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Contents

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Executive summary

Uncorrected refractive error stands as a leading cause of vision impairment globally. Recognizing this unmet need and the cost–effective solution of corrective spectacles, the Seventy-fourth World Health Assembly in 2021 endorsed a new global target: a 40% increase in effective coverage of refractive error (eREC) by 2030 *(4)*.

This resource, *Competency-based refractive error teams* (CRET), is an adaptation of WHO's *Eye care competency framework* (ECCF) and focuses specifically on refractive error. CRET provides a structured approach to developing effective teams that deliver quality care for refractive error across all levels of the health system.

CRET emphasizes a team-based approach where diverse personnel, such as community health workers, refractionists, optometrists, orthoptists, and ophthalmologists, operate as unified teams rather than isolated practitioners. The resource details specific competencies and activities at four proficiency levels (Introductory, Intermediate, Advanced, Expert) within two key domains:

1. the Practice domain, which focuses on clinical activities such as screening, refraction, diagnosis, and continuity of care; and
2. the Management and Leadership domain, which emphasizes team communication, role definition, and service delivery management.

Additionally, CRET outlines strategies for integrating the tool into educational programmes and continuous education, enhancing service delivery pathways, and integrating technology to support workforce capacity. The case studies presented in section 3 demonstrate how teams function across health system levels in diverse settings.

Implementing CRET optimizes resources, enabling access to underserved populations, standardizing high-quality care, strengthening health systems, and enhancing patient treatment outcomes, thereby contributing to a person-centred approach to addressing uncorrected refractive error.

Introduction

At the Seventy-third World Health Assembly in November 2020, World Health Organization (WHO) Member States adopted resolution WHA73: "Integrated people-centred eye care, including preventable vision impairment and blindness" *(1)*, recognizing the fundamental role of the eye care workforce worldwide. Currently the global eye care workforce faces a number of challenges, influenced by local contexts. Challenges most commonly reported to hinder individuals from receiving the eye care they need, include a lack of full integration into the health system; limited workforce capacity; a mismatch of workforce skills to population needs; and inadequate quality of care *(2)*.

In response to these challenges, WHO introduced the *Eye care competency framework* (ECCF) *(2)* – a strategic tool to support eye care workforce planning and development. Launched in 2022, the ECCF, along with its implementation guide, *Guide to applying the WHO eye care competency framework (3)*, serves as a comprehensive resource guiding the expected performance levels of the eye care workforce across all health-care levels. The ECCF aims to ensure a seamless continuum of quality care and integrated service delivery tailored to meet population needs effectively.

With uncorrected refractive error remaining a leading cause of vision impairment worldwide, in 2021, the Seventy-fourth World Health Assembly endorsed a new global target for 2030: to increase the effective coverage of refractive error (eREC) by 40% points *(4)*. This target, supported by the WHO SPECS 2030 initiative *(5)*, recognizes the global burden of uncorrected refractive error, and seeks to address this unmet need by promoting sustainable eye care systems and improving access to spectacles particularly in low- and middle-income countries. The initiative also focuses on developing and strengthening the eye care workforce to deliver these essential services. To effectively achieve the eREC target, refractive care services and their workforce must be integrated into broader eye health programmes and incorporated into the overall health-care system.

Care for refractive error occurs mostly at the community, primary, and secondary levels. As such, to provide high-quality refractive error services, it is essential for the eye care workforce at these levels to possess specific competencies, activities, knowledge, and skills. Collaboration among eye care personnel becomes crucial, optimizing service delivery through coordinated teamwork, particularly in low-resource settings. Often, services for refractive error extend beyond the public health system, with private opticians, optical retailers, and informal vendors also playing a major role, particularly in the provision of spectacles. While access to services may be improved, unregulated sales can compromise quality and affordability. Providing guidance on the necessary competencies and activities for different types of personnel offering refractive error services is important for effective task reallocation, role optimization, and coordinated teamwork across both public and private health sectors.

In response to this, elements of the ECCF were adapted and expanded to create a more specific tool, *Competency-based refractive error teams* (CRET), geared towards planning for a refractive error workforce that operates cohesively through a team approach. CRET was developed to simplify and streamline implementation for workforce planners and developers; it standardizes training requirements and enhances the overall quality and efficiency of refractive error service delivery across all sectors.

Purpose

CRET enables an easier application of competencies and activities required for refractive error services to be provided by a team. The tool illustrates how different personnel working at different levels of proficiencies can work in a team setting to provide refractive error services.

Target audience

CRET is aimed at a diverse range of users interested in applying competencies for team development particularly for refractive error services. This includes:

- supporting policy-makers and regulatory authorities in planning and evaluating the refractive error workforce;
- supporting eye care service providers in developing and revising employment guidelines, position descriptions, performance expectations, and performance appraisals;
- supporting eye care nongovernmental organizations and professional associations in advocating for, and providing input to evaluate and plan for, the eye care workforce, or to develop their own workforce; and
- supporting eye care education and training institutions in developing and revising curricula.

