sector on a fee-for-service basis. The number of **spectacles dispensed** in the last calendar year is not monitored; an unofficial estimate is ~1.1 million pairs per year, valued at ~NZ$350 million. In the government sector it will be close to zero, and the private not-for-profit sector would also be extremely low/negligible (a).

There has been no population-based study to estimate **effective refractive error coverage** for distance (b) or near vision (c), or over time (d,e).

There are government-based **health financing mechanisms** in place and available to make spectacles more affordable. There is a loan from Work and Income NZ (WINZ)[52] and a spectacle subsidy for children ≤15 years with a valid community services card or high use health card every year[53]. The government also funds contact lenses for people with certain conditions (e.g. kerataconus)[54] and people with vision impairment unable to be corrected to 6/24 visual acuity. Small-scale private sector schemes also support free eye examinations (e.g. AA Insurance[55]) (f).

The **WHO tool for the assessment of refractive error services** (TARES) has not been implemented (and we understand it is not publicly available) (g).

Proposed maturity level score = 2 **Needs major strengthening**

- Refractive and optical services are available throughout the country but do not reach some of the population (L3).
- Optical services are only in private facilities and are accessible only to those who can pay (L1).

Note: Level 2 was chosen because although refractive and optical services are widespread, there is limited financial protection, so the extent of unmet need among underserved groups may be extensive.

Possible actions – Integrated refractive and optical services

- Develop health financing mechanisms to make spectacles more affordable and accessible for low-income patients.
- Advocate for subsidised frames/lenses dispensed in the public sector to improve affordability for low-income patients.
- Conduct a situation analysis to assess the scope, effectiveness and quality of refractive and optical services (TARES) (*).
- Advocate for public sector and private sector collaboration to provide refractive and optical services that are accessible by everyone (*).
- Allow DHB funding for toric intraocular lenses in cataract surgery to correct astigmatism and minimise postoperative refractive error (which has been shown to be cost-effective[56]) (*).
- Strengthen the collection and use of data to understand the status of vision impairment due to refractive error and refractive error services, including effective refractive error coverage (*).

[52] Work and Income NZ. Health and Disability Benefits and Payments:Glasses, accessed 05 Feb, 2022, https://www.workandincome.govt.nz/eligibility/health-and-disability/glasses.html.

[53] Ministry of Health. Hearing and Vision Services, MOH, last modified 11 December 2015, 2015, accessed 05 Feb, 2022, https://www.health.govt.nz/your-health/services-and-support/disability-services/types-disability-support/hearing-and-vision-services.

[54] Ministry of Health. Contact Lens Subsidy, MOH, last modified 18 March 2020, 2020, accessed 25 Feb, 2022, https://www.health.govt.nz/new-zealand-health-system/claims-provider-payments-and-entitlements/contact-lens-subsidy#:~:text=The%20contact%20lens%20subsidy%20is,medical%20reasons%2C%20cannot%20wear%20glasses.

[55] The New Zealand Automobile Association Inc. AA Members Are Entitled to a Free Eye Test at Specsavers Once Every Two Years Valued at $60., accessed 25 Feb, 2022, https://www.aa.co.nz/membership/benefits/specsavers/.

[56] Pineda R, Denevich S, Lee WC, et al. Economic Evaluation of Toric Intraocular Lens: A Short-and Long-Term Decision Analytic Model, Archives of ophthalmology 2010;128(7): 834-840.

12. Integrated low-vision and vision rehabilitation services

WHO Definition: Low-vision and vision rehabilitation services are for people who have residual vision that can be used and enhanced by aids, making them fully functional. Services may include provision of habilitation, rehabilitation, assistive technology and assistance and support services.

Low vision and vision rehabilitation services are **available from ~30 centres** across public hospitals, private clinics, and NGO services; basic low vision service is part of the entry level registration in the optometric scope of practice; the services available in public hospitals have reduced in recent years, and most services are now only available in private optometry[57] (a).

Low-vision aids can be prescribed by an ophthalmologist, optometrist, or a low vision functional assessor (b).

Costs of low-vision and vision rehabilitation services tend to be covered by the government in the small number of public hospitals with services, with some NGOs providing these services at subsidized cost[58]. Costs incurred in the private sector are paid out-of-pocket and/or covered by private health insurance. For services required following an accident, the Accident and Compensation Commission (ACC) covers relevant costs, regardless of sector; ocular prosthetics are subsidised by the Ministry of Health[59] or covered by ACC[60] (c).

Low vision aids are generally purchased by patients but there are organizations and schemes available to make low-vision **devices more affordable** for low-income patients, including Blind and Low Vision Education Network NZ (for those aged up to 21 years) and *Accessible/Enable* [58,61,62] (d).

Children with blindness or vision impairment generally **attend schools alongside all other children** (97.5%), while a small number attend schools targeted specifically for children living with disability (2.5%)[62] (e,f).

Referral and communication regarding low vision aids and rehabilitation services commonly occur between eye care professionals and others such as schools and GPs (g).

There are **organizations** for children and adults with vision impairment and blindness, including Blind Low Vision NZ[58] that provide services, including devices (h).

The **WHO Tool for the assessment of rehabilitation services and systems** (TARSS) has not been implemented (and does not appear currently available for implementation) (i).

Proposed maturity level score = 2 **Needs major strengthening**

- Some low-vision and vision rehabilitation services are available to part of the population (L2).
- Services are available in regional hospitals and costs of devices are generally paid by the patients. Populations in rural areas cannot reach services easily (L2).

Possible actions – Integrated low-vision and vision rehabilitation services

- Develop funding mechanisms for services to reduce out-of-pocket costs for those that cannot afford services.
- Raise population awareness of the available services.
- Provide financial protection for people needing low vision rehabilitation services (including devices) who cannot afford out-of-pocket costs (*).

[57] Duckworth S. Stocktake and Needs Analysis of Low Vision Services in New Zealand Litmus, 2015, accessed 24 feb 2022. https://www.health.govt.nz/system/files/documents/publications/stocktake-needs-analysis-low-vision-services-in-new-zealand-mar15_1.pdf#:~:text=The%20most%20recent%20estimate%20of%20the%20prevalence%20of,in%202013%20is%20estimated%20to%20be%20vision%20impaired.

[58] Blind Low Vision NZ. Our Services, 2021, accessed 07 Dec, 2021, https://blindlowvision.org.nz/how-we-can-help/.

[59] Ministry of Health. Artificial Eyes Subsidy, MOH, last modified 24 May 2018, 2018, accessed 28 Feb, 2022, https://www.health.govt.nz/new-zealand-health-system/claims-provider-payments-and-entitlements/artificial-eyes-subsidy.

[60] ACC New Zealand. Getting Aids and Equipment to Help with an Injury, last modified 5 November 2021, 2021, accessed 28 Feb, 2022, https://www.acc.co.nz/im-injured/types-of-ongoing-support/aids-equipment/.

[61] Ministry of Health. Equipment for People Who Are Blind or Have Reduced Vision, MOH, last modified 22 Jan 2019, 2019, accessed 05 Feb, 2022, https://www.health.govt.nz/your-health/services-and-support/disability-services/types-disability-support/hearing-and-vision-services/equipment-people-who-are-blind-or-have-reduced-vision#:~:text=An%20assessor%20might%20recommend%20equipment,mobility%20resources%20meet%20your%20needs.

[62] Blind and Low Vision Education Network NZ (BLENNZ). Visual Resource Centres, last modified 2021, 2021, accessed 07 Dec, 2021, https://www.blennz.school.nz/school-centres-and-services/services-and-programmes/.

Block 3: Service delivery – quality

13. Extent to which eye care services are delivered in a timely way and along a continuum, with effective referral practices

WHO Definition: Timely refers to eye care being provided quickly, or as required, after a need is recognized. It includes care delivered on a continuum that results in a smooth transition between health services. Referral practices are highlighted as a key component in the achievement of timely care and are important for increasing access to care.

There is no defined **package of eye care interventions** to be provided at each level of care (a).

National **referral guidelines** are in place for publicly funded specialist services; for eye care, there are specific paediatric and adult referral guidelines[63], but regional differences exist (b).

There has been no assessment on the **efficiency of referral** of eye care within the last 10 years (or ever) (c).

The average **waiting time for cataract surgery** in the public sector varies greatly across DHBs. It was approximately eight months from referral to surgery at government facilities in 2001[64], and recent estimates show it to be 11 months or more[65] (d).

Case management is actively promoted and applied across the health system, but these do not commonly support people seeking eye care (e).

There are **health service directories** available to the public[63,66,67] that includes ophthalmology, optometry, and low vision and vision rehabilitation service providers (f).

Proposed maturity level score = 3 **Needs minor strengthening**

- Services are mostly timely with a few waiting lists (L3).
- There is a moderate level of continuum of care for eye care and between eye care and other services, and transitions occur moderately smoothly at a moderate level of frequency. Some efforts and mechanisms exist to achieve this but more are needed. Efforts may include models of care, referral pathways, two-way clinical referral communication, service directories, case management and case coordination (L3).

Possible actions – Extent to which eye care services are delivered in a timely way and along a continuum, with effective referral practices

- Carry out a health system referral assessment to identify current problems with the referral system, including levels of patient satisfaction and confidence in services at each level.

[63] NZ Association of Optometrists (NZAO). Resources for GPs and Other Health Care Professionals, NZAO, accessed 07 Dec, 2021, https://www.nzao.nz/home/resources-for-gps/.
[64] McGhee CN. Cataract Surgery in New Zealand/Aotearoa Approaching 2020: Demand, Supply, Politics, Economics & Shared Care, NZ National Eye Centre, University of Auckland, 2020, accessed 07 Dec 2021.
[65] Boyd M, Kvizhinadze G, Kho A, et al. Cataract Surgery for Falls Prevention and Improving Vision: Modelling the Health Gain, Health System Costs and Cost-Effectiveness in a High-Income Country, Injury prevention 2020;26(4): 302-309.
[66] Ministry of Health. Services and Support, last modified 09 October 2015, 2015, accessed 06 Feb, 2022, https://www.health.govt.nz/your-health/services-and-support.
[67] Health Navigator NZ. Health Directories, last modified 11 Nov 2021, 2021, accessed 06 Feb, 2022, https://www.healthnavigator.org.nz/clinicians/h/health-directories/.

14. Extent to which eye care services are person-centred, flexible and engage patients in decision-making

WHO Definition: Person-centred care refers to the way in which care is delivered; it is a way of thinking and doing things that sees people as equal partners in planning, and supports individualized, flexible adaptation and adjustment of care to meet the person's needs and priorities.

The New Zealand Health Strategy articulates **person-centred care** as "patient-centred care"[68] (a).

The concepts of person-centred care, patient-centred care, patient safety and cultural safety are **included in undergraduate and postgraduate education programmes** for health professionals, including ophthalmology[69] and optometry[70] (b).

National surveys are carried out on a regular basis by the Health Quality & Safety Commission to assess **patient satisfaction and experience** at primary care and secondary care[71], but not routinely collected for eye care patients[71]; these outcomes are not used to adapt services to the needs and priorities of patients accessing eye care services and their family/whānau, though there are voluntary systems in place (e.g. patient feedback forms in wating rooms of some DHB eye clinics) (c, d).

Proposed maturity level score = 3 **Needs minor strengthening**

- The concept and practice of person-centred care are widely understood across health services and there is a high level of person-centred eye care (L4).
- The delivery of eye care is occasionally tailored and adapted to the needs and priorities of patients and their families (L2).

Possible actions – Extent to which eye care services are person-centred, flexible and engage patients in decision-making

- Train eye care practitioners on person-centred care.
- Develop case management and coordination practices that engage users in decision-making to deliver eye care that is flexible and tailored.
- Collect patient experience and satisfaction of people using eye services (*).
- Ensure input of users and their families during decision-making, to deliver flexible and tailored services.

[68] Health Navigator NZ. How Is Patient-Centred Care Supported by Policy?, last modified 11 Nov 2021, 2021, accessed 06 Feb, 2022, https://www.healthnavigator.org.nz/clinicians/p/patient-centred-care/.

[69] RANZCO. Curriculum Standards, last modified 02 Feb 2022, 2022, accessed 06 Feb, 2022, https://ranzco.edu/home/future-ophthalmologists/vocational-training-program/curriculum-standards/.

[70] Optometrists and Dispensing Opticians Board (ODOB). Standards of Clinical Competence for Optometrists 2021, accessed 07 Dec 2021. https://www.odob.health.nz/wp-content/uploads/2018/12/FINAL-REVISED-STANDARDS-OF-CLINICAL-COMPETENCE-FOR-OPTOMETRISTS-Nov-2018.pdf.

[71] Health Quality and Safety Commission. Patient Experience, last modified 27 Jan 2022, 2022, accessed 06 Feb, 2022, https://www.hqsc.govt.nz/our-data/patient-experience/.

15. Eye care services acceptability and adherence

WHO Definition: This refers to people's willingness to seek eye care – an indication that people are not discouraged from seeking services by factors such as cost or accessibility. Acceptability is high when users perceive services to be of good quality, effective, socially and culturally appropriate, accessible and convenient.

Patient perception and adherence data are collected periodically[72], but eye care is not included (a).

Health literacy has gained prominence in recent years with increasing need for services to become more health literate; guiding documents have been developed[73], though none refer to eye care patients or services (b).

We could find no evidence of dedicated programmes to improve the **health literacy environments within eye care services** (c).

Reports on quality of eye care services at government facilities (e.g. DHB-level audits) are not always made available to the public. Reports on costs are not required, as public services have no out-of-pocket costs (d).

The health and disability workforce priorities include improving capacity, capability and culture, with an emphasis on increasing recruitment from rural areas, Māori and Pacific communities.[74] **Recruitment processes** for eye care workers are increasingly considering the need to have more Māori and Pacific graduates in particular[75], though it is guided most often by the market (availability/supply of the workforce) (e).

Proposed maturity level score = 3 **Needs minor strengthening**

- The community perceives eye care services to be of a high level of quality and effectiveness, and they are highly valued and experience strong demand (L4).
- The organization of services and delivery of eye care interventions are convenient, and they are somewhat easy to reach (L3).
- The eye care workforce reflects some of the characteristics required (language, ethnicity, etc.) to deliver socially and culturally appropriate and acceptable services (L3).

Note: There is room for improvement in health literacy of eye health services for part of the population; there is recognition of the need to increase cultural safety and representation in the workforce, but this is yet to be realised.

Possible actions – Eye care services acceptability and adherence

- Improve eye health literacy environments within health services, to match the eye health literacy levels of the people who use the services.
- Develop action plans to recruit a diverse eye care workforce that can help make eye care socially and culturally safe and acceptable across the population.

[72] Health Quality and Safety Commission. Patient Experience, last modified 27 Jan 2022, 2022, accessed 06 Feb, 2022, https://www.hqsc.govt.nz/our-data/patient-experience/.

[73] Ministry of Health. Health Literacy, last modified 22 May 2015, 2015, accessed 06 Feb, 2022, https://www.health.govt.nz/our-work/making-services-better-users/health-literacy.

[74] Ministry of Health. Health and Disability Workforce Strategic Priorities and Action Plan, last modified 21 Nov 2019, 2019, accessed 06 Feb, 2022, https://www.health.govt.nz/our-work/health-workforce/health-and-disability-workforce-strategic-priorities-and-action-plan.

[75] RANZCO. Māori and Pasifika Eye Health, last modified 21 July 2021, 2022, accessed 06 Feb, 2022, https://ranzco.edu/home/community-engagement/maori-and-pasifika-eye-health/.

16. Extent to which eye care interventions are evidence based

WHO Definition: Evidence-based eye care interventions are those that have been peer-reviewed, documented and show empirical evidence of effectiveness.

National guidelines exist for some eye care services and are widely used e.g. diabetic retinopathy screening and management[76], vision screening[77], and eye checks for newborn babies[78] (a).

There is a **process** by which the government assesses the level of evidence for clinical practice guidelines[79,80] including those that have been developed for eye care. The **government portal for guidelines** includes eye care guidelines[80] (b).

The government ensures the **adherence to the clinical practice guidelines** (i.e. models of care, standards, or protocols) through the processes of continuing professional development (CPD), licensing and accreditation[81], but the level of adherence to the specific guidelines/protocols are not assessed regularly. Furthermore, the variations in the results are monitored by the Health Quality and Safety Commission[82,83]. The Optometrists and Dispensing Optometrists Board monitors practice variation through semi-regular audits, as well as promoting self-audit[84] (c).

Proposed maturity level score = 4 **Needs no immediate action**

- Eye care interventions are usually evidenced-based; national clinical practice guidelines (including protocols, standards of care, models of care and other guidance) for treating specific eye care conditions are widely available. (L4).

Possible actions – Extent to which eye care interventions are evidence based

- Needs no immediate action.

[76] Ministry of Health. Diabetic Retinal Screening, Grading, Monitoring and Referral Guidance. Wellington: Ministry of Health, 2016. https://www.health.govt.nz/publication/diabetic-retinal-screening-grading-monitoring-and-referral-guidance.
[77] Ministry of Health. National Vision and Hearing Screening Protocols, last modified 29 Nov 2021, 2021, accessed 05 Feb, 2022, https://www.health.govt.nz/publication/national-vision-and-hearing-screening-protocols.
[78] Starship. Eye Checks for Newborn Babies, 2019, accessed 05 Feb, 2022, https://starship.org.nz/eye-checks-for-newborn-babies/.
[79] Ministry of Health. Toward Clinical Excellence, 2002, accessed 06 Feb, 2022, https://www.health.govt.nz/system/files/documents/publications/moh_tce_2002.pdf.
[80] Ministry of Health. Ministry of Health Library, last modified 23 Jan 2019, 2019, accessed 06 Feb, 2022, https://www.health.govt.nz/about-ministry/ministry-health-library.
[81] Ministry of Health. Certified Providers, last modified 22 May 2015, 2015, accessed 07 Dec, 2021, https://www.health.govt.nz/your-health/services-and-support/certified-providers.
[82] Health Quality and Safety Commission. Atlas of Healthcare Variation, last modified 17 Dec 2021, 2020, accessed 05 Feb, 2022, https://www.hqsc.govt.nz/our-data/atlas-of-healthcare-variation/.
[83] Ministry of Health. Certification of Health Care Services, last modified 07 January 2020, 2020, accessed 05 Feb, 2022, https://www.health.govt.nz/our-work/regulation-health-and-disability-system/certification-health-care-services.
[84] Optometrists and Dispensing Opticians Board (ODOB). Board Committees, 2022, accessed 28 Feb, 2022, https://www.odob.health.nz/about-the-board/board-committees/.

17. Safety of eye care services

WHO Definition: Patient safety refers to the absence of preventable harm to a patient during the process of providing eye care and to keeping the risk of unnecessary harm associated with eye care provision to an acceptable minimum. Unsafe medical care may lead patients, especially in low-income countries, to opt out of using the formal health care system, thereby making unsafe care a significant barrier to access for many of the world's poor. Quality and safety of patient care are intimately linked with clinical and organizational governance and management.

There are government accredited mechanisms in place to ensure **patient safety standards in health care** are met[85,86]; eye care standards provided by an optometrist or other registered health practitioner are regulated as per the Health Practitioners Competence Assurance Act 2003[87] (a).

Clinical guidelines for patient safety exist and include some aspects of eye care e.g. surgical safety checklist[88] (b).

RANZCO collaborates across the sector to provide interprofessional approaches to CPD including **safety practices** of ophthalmic teams[89] (c).

The **safety systems** that are in place include reporting and analysing incidents, reporting adverse surgical and medical events, and identifying and managing patient-related risks at the outpatient and surgical level. The Health Quality and Safety Commission reports annually on serious adverse events in the public sector across the country[90]. Reporting of adverse events relating to contact lenses (e.g. microbial keratitis) or prescribed spectacles is not required (d).

Proposed maturity level score = 4 **Needs no immediate action**

- There is a high level of patient safety as the health care system has mechanisms in place to deliver safe care, and eye care is well integrated into these practices (L4).
- Quality improvement, quality assurance and/or quality learning systems are strongly integrated across eye care; actions such as incident reporting occur and are tracked and acted upon (L4).

Possible actions – Safety of eye care services

- Consider introducing national cataract surgery audit similar to the National Ophthalmology Database Audit in the UK[91] (*).

[85] Ministry of Health. Ngā Paerewa Health and Disability Services Standard, New Zealand Government,, last modified 30 June 2021, 2021, accessed 07 Dec, 2021, https://www.standards.govt.nz/shop/nzs-81342021/.
[86] Ministry of Health. Certification of Health Care Services, last modified 07 January 2020, 2020, accessed 05 Feb, 2022, https://www.health.govt.nz/our-work/regulation-health-and-disability-system/certification-health-care-services.
[87] New Zealand Government. Health Practitioners Competence Assurance Act 2003. Version as at 28 October 2021., last modified 28 Oct 2021, 2021, accessed 21 Feb, 2022, https://www.legislation.govt.nz/act/public/2003/0048/latest/DLM203312.html.
[88] Health Quality and Safety Commission. Surgical Safety Checklist, last modified 08 Dec 2021, 2021, accessed 05 Feb, 2022, https://www.hqsc.govt.nz/our-work/improved-service-delivery/safe-surgery-nz/projects/surgical-teamwork-and-communication/interventions/surgical-safety-checklist/.
[89] RANZCO. Collaborative Care, last modified 23 July 2021, 2020, accessed 06 Feb, 2022, https://ranzco.edu/home/health-professionals/collaborative-care-2/.
[90] Health Quality and Safety Commission. National Adverse Events Reporting Policy, last modified 16 Dec 2021, 2021, accessed 05 Feb, 2022, https://www.hqsc.govt.nz/our-work/system-safety/adverse-events/national-adverse-events-reporting-policy/.
[91] The Royal College of Ophthalmologists. National Ophthalmology Database (NOD) Audit, 2022, accessed 22 Feb, 2022, https://www.nodaudit.org.uk/.

18. Multilevel accountability for performance of eye care services

WHO Definition: This refers to accountability at the level of individual health personnel, health service providers and governing agencies. Accountability means roles and responsibilities are clear and people are held to account. Accountability and transparency occur when there is acceptance of the consequences of actions for the areas of health for which people assume responsibility.

The systems in place to **systematically monitor eyecare** include quality assurance programmes (e.g. professional registration), facility level accreditation programmes, and service audits (a).

We do not have a **national eye care plan or strategy**, and therefore do not have goals and targets (b).

Health workers in the public sector undergo periodic (generally annual) **performance reviews** although there is no specific legal obligation to do so[92]; credentialling is done every three to five years; accountability for the care experience of patients is not commonly integrated into this process (c).

Performance-based remuneration is not in place for health workers at government facilities[92] (d).

There is no regular process that monitors the **compliance of the people who provide information on eye care** to the MoH Health Information System[93] (e).

Proposed maturity level score = 3 **Needs minor strengthening**

- There is a high level of accountability for eye care within governing agencies, service providers and health personnel. The roles and responsibilities of agencies and individuals are clear (L4).
- Accountability for eye care is underpinned by only a few mechanisms and there are low levels of reporting against baselines and targets (L2).

Possible actions – Multilevel accountability for performance of eye care services

- Establish a monitoring and evaluation framework for eye care, including results and/or performance measurement
- Establish regular reporting requirements.

[92] Employment NZ. Performance Reviews, Employment NZ, 2021, accessed 07 Dec, 2021, https://www.employment.govt.nz/workplace-policies/employee-performance/growing-performance/good-communication/performance-reviews/.

[93] Nationwide Service Framework Library. Accountability, Ministry of Health, last modified 14 May 2019, 2019, accessed 06 Feb, 2022, https://nsfl.health.govt.nz/accountability.

Block 4: Workforce and infrastructure

19. Workforce availability

WHO Definition: This refers to the availability of eye care personnel such as ophthalmologists, optometrists and allied ophthalmic personnel.

The number of eye care personnel in New Zealand is shown in the table below (a).

Personnel types	Total in 2020	Ratio relative to the population[94]	Total 5 years ago
Total ophthalmologists[95]	166	1:30,664	134
Ophthalmic nurses[96]	61	1:83,446	unknown
Total practising optometrists[97]	807	1:6,307	693
Opticians[97]	206	1:24,710	163
Orthoptists	25	1:203,609	unknown
Others: Ophthalmic or optometric assistant/technician, vision therapist, ophthalmic photographer	Unknown number – no formal record; no formal training in NZ	—	—

Note: disaggregated by the level of services (e.g. primary level, secondary level, tertiary level) are not available

The **geographic distribution** of ophthalmologists compares well to the proportionate regional population, though there are some areas in need of more ophthalmologists; optometrists are concentrated more in Auckland and other regions with higher population density[98]. A recent analysis of travel distance to clinics (rather than to clinicians) showed the average (median) travel distance to optometry (3.0km) was shorter than to ophthalmology (8.8km); nationally, 2.8% and 7.1% of the population lived >50km from an optometry and ophthalmology clinic respectively, though not all of these were permanently staffed[99] (b).

The **availability of health workers with skills in eye care** has not been comprehensively assessed (beyond the recognised eye health cadres) since the Eye Health Workforce Service Review conducted in 2010[96]. The workforce solutions suggested nationally have not been implemented locally to any significant degree (c).

New Zealand does not have the **'cataract surgeon'** cadre (d).

The government takes measures to ensure **appropriate distribution of primary care** professionals in all geographic areas where needed (e.g. *funding for rural primary health care, NZLocums*, and *Service Level Alliances*)[100], but there is no specific arrangement for eye care professionals. Intake is controlled mainly by the universities dictated by funding levels through Tertiary Education Commission for undergraduates. The 20 regional DHBs receive bulk central funding but have a great deal of local autonomy on how they allocate that funding on workforce and specific health services; eye care is generally a low priority (e).

[94] Stats NZ. Estimated Resident Population of Nz [June 2020], last modified 16 Nov 2021, 2021, accessed 01 Feb, 2022, https://www.stats.govt.nz/indicators/population-of-nz.

[95] Medical Council of NZ. Workforce Survey 2021, accessed 07 Dec 2021. https://www.mcnz.org.nz/about-us/what-we-do/workforce-survey/.

[96] Health Workforce NZ. Eye Health Workforce Service Review 2010, accessed 07 Dec, 2021. https://www.health.govt.nz/system/files/documents/pages/eyehealth-workforce-service-forecast.docx#:~:text=The%20Eye%20Health%20Workforce%20Service,30%2D40%25%20increase%20funding.

[97] Optometrists and Dispensing Opticians Board (ODOB). Annual Report 2021 2021, accessed 07 Dec 2021. https://www.odob.health.nz/wp-content/uploads/2021/10/OOD-AnnualReport-2021.pdf.

[98] Chapman NA, Anstice NS, and Jacobs RJ. Geographic Distribution of Eye-Care Practitioners in Aotearoa/New Zealand: Implications for Future Eye Health Workforce, Clinical and Experimental Optometry 2020;103(4): 531-541.

[99] Ramke J, Zhao J, Wilson O, et al. Geographic Access to Eye Health Services in Aotearoa New Zealand: Which Communities Are Being Left Behind? (forthcoming).

[100] Ministry of Health. Rural Primary Health Care, last modified 24 Oct 2021, 2021, accessed 06 Feb, 2022, https://www.health.govt.nz/our-work/primary-health-care/primary-health-care-subsidies-and-services/rural-primary-health-care.

Proposed maturity level score = 3 **Needs minor strengthening**

- There are workforce shortages in ophthalmology, particularly outside urban centres (*).
- Graduate numbers are slightly lower than required for ophthalmologists (L3); however, the maldistribution of these graduates and their retention in New Zealand are of major concern (*).

Possible actions – Workforce availability

- Identify areas (level of the health system and geographic distribution) where there are chronic eye care workforce shortages and develop specific strategies to address this.

20. Workforce training and competencies

WHO Definition: This refers to the undergraduate, postgraduate and other training that ensures development of an appropriate set of eye care competencies in the health workforce, comprising of ophthalmologists, optometrists, ophthalmic nurses, orthoptists and opticians.

Questions	Ophthalmologist	Optometrist	Ophthalmic nurse	Orthoptist	Optician
(a) Number graduating each year	7 (5-8)	~50 (±5)	No formal training in NZ	No formal training in NZ	Vocational training
(b) Is the range of provided eye care services regulated and endorsed by the government / relevant professional bodies?	Yes	Yes	-	-	Yes
(c) Is the type and length of training specified by the government, regulatory or accreditation body?	Yes	Yes	-	-	Yes
(d) Is it compulsory for national curricula to be used by educational institutions?	Yes	Yes	-	-	-
(e) Is there compulsory continuing medical education (CME)/continuing professional development (CPD)?	Yes	Yes	-	-	Yes
Frequency of CPD/CME training (in years)?	Yearly (50 hours minimum)	Yearly (20 hours minimum)		Two years (Australia)	Two years
Who provides CPD/CME training?	RANZCO, Medical Council[101]	Administered by Optometrists and Dispensing Opticians Board of NZ (ODOB)[102]	-	Australian Orthoptic Board (Not in NZ)[103]	Administered by ODOB[102]

Proposed maturity level score = 3 **Needs minor strengthening**

- There have been efforts to identify country-specific eye care needs and develop training courses accordingly, e.g. Eye Health Workforce Review 2010[104] (L3), but these have not been implemented as expected (*).
- The standard of eye care training courses is high and there is a large range of training opportunities at the undergraduate and postgraduate level (L4), but vocational training opportunities are limited (*).
- Eye care is integrated across a small number of other areas of health professional training (L2), but there are areas for improvement (*).

Possible actions – Workforce training and competencies

- Integrate eye care training into other courses more comprehensively.
- Strengthen provincial training opportunities to assist with provincial recruitment and retention (*).
- Strengthen competencies of the eye health workforce to deliver culturally safe services (*).

[101] RANZCO. Membership and Cpd, last modified 18 May 2021, 2021, accessed 07 Dec, 2021, https://ranzco.edu/home/ophthalmologists/membership-and-cpd/.
[102] Optometrists and Dispensing Opticians Board (ODOB). Standards of Clinical Competence for Optometrists.
[103] Wintec. Dispensing Optician, accessed 07 Feb, 2022, https://www.wintec.ac.nz/future-you/explore/jobs/health/dispensing-optician#:~:text=The%20duration%20of%20the%20course,yourself%20as%20a%20dispensing%20optician.
[104] Health Workforce NZ. Eye Health Workforce Service Review.

21. Workforce planning and management

WHO Definition: This refers to the leadership, management, planning and implementation of initiatives that strengthen the eye care workforce.

The government has **plans for development of human resources** for health[105] but these do not explicitly include eye health (a).

The government-endorsed **registration and licence to practice** for ophthalmologists is granted by the Medical Council of NZ[106] and for optometrists and dispensing opticians it is granted by Optometrists and Dispensing Opticians Board of NZ (ODOB)[107] (b).

Ophthalmologists[108] and optometrists[107] both have a nationally accepted **code of conduct** (c).

New Zealand has examples of **task shifting** (whereby mid-level health care workers provide eye care-related tasks historically provided by ophthalmology) including optometrists and other allied health personnel managing retinal screening for people with diabetes[109] (d).

There have been no **case studies** conducted on the development of human resources for eye care such as distribution, retention or subspecialty training (e).

There is a **shortage of ophthalmologists** (but not optometrists) and no government-led plans to scale up the eye care workforce; the distribution of the eye care workforce is not ideal[110] (f).

Proposed maturity level score = 3 **Needs minor strengthening**

- Eye care workforce planning is sufficient and in some cases eye care is integrated into wider health workforce planning. Planning has been regular but not always routine or comprehensive (L3).
- Information about the situation of eye care personnel is available. There is an understanding of what personnel exist, who and where they are, and of any significant issues (L4).

Possible actions – Workforce planning and management

- Develop a specific plan for the geographic distribution of the eye care workforce, and/or ensure it is integrated into wider strategic planning for the health workforce, including at the primary level of care.
- Introduce incentives to increase the workforce available outside major urban centres (*).

[105] Ministry of Health. Health and Disability Workforce Strategic Priorities and Action Plan, last modified 21 Nov 2019, 2019, accessed 06 Feb, 2022, https://www.health.govt.nz/our-work/health-workforce/health-and-disability-workforce-strategic-priorities-and-action-plan.

[106] Medical Council of NZ. Medical Training and Education, last modified 10 Nov 2020, 2020, accessed 07 Dec, 2021, https://www.mcnz.org.nz/registration/medical-education/.

[107] Optometrists and Dispensing Opticians Board (ODOB). Standards of Clinical Competence for Optometrists.

[108] RANZCO. Code of Conduct, last modified 19 Aug 2017, 2022, accessed 06 Feb, 2022, https://ranzco.edu/wp-content/uploads/2019/05/RANZCO-Professional-Code-of-Conduct-15.03.18.pdf.

[109] Ministry of Health. Diabetic Retinal Screening, Grading, Monitoring and Referral Guidance. Wellington: Ministry of Health, 2016. https://www.health.govt.nz/publication/diabetic-retinal-screening-grading-monitoring-and-referral-guidance.

[110] Chapman NA, Anstice NS, and Jacobs RJ. Geographic Distribution of Eye-Care Practitioners in Aotearoa/New Zealand: Implications for Future Eye Health Workforce, Clinical and Experimental Optometry 2020;103(4): 531-541.

22. Refractive and optical services regulation

WHO Definition: Regulations refer to service quality, staff training and dual practice. Refractive services refer to an assessment of the corrective needs of a person with uncorrected refractive error. Optical services refer to provision of correction spectacles or contact lenses.

Certification is required to write a prescription for spectacles. The prescribing of spectacles requires that both a refraction AND an eye health examination is performed. Refraction-only sight tests for spectacles are illegal in New Zealand. (a).

Optometrists are the main **profession** who are certified to prescribe spectacles (b).

There are optometrists employed in the **public sector,** but their primary role is not refraction. So while refraction services are available in most DHB eye clinics, refraction tends to only be done for children, and there is no provision of spectacles; currently no plan exists to integrate optical services (c).

The Optometrists and Dispensing Optician Board of NZ (ODOB) oversees the **standards of dispensing services** in line with the Health Practitioners' Competency Act (HPCA) but there is no other government department that oversees dispensing of spectacles. Australia and NZ Standards (e.g. AS/NZS ISO 14889:2011, and AS/NZS ISO 13666:2015) define standards for spectacle lenses[111], but there is no government department to oversee the distribution of spectacles. Dispensing of spectacles was deregulated in 2003. Voluntary standards for spectacles are provided by registered optometrists and dispensing opticians. Spectacles sold by retailers are supplied under general standards defined within consumer guarantee laws (d).

There are no policies beyond the Standards and HPCA mentioned above to **regulate the private sector** providing refractive and optical services (e).

Optometrists are trained at the University of Auckland (five years undergraduate) (f).

Dispensing Opticians are trained at technical school/college (Certificate IV level course in Optical Dispensing[112]) (g).

The University of Auckland course for **optometry is accredited** by the Optometry Council of Australia and New Zealand (h).

The Certificate IV level course in **Optical Dispensing is an industry-accredited** course run through the Australasian College of Optical Dispensing and registered in the ODOB NZ (i).

Proposed maturity level score = 4 **Needs no immediate action**

- Overarching policies and standards are in place to regulate the private sector providing refractive and optical services.
- Practising optometrists and opticians require a government-issued licence.
- Educational institutions for optometrists and opticians require national accreditation from a government body.

Possible actions – Refractive and optical services regulation

- No immediate action.

[111] Ministry of Business Innovation and Employment NZ. As/Nzs Iso 13666:2015, last modified 20 Aug 2020, 2021, accessed 07 Dec, 2021, https://www.standards.govt.nz/shop/asnzs-iso-136662015/.

[112] Wintec. Dispensing Optician, accessed 07 Feb, 2022, https://www.wintec.ac.nz/future-you/explore/jobs/health/dispensing-optician#:~:text=The%20duration%20of%20the%20course,yourself%20as%20a%20dispensing%20optician.

23. Workforce mobility, motivation and support

WHO Definition: Mobility refers to the impact of international mobility of eye care professionals on the availability and effectiveness of the workforce. Motivation refers to the degree of willingness and effort towards attaining organizational or client goals demonstrated by eye care personnel. Support refers to the extent of support experienced in a workplace with a focus on workplace support and supervision mechanisms.

The rate of **attrition and international migration** of ophthalmologists and optometrists are not monitored systematically, but records of clinicians are maintained by the Medical Council of NZ and Optometrists and Dispensing Optician Board of NZ. Attrition of ophthalmologists and optometrists to Australia is of concern[113] (a).

There is no government measure in place to secure **retention** of eye care professionals in the country (b).

Migrant professionals, including for eye care, have the same rights and welfare as New Zealand citizens/resident workers[114] (c).

The **professional association** of ophthalmologists is RANZCO[115] and of optometrists is NZ Association of Optometrists (https://www.nzao.nz/) (d).

There are no government-led programmes to **assess and improve motivation** of health care workers, including eye care personnel (e).

Proposed maturity level score = 3 **Needs minor strengthening**

- For optometry–the benefits of international mobility are maximized, and adverse effects are mitigated (L4).
- For ophthalmology–international mobility has a discernible adverse effect on the strength of the workforce (L3).
- The eye care workforce is highly motivated. There are good career pathways, and many people remain in the profession (L4).
- Eye care personnel can access the support and supervision they need. Robust mechanisms exist in workplaces and there are mentoring and coaching opportunities for personnel seeking additional support (e.g. if they are isolated or junior) (L4).

Note: Despite most items being level 4, we chose level 3 to reflect the need to address attrition of ophthalmologists.

Possible actions – Workforce mobility, motivation and support

- Support initiatives that build the status of eye care and highlight the contribution it makes to health outcomes.
- Identify strategies to address loss of ophthalmologists to other countries (*).

[113] Health Workforce NZ. Eye Health Workforce Service Review.
[114] Immigration New Zealand. Rights for Migrant Workers, 2022, accessed 07 Feb, 2022, https://www.immigration.govt.nz/about-us/policy-and-law/integrity-of-the-immigration-system/migrant-exploitation.
[115] RANZCO. Ophthalmologists, last modified 02 Aug 2019, 2022, accessed 06 Feb, 2022, https://ranzco.edu/home/ophthalmologists/#:~:text=RANZCO%20is%20the%20training%20college,trainees%20and%20allied%20health%20professionals.

24. Eye care infrastructure and equipment

WHO Definition: This refers to the physical infrastructure where eye care services are commonly delivered. It includes treatment rooms, dedicated centres and other infrastructure.

A total of 84 **public hospitals** are registered to provide secondary and/or tertiary level health care[116]; some of these provide eye care, although we found no information to confirm the total number (a).

The Ministry of Health has a **list of essential medicines, medical products and technologies**[117,118] and this includes a section on eye care medicines, medical products and technologies. Eye care medicines must be always available in the clinics of eye care providers; they are provided free of charge to patients during hospitalization. The list of medicines and medical products to be used in publicly funded health services in New Zealand is updated every year by an independent panel of experts coordinated by a government institution—the Pharmaceutical Management Agency (PHARMAC)[118] (b).

Eye care service infrastructure needs are not formally assessed periodically and therefore information is not integrated into future health facility planning (c).

Surveys on the **availability of essential ophthalmic equipment** are carried out in the public system in an ad hoc basis, primarily at the secondary and tertiary level (d).

Technicians are available (from the private sector) to provide **maintenance to ophthalmic equipment** and can service equipment anywhere in the country (e).

Ophthalmic equipment falls under **national minimum health service delivery standards**[119](f).

There is a government system in place to **negotiate and monitor procurement prices for eye medicines.** PHARMAC is responsible for negotiating the price of medicine and medical products used in publicly funded health services in New Zealand[118] (g).

Imported medicines, medical products and technologies need approval for use by the government (h).

Most medicines, medical products or technologies for eye care are produced elsewhere, but some are **manufactured domestically**, such as contact lenses (https://corneal-lens.co.nz/) (i).

Proposed maturity level score = 4 **Needs no immediate action**

- All necessary infrastructure for effective eye care services is available; there is a high level of availability across all services; there are no infrastructure limitations impacting negatively on the services provided (L4).
- All necessary equipment for effective eye care is available across all services and is well maintained (L4).

Possible actions – Eye care infrastructure and equipment

- Maintain the standards, periodically monitor eye care equipment needs, and ensure requests are made and budgeted (*).

[116] Ministry of Health. Public Hospitals, last modified 07 Feb 2022, 2022, accessed 06 Feb, 2022, https://www.health.govt.nz/your-health/certified-providers/public-hospital.
[117] New Zealand Universal List of Medicines (NZULM). Nz Universal List of Medicines, 2021, accessed 07 Dec, 2021, https://info.nzulm.org.nz/.
[118] PHARMAC. About Pharmac, last modified 02 Dec 2021, 2021, accessed 07 Dec, 2021, https://pharmac.govt.nz/about/contact/.
[119] Ministry of Health. Ngā Paerewa Health and Disability Services Standard, New Zealand Government,, last modified 30 June 2021, 2021, accessed 07 Dec, 2021, https://www.standards.govt.nz/shop/nzs-81342021/.

Block 5: Financing

25. Population covered by eye care financing mechanisms

WHO Definition: This refers to the health financing mechanisms and the extent to which those that include eye care services also cover the population. Common health financing mechanisms include government tax-based systems or the national health, private or social insurance systems.

All New Zealand residents and citizens are eligible for the public services provided with no out-of-pocket costs. Private **health insurance** is available, with 34.7% coverage among people aged ≥15 years[120]. Information about the social distribution of private insurance coverage, quality and satisfaction is unknown[120] (a, d).

The government provides free **inpatient and outpatient public hospital services**[121] as well as free/subsidized primary care for some population groups including children <14 years and people with a *Community Services* or *High Use Health Card*[122] (b).

Government eye care services are provided at no cost to the patient[123]; assistive products, medicines etc. incur costs (outlined in Item 26 below) (c).

When patients pay for eye care services by **ophthalmologists in private practice**, they pay out-of-pocket with/without health insurance (e).

When patients access eye care services provided by **optometrists in private practice**, they are mostly covered by out-of-pocket payments with/without health insurance schemes; a small proportion of the population are eligible for limited government schemes that reduce the out-of-pocket costs (outlined in Item 11) (f).

Employers are not a mandatory provider of health insurance (g).

There are a small number of **not-for-profit providers** of eye care services. Financing mechanisms for these include a mix of free/subsidized and out-of-pocket expenses[124] (h).

The main reason people don't have **private health insurance** is the cost (i).

Proposed maturity level score = 2 **Needs major strengthening**

- Ophthalmology - Eye care financing for integrated into most of the financing mechanisms used for the provision of health care (L3).
  Optometry / spectacles - The eye care financing mechanisms and available expenditure are limited; only a few people are included in arrangements and covered for the eye care service they need (L2).

Note: We chose level 2 given the lack of financing for optometry (primary care) and spectacles.

Possible actions – population covered by eye care financing mechanisms

- Integrate primary eye care, refraction and spectacles into the various health care financing mechanisms that exist to cover the population who need financial protection (*).
- Develop specific programmes and initiatives that address any gaps in eye care service coverage for underserved population groups.

[120] Ministry of Health. New Zealand Health Survey, Ministry of Health, last modified 06 Dec 2021, 2021, accessed 07 Dec, 2021, https://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/surveys/new-zealand-health-survey.
[121] Ministry of Health. Publicly Funded Health and Disability Services, last modified 15 April 2011, 2011, accessed 21 Feb, 2022, https://www.health.govt.nz/new-zealand-health-system/publicly-funded-health-and-disability-services.
[122] Ministry of Health. Primary Health Care Subsidies and Services, last modified 02 June 2021, 2021, accessed 05 Feb, 2022, https://www.health.govt.nz/our-work/primary-health-care/primary-health-care-subsidies-and-services
[123] Ministry of Health. Hearing and Vision Services, MOH, last modified 11 December 2015, 2015, accessed 05 Feb, 2022, https://www.health.govt.nz/your-health/services-and-support/disability-services/types-disability-support/hearing-and-vision-services.
[124] Mr Foureyes. Eyecare About Social Impact, accessed 09 Feb, 2022, https://mrfoureyes.co.nz/.

26. Scope and range of eye care interventions, services and assistive products included in health financing

WHO Definition: This refers to the range of eye care interventions, services and assistive products that are financed and subsequently made available to the population. Assistive products include spectacles and low-vision devices.

Of the services outlined in the ECSAT tool (a), in New Zealand, the services and medicines fully covered by the government includes:

- All services provided in government eye care establishments (including eye examinations by ophthalmologists)
- Stay at an eye inpatient department
- Retinal laser therapy for diabetic retinopathy
- Treatment with anti-vascular endothelial growth factor (for diabetic retinopathy, macular degeneration)
- Glaucoma surgery
- Cataract surgery – phaco
- Cataract surgery – ECCE/SICs
- Cataract surgery without intraocular lens (IOL)
- Vitreo-retinal surgery
- Corneal transplantation (keratoplasty)
- Strabismus
- Retinopathy of prematurity

The services and medicines partly covered by the government includes:

- Eye care medication (e.g. glaucoma drops) require a co-payment of NZ$5 per prescription.
- Eye examination including refraction and spectacles are mostly paid out-of-pocket but the government funds these for children ≤15 years with a *High Health Use Card* or whose parents receive social support[125]. The government also funds contact lenses for people with certain conditions (e.g. kerataconus)[126] and people with vision impairment unable to be corrected to 6/24 visual acuity (see Item 11).

The services and medicines not covered by the government includes:

- Comprehensive eye examination by optometrists (except for children ≤15 years with a *High Health Use Card* or whose parents receive social support–costs for this group partly covered as outlined above).

Cost-benefit research has not been undertaken to determine the benefit of preventing avoidable vision impairment or providing rehabilitation services. However, cost-effectiveness of some surgical interventions has been described e.g. cataract surgery[127] (b).

Proposed maturity level score = 3 **Needs minor strengthening**

- A moderate range of eye care interventions, services and assistive products that are needed by the population are financed and made available, but a few unmet needs remain (L3).

Possible actions – Scope and range of eye care interventions, services and assistive products included in health financing

- Advocate for the integration of a wide scope and range of eye care interventions, services, and assistive products (e.g. spectacles, low-vision devices) into health financing mechanisms, including service package planning and financing.

[125] Ministry of Health. Hearing and Vision Services, MOH, last modified 11 December 2015, 2015, accessed 05 Feb, 2022, https://www.health.govt.nz/your-health/services-and-support/disability-services/types-disability-support/hearing-and-vision-services.

[126] Ministry of Health. Contact Lens Subsidy, MOH, last modified 18 March 2020, 2020, accessed 25 Feb, 2022, https://www.health.govt.nz/new-zealand-health-system/claims-provider-payments-and-entitlements/contact-lens-subsidy#:~:text=The%20contact%20lens%20subsidy%20is,medical%20reasons%2C%20cannot%20wear%20glasses.

[127] Boyd M, Kho A, Wilson G, et al. Expediting Cataract Surgery in New Zealand Is Cost-Effective for Falls Prevention and Improving Vision-So What Might Be the Next Steps?, *New Zealand medical journal* 2019;132(1501): 73-78.

27. Financing of eye care and out-of-pocket costs

WHO Definition: This refers to the extent to which eye care is financed, impacting the proportion of out-of-pocket costs. The out-of-pocket costs refer to costs paid by consumers when accessing eye care services; this includes fees for services and assistive products as well as other expenses related to accessing the services. Assistive products include spectacles and low-vision devices.

The **annual domestic general government expenditure** per capita for health is estimated to be NZ$3012[128] and **out-of-pocket expenditure per capita** is NZ$521[128]; the spending on eye health is unknown (a).

There are no **out-of-pocket costs required for cataract surgery** in the public sector; the investment in surgery has not kept pace with the increased demand through population ageing. The out-of-pocket expenditure for cataract surgery (with a standard intraocular lens) in the private sector ranges from NZ$3000 to $4650[129] (b).

The **out-of-pocket payment for basic good quality spectacles** ranges from NZ$150-250 (single vision) to NZ$600-900 (progressive lenses) in the private sector (main provider) (c).

There is no **value added tax or supply tax** for spectacle frames/lenses or IOLs; **import tax** ranges from zero to a one-off freight fee. In general, New Zealand's 15% Goods and Service Tax (GST) applies at the point of purchase of spectacles (and IOLs in the private sector)[130] (d).

Proposed maturity level score = 2 – **Needs major strengthening**

- The extent of the financing of many eye care interventions (e.g. those in the public sector) results in low out-of-pocket costs (e.g. parking costs) (L3).
- There is no financial protection for people needing to see an optometrist, and very limited protection for people needing to access spectacles, and therefore most people are not covered (*).

Note: Except for optometric exams and spectacles, there is good financial protection for eye services; we chose level 2 because the proportion of the population needing access to refractive error correction is large.

Possible actions – Financing of eye care and out-of-pocket costs

- Review out-of-pocket costs for spectacles and develop sustainable strategies to ensure affordability.
- Increase budget allocation for publicly provided cataract surgery.

[128] World Health Organization. Global Health Expenditure Database, WHO, 2014, accessed 07 Dec 2021, 2021, https://apps.who.int/nha/database/Select/Indicators/en.

[129] Bowen Eye Clinic. Cost of Cataract Surgery in New Zealand, 2022, accessed 09 Feb, 2022, https://boweneye.co.nz/bowen-eye-news/cost-cataract-surgery-new-zealand.

[130] New Zealand Government. GST Rate, last modified 24 June 2021, 2022, accessed 08 Feb, 2022, https://www.govt.nz/browse/tax-benefits-and-finance/tax/gst-rate/.

Block 6: Information

28. Health systems data on availability and utilization of eye care services

WHO Definition: This refers to the availability of information regarding where eye care services are available and where they exist across the health services. It also includes information about the extent of utilization of eye care services and the features of this utilization, for example, age and geographic area.

Health data and information are **collected and administered centrally** by the Ministry of Health[131] from different parts of the health sector (a).

The health information system (HIS) receives data from the routine administrative systems, e.g. health service use records, mandatory reporting of national collections, and national population-based health surveys. However, **there is no established mechanism to collect information about the availability of eye care services** and human resources for eye health in primary health care facilities, secondary/district hospitals, or tertiary/teaching hospitals (b).

The national HIS (through data provided by each of the DHBs) routinely **collects information about use of eye care services** (outpatient attendances, inpatient admissions, and eye operations). However, these data are not provided by all DHBs, nor are they routinely or periodically analysed, and therefore a summary of eye care use is not readily available. Some DHBs and specific services (e.g. retinal screening) may undertake regular **reviews of data completeness and accuracy**[132], but this tends to be ad hoc rather than routine (c).

Private sector data are collected on availability and use of data, but these are not regularly shared with government (d).

Proposed maturity level score = 2 **Needs major strengthening**

- Health information systems produce a low level of reliable reporting on where and what eye care services are available across health services. A small number of situation assessments, evaluation and reviews, monitoring framework reports and other targeted reports have been developed, but many gaps exist (L2).
- Health information systems produce a low level of reliable and detailed reporting on the utilization of eye care services within health services (L2).

Note: We chose level 2 based on the low level of reporting; the reliability, completeness and accuracy of the data is unknown.

Possible actions – information on availability and use of services

- Ensure basic eye care services information is collated in the health information system.
- Establish a system that generates regular reports on eye care service use.
- Assess and improve, if required, data completeness and accuracy.

[131] Ministry of Health. About Data Collection, last modified 01 Dec 2020, 2010, accessed 01 Feb, 2022, https://www.health.govt.nz/nz-health-statistics/about-data-collection/why-do-we-collect-data.

[132] Ministry of Health. Diabetic Retinal Screening, Grading, Monitoring and Referral Guidance. Wellington: Ministry of Health, 2016. https://www.health.govt.nz/publication/diabetic-retinal-screening-grading-monitoring-and-referral-guidance.

29. Information on outcomes and quality of eye care services

WHO Definition: This refers to the extent that information on the functioning outcome of eye care interventions is collected. It also refers to the extent that information about the quality of eye care services is available, for example, the timeliness, patient satisfaction and safety.

The national health information system (HIS) contains **routinely collected information** about outcomes and quality of care, **but this is rarely collated for monitoring or planning purposes** (a).

This routine collection occurs at health facilities as part of general data collection e.g. DHB, hospital.

Some DHBs and specific services (e.g. retinal screening) may undertake regular **reviews of data completeness and accuracy**[133], but this tends to be ad hoc rather than routine.

Research on outcomes or quality of services is undertaken but is ad hoc rather than routine (b).

Proposed maturity level score = 2 **Needs major strengthening**

- Health information systems generate some data from some health facilities/programmes regarding outcomes and the quality of eye care, but they may not be comprehensive or routine (L3).
- Eye research is occasionally conducted and contributes some knowledge regarding outcomes, the quality and efficiency of eye care services in the country (L2).

Possible actions – Information on outcomes and quality of services

- Set eye research priorities that are policy and programme relevant.
- Build linkages between eye researchers and policy and programme decision-makers.
- Ensure eye care outcomes are monitored and evaluated, including cataract surgical outcomes, with efficiency data collated as well.
- Make eye care outcomes data available to national HIS.

[133] Ministry of Health. Diabetic Retinal Screening, Grading, Monitoring and Referral Guidance. Wellington: Ministry of Health, 2016. https://www.health.govt.nz/publication/diabetic-retinal-screening-grading-monitoring-and-referral-guidance.

30. Population-based data on prevalence and trends of eye conditions and vision impairment

WHO Definition: This refers to the availability of population-level data on eye conditions and vision impairment, to assess current levels of service provision and predict need for services in a country.

No **population-based survey** on vision impairment has been conducted anywhere in New Zealand in the past five years; analysis has recently been undertaken on the prevalence of glaucoma within a birth cohort[134]. Advocating for a government-funded survey has so far been unsuccessful. As at Q1 2022 there is an application under review by HRC for a survey of four regions of the North Island, following a pilot study conducted in Auckland in 2021[135] (a).

We have the **technical capacity** in New Zealand for data collection and analysis of a survey (b).

National and district surveys are conducted (c):

- The ***New Zealand Health Survey*** occurs annually and provides information about the overall health and wellbeing of New Zealanders. However, no information specific to eye health care is collected[136].
- The ***Disability Survey***[137] is conducted ~every 5 years; the next in 2023. The Disability Survey provides the primary source of information about people living with disability in New Zealand. The last survey in 2018 collected self-reported information about the types of impairment (e.g. vision impairment in adults and children), as well as assistive devices, household help, health services, transport, education, housing, employment, leisure, and wellbeing[138,139].

The Ministry of Health collects **periodic disease surveillance** on selected public health issues, including notifiable diseases and outbreak surveillance[140]. However, eye conditions are not currently included (d).

The **last Census** (2018) included a question on self-reported vision. The question asked was 'Do you have difficulty seeing, even if wearing glasses?'[138] (e).

Proposed maturity level score = 2 **Needs major strengthening**

- There have been no population surveys on eye conditions and vision impairment, other than inclusion of eye care questions in censuses, and information is inadequate (L1).
- There is a high level of technical capacity in the country for data collection, analysis and report writing (L4).
- The information available is partly coordinated and harmonized (L3).
- Little information and few reports are available regarding prevalence and trends of eye conditions and vision impairment related to the eye care needs in the population (L2).

Possible actions – Population-based data on VI and eye conditions

- Undertake intermittent epidemiological surveys for eye conditions and vision impairment.
- Undertake analysis of specific trends in health conditions to inform eye care needs for specific groups.
- Revise the questions on vision impairment included in the census and other national surveys.

[134] Singh A, Gale J, Cheyne K, et al. The Prevalence of Glaucoma among 45-Year-Old New Zealanders, Journal article, 2022, NZ Medical Journal (forthcoming).
[135] University of Auckland. Pilot Eye Health Survey under Development, last modified 30 Nov, 2020, 2020, accessed 01 Feb, 2022, https://visionresearch.auckland.ac.nz/2020/11/30/aotearoas-first-national-eye-health-survey-under-development/.
[136] Ministry of Health. New Zealand Health Survey, Ministry of Health, last modified 06 Dec 2021, 2021, accessed 07 Dec, 2021, https://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/surveys/new-zealand-health-survey.
[137] Stats NZ. Disability Survey 2023: Consultation, last modified 06 Sept 2021, 2021, accessed 01 Feb, 2022, https://www.stats.govt.nz/consultations/disability-survey-2023-consultation.
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[140] Institute of Environmental Science and Research Ltd (ESR). Public Health Surveillance, last modified 01 Feb 2022, 2022, accessed 01 Feb, 2022, https://surv.esr.cri.nz/public_health_surveillance/public_health_surveillance.php.

31 Use of evidence for decision-making and planning

WHO Definition: This refers to the extent to which relevant eye care information is available and utilized by decision-makers during the process of health and or eye care policy and programme planning.

Eye care **data and information are available from a range of sources** and settings. For example, human resource registries are maintained by the professional eye care associations and societies, the services delivered in non-government settings are recorded in the private and non-government institutions including health insurance companies, and the inpatient service records are maintained by the respective hospitals[141,142] (a).

Targeted, public-funded eye care interventions (e.g. school screening, diabetic retinopathy screening and treatment) delivered by private and/or public providers are recorded by the respective providers. However, **periodic reports** are infrequently generated (b).

In general, the planning and programme decision-making practices are **evidence-informed** (d). However, there is no dedicated policy or plan for eye research and evaluation on the impact of interventions and policies, even though some of the targeted interventions[143,144] have been **evaluated on an ad hoc basis** (c).

Policymakers are commonly involved in some aspects of designing, developing and interpreting eye research. However, there is no formalised process for sharing research findings with the relevant decision-makers at the Ministry of Health, nor on the process of translating and use of eye care data into policies and plans (e-g).

Proposed maturity level score = 2 **Needs major strengthening**

- There are a small number of ad hoc reports regarding the status, performance and quality of eye care which provide decision-makers with a limited amount of the information they need (L2).
- Information, including international evidence, national reports and research, is infrequently used to inform planning and programme decision-making (L2).

Possible actions – use of evidence for decision making and planning

- Develop and implement an eye care monitoring, evaluation and review platform.
- Integrate eye care with the mainstream health management information systems.
- Build data utilization practices across eye care planning.

[141] Medical Council of NZ. Medical Training and Education, last modified 10 Nov 2020, 2020, accessed 07 Dec, 2021, https://www.mcnz.org.nz/registration/medical-education/.
[142] Optometrists and Dispensing Opticians Board (ODOB). Annual Report 2021.
[143] Education Review Office. Evaluation at a Glance: A Decade of Assessment in New Zealand Primary Schools – Practice and Trends 2018. https://ero.govt.nz/sites/default/files/2021-05/Evaluation-at-a-glance-assessment-practice-and-trends-2020.pdf.
[144] Hutchins E, Coppell KJ, Morris A, et al. Diabetic Retinopathy Screening in New Zealand Requires Improvement: Results from a Multi-Centre Audit, Australian and New Zealand journal of public health 2012;36(3): 257-262.

Recommended actions to strengthen eye care services in Aotearoa New Zealand

Here we provide a collation of recommendations across the 31 Items in ECSAT. The maturity level (L1 to L4) determined for each Item is shown in blue text.

Component	Recommended actions based on current situation
Block 1: Leadership and governance	
1. Leadership, coordination and coalition-building for eye care **L2 - Needs major strengthening**	• Create awareness at the Ministry of Health regarding unmet need for eye care. Support the Ministry of Health to advocate internally for eye care. • Develop capacity and political support for eye care within the health ministry • Create or strengthen intersectoral dialogue mechanisms. Develop the roles and responsibilities of each agency. • Create clear mechanisms for coordinating eye care, such as steering groups, technical working groups, or committees, and support them to function effectively.
2. Eye care integration into legislation, policies and plans **L1 - Needs establishing**	• Integrate eye care into the national health strategic plan, including targets. • Integrate eye care into health legislation and relevant policies. • Clarify eye care within legislation, policies and plans. • Develop a national plan for eye health and the prevention of blindness, in collaboration with relevant sectors, programmes and -government stakeholders, if integration into the national health strategic plan is lacking. • Develop standards and/or a masterplan for the development/expansion of eye care across health care.
3. Integration of eye care across relevant sectors and programmes **L3 - Needs minor strengthening**	• Identify priority sectors and programmes for integration strengthening. • Actively engage stakeholders from relevant sectors and programmes in eye care planning. • Ensure representatives from the eye care sector contribute to strategy planning meetings and discussions among relevant sectors and programmes, including those describing noncommunicable diseases. • Ensure eye care indicators are included within frameworks of relevant sectors and programmes, including noncommunicable diseases.
4. Reorientation of eye care services towards primary eye care within primary health care **L3 - Needs minor strengthening**	• Advocate for adequate funding of eye care in primary health care, with an emphasis on comprehensive care by optometrists. • Assess the cost-effectiveness of primary eye care in the country and use this to advocate for prioritizing primary eye care.
Block 2: Service delivery – access	
5. Equity of eye care services coverage across disadvantaged population groups **L2 - Needs major strengthening**	• Identify groups that may not be accessing the eye care they need or are provided lower quality of care. • Develop the necessary legislation and regulations to strengthen joint accountability for equity in eye care across sectors and decision-makers and within and outside of government. • Ensure regular joint review of progress, which fosters common understanding and sustains commitment to deliver shared results over time. • Implement strategies that actively promote leadership and involvement of Iwi, service users and stakeholders in problem definition and solution development (*). • Promote eye health with ongoing health sector reforms, particularly with Health NZ and Māori Health Authority (*).
6. Primary level eye care services integrated into primary health care **L3 - Needs minor strengthening**	• Develop and/or strengthen outreach and mobile clinic programmes to deliver primary eye care to communities with major barriers. • Assess who is not accessing care due to financial constraints and develop strategies to improve financial access, e.g. removal or reduction of user fees, voucher programmes.
7. Community-delivered eye care services **L3 - Needs minor strengthening**	• Integrate eye care into other health programmes delivered to communities. • Undertake community awareness-raising actions, e.g. television, radio, the internet, social media, billboards and brochures to emphasize the importance of eye care; raise awareness about the availability of effective interventions that address all eye care needs across the life course; and raise awareness of the availability of vision rehabilitation. • Governments may contract non-governmental organizations to deliver flexible community-delivered eye care.

(*) indicates recommendations proposed during this process that were not present in the WHO ECSAT.

Component	• Recommended actions based on current situation
Block 2: Service delivery – access *continued*	
8. Integrated paediatric eye care services **L3 - Needs minor strengthening**	• Develop a nationally integrated model for ROP screening, ensuring protocols avoid missing cases when children are transferred from tertiary to secondary/district care (*). • Develop strategies to ensure children can access follow-up care after a referral from a vision screening programme (*). • Regularly audit, evaluate and optimise for equity and effectiveness (*).
9. Integrated cataract surgical services **L2 - Needs major strengthening**	• Review cataract surgical services performance and outcomes, including patient perception of services. • Identify strategies to make services more accessible to underserved groups (*). • Strengthen the collection and use of data to understand the status of cataract vision impairment and cataract services, including effective cataract surgical coverage (*).
10. Integrated diabetic eye care services **L2 - Needs major strengthening**	• Standardise retinal screening service into one system nationwide, including regular audit and evaluation (*). • Assess the feasibility and acceptability of AI (artificial intelligence) for screening (*). • Reduce waiting times and eliminate loss from the system for people with diabetes requiring ophthalmology review or treatment (*). • Monitor patient adherence to ensure periodic eye examinations for people with diabetes, even if asymptomatic.
11. Integrated refractive and optical services **L2 - Needs major strengthening**	• Develop health financing mechanisms to make spectacles more affordable and accessible for low-income patients. • Advocate for subsidised frames/lenses dispensed in the public sector to improve affordability for low-income patients. • Conduct a situation analysis to assess the scope, effectiveness and quality of refractive and optical services (TARES)(*). • Advocate for public sector and private sector collaboration to provide refractive and optical services that are accessible by everyone (*). • Allow DHB funding for toric intraocular lenses in cataract surgery to correct astigmatism and minimise postop refractive error (which has been shown to be cost-effective) (*). • Strengthen the collection and use of data to understand the status of vision impairment due to refractive error and refractive error services, including effective refractive error coverage (*).
12. Integrated low-vision and vision rehabilitation services **L2 - Needs major strengthening**	• Develop funding mechanisms for services to reduce out-of-pocket costs for those that cannot afford services. • Raise population awareness of the available services. • Provide financial protection for people needing low vision rehabilitation services (including devices) who cannot afford out-of-pocket costs (*)
Block 3: Service delivery – quality	
13. Extent to which services are delivered in a timely way and along a continuum, with effective referral **L3 - Needs minor strengthening**	• Carry out a health system referral assessment to identify current problems with the referral system, including levels of patient satisfaction and confidence in services at each level.
14. Extent to which eye care services are person-centred, flexible and engage patients in decision-making **L3 - Needs minor strengthening**	• Train eye care practitioners on person-centred care. • Develop case management and coordination practices that engage users in decision-making to deliver eye care that is flexible and tailored. • Collect patient experience and satisfaction data (*). • Ensure input of users and their families during decision-making.
15. Eye care services acceptability and adherence **L3 - Needs minor strengthening**	• Improve eye health literacy environments within health services, to match the eye health literacy levels of the people who use the services. • Develop action plans to recruit a diverse eye care workforce that can help make eye care socially and culturally safe and acceptable across the population.
16. Extent to which eye care interventions are evidence based **L4 – Needs no immediate action**	• —
17. Safety of eye care services **L4 – Needs no immediate action**	• Consider introducing national cataract surgery audit similar to the UK.
18. Multilevel accountability for performance of eye care services **L3 - Needs minor strengthening**	• Establish a monitoring and evaluation framework for eye care, including results and/or performance measurement • Establish regular reporting requirements.

(*) indicates recommendations proposed during this process that were not present in the WHO ECSAT.

Component	• Recommended actions based on current situation
Block 4: Workforce and infrastructure	
19. Workforce availability **L3 - Needs minor strengthening**	• Identify areas (level of the health system and geographic distribution) where there are chronic eye care workforce shortages and develop specific strategies to address this.
20. Workforce training and competencies **L3 - Needs minor strengthening**	• Integrate eye care training into other courses more comprehensively. • Strengthen provincial training opportunities to assist with provincial recruitment and retention (*). • Strengthen competencies of the eye health workforce to deliver culturally safe services (*).
21. Workforce planning and management **L3 - Needs minor strengthening**	• Develop a specific plan for the geographic distribution of the eye care workforce, and/or ensure it is integrated into wider strategic planning for the health workforce, including at the primary level of care. • Introduce incentives to increase the workforce available outside major urban centres (*).
22. Refractive and optical services regulation **L4 – Needs no immediate action**	• —
23. Workforce mobility, motivation and support **L3 - Needs minor strengthening**	• Support initiatives that build the status of eye care and highlight the contribution it makes to health outcomes. • Identify strategies to address loss of ophthalmologists to other countries (*).
24. Eye care infrastructure and equipment **L4 – Needs no immediate action**	• Maintain the standards, periodically monitor eye care equipment needs, and ensure requests are made and budgeted (*).
Block 5: Financing	
25. Population covered by eye care financing mechanisms **L2 - Needs major strengthening**	• Integrate primary eye care, refraction and spectacles into the various health care financing mechanisms that exist to cover all the population (*). • Develop specific programmes and initiatives that address any gaps in eye care service coverage for disadvantaged population groups.
26. Scope and range of eye care interventions, services and assistive products included in health financing **L3 - Needs minor strengthening**	• Advocate for the integration of a wide scope and range of eye care interventions, services and assistive products (e.g. spectacles, low-vision devices) into health financing mechanisms, including service package planning and financing.
27. Financing of eye care and out-of-pocket costs **L2 - Needs major strengthening**	• Review out-of-pocket costs for spectacles and develop sustainable strategies to ensure affordability. • Increase budget allocation for publicly provided cataract surgery.
Block 6: Information	
28. Health systems data on availability and utilization of eye care services **L2 - Needs major strengthening**	• Ensure basic eye care services information is collated in the health information system. • Establish a system that generates regular reports on eye care service use. • Assess and improve, if required, data completeness and accuracy.
29. Information on outcomes and quality of eye care services **L2 - Needs major strengthening**	• Set eye research priorities that are policy and programme relevant. • Build linkages between eye researchers and policy and programme decision-makers. • Ensure eye care outcomes are monitored and evaluated, including cataract surgical outcomes, with efficiency data collated as well. • Make eye care outcomes data available to national health information systems (HIS).
30. Population-based data on prevalence and trends of eye conditions and vision impairment **L2 - Needs major strengthening**	• Undertake intermittent epidemiological surveys for eye conditions and vision impairment. • Undertake analysis of specific trends in health conditions to inform eye care needs for specific groups. • Revise the questions on vision impairment included in the census and other national surveys.
31. Use of evidence for decision-making and planning **L2 - Needs major strengthening**	• Develop and implement an eye care monitoring, evaluation and review platform. • Integrate eye care with the mainstream health management information systems. • Build data utilization practices across eye care planning.

(*) indicates recommendations proposed during this process that were not present in the WHO ECSAT.

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