Development process

CRET was developed through a consultative and evidence-based approach built on the work of the ECCF. The ECCF was created through a detailed review process, led by WHO, with the assistance of a technical working group comprising international experts in the field of eye care and an extensive peer review, capturing a broad range of eye care stakeholders and disciplines from low-, medium-, and high-income countries *(2)*. The development of CRET involved:

1. performing a thorough analysis of the evidence compiled in the ECCF, focusing specifically on the Practice and Management and Leadership domains, as well as examining the refractive error interventions included the *Package of eye care interventions (6)*; and
2. expanding on the refractive error and teamwork related competencies and activities made in the ECCF.

The draft CRET then underwent iterative consultation and validation from selected ECCF technical working group members and other key experts. Declarations of interest from the 16 reviewers representing the six WHO regions were assessed; no conflicts of interest were identified.

Using the CRET tool

CRET is an expansion and adaptation of the ECCF. Users of the CRET tool are encouraged to first become familiar with the ECCF, as this provides a foundational reference of core competencies for all eye care professionals, including those focused on refractive error. The CRET tool does not include the competencies across all six ECCF domains, as these are fully detailed in the original framework document *(2)*. Rather, CRET highlights specific competencies and activities within the Practice and Management and Leadership domains that are relevant to refractive error services.

Users of CRET can refer to the *Guide to applying the WHO eye care competency framework (3)*, to help implement the tool at the national or subnational levels. The application principles remain the same, with activities from the Practice and Management and Leadership domains included and tailored specifically for refractive error services. In low- and middle-income countries, however, implementing refractive services often involves navigating complex professional structures, regulatory gaps, and commercial influences that shape service delivery. Government ministries, beyond solely the Ministry of Health, must consider how existing workforce structures and private sector engagement impact access to care. To support this, CRET offers practical considerations for integrating different service providers and managing real-world challenges, as described in the case studies in section 3.

1.

Understanding competency-based refractive error teams

A refractive error team is a group of eyecare workers or refractive error personnel, working together to deliver a service to address refractive error. Teams can vary in size and location. The effective organization of activities and roles within the team is crucial to prevent duplication, reduce inefficiencies, and maximize resources *(2)*.

The composition of a team varies based on community needs, population characteristics, disease burden and structure of the health system. However, for a team to be effective, members must have a range of attributes, including clear team leadership, well-defined roles, effective communication, adaptability, competency, and productivity *(7, 8)*. Addressing refractive error through these teams is a critical to achieving integrated people-centred eye care (IPEC) and universal health coverage. Beyond providing refractive error services, these teams can serve as a foundation for developing further pathways to address other eye care needs.

1.1 Benefits of a competency-based approach for refractive error teams

In low-resource settings, the several benefits offered by refractive error teams include:

- *Resource optimization*: the efficient use of limited resources by pooling skills and knowledge.
- *Adaptive collective expertise*: team members with diverse skills and expertise collaboratively finding innovative, adaptable solutions.
- *Improved efficiency and supportive workload management*: increased by clearly defining roles and sharing goals.

By leveraging the combined expertise of team members, and working collaboratively, the teams can tackle challenges in refractive error care, improve IPEC delivery, and promote sustainable eye care systems.

1.2 Members of the refractive error team

Refractive error teams comprise refractive error personnel, which refers to all individuals involved in the provision of refractive error services. This encompasses not only those qualified to perform refractions, but also those involved in related tasks such as vision screening, spectacles dispensing and comprehensive eye examinations. Examples of such personnel include optometrists, refractionists, optical dispensers, orthoptists, optical assistants, ophthalmologists, allied ophthalmic personnel and primary health care nurses, as well as community health workers who provide vision screening and other related services.

Table 1 describes the different members of the refractive error team. It is based on Table 4 in the ECCF *(2)*, and adapted for CRET.

Table 1. Range of personnel working across the global refractive error workforce

The refractive error workforce					
Eye care specific training duration (estimations) *Note: The full training may cover more than refractive error*	<3 months	3–12 months	1–4 years	4–7 years	≥7 years
Level of health system personnel work at	– Community	– Community – Primary	– Primary – Secondary	– Primary – Secondary	– Secondary – Tertiary
Highlights of roles and responsibilities related to refractive error services (depending on local context)	– Screening – Dispensing of near-vision spectacles – In some contexts where available: basic refraction through telehealth (under supervision of personnel with ≥4 yrs training) – Community health promotion and prevention	– Screening – Basic refraction – Dispensing of spectacles – Community health promotion and prevention	– Screening – Basic refraction – Dispensing of spectacles – Community health promotion and prevention	– Complex Refraction – Dispensing of specialized spectacles and contact lenses – Myopia management – Community health promotion and prevention	– Complex refraction – Refractive error surgery – Dispensing of specialized spectacles and specialized contact lenses – Myopia management – Community health promotion and prevention
Occupation titles that may be responsible to deliver refractive error services (depending on local context)	– Community health worker – Eye health coordinator – Outreach worker – Teacher/school nurse – Village health worker/ volunteer	– Ophthalmic administrator – Optical assistant – Refractionist – Spectacle dispenser – Vision technician	– Ophthalmic assistant – Ophthalmic nurse – Optical dispenser – Optician – Orthoptist – Specialist nurse – Vision therapist *Note: The term "Allied ophthalmic personnel" is often used to describe the eye care workers listed above*	– Optometrist	– Ophthalmologist – Optometrist – Specialist

1.3 Establishing a team approach in refractive error

The key elements in the approach to establishing a refractive error team include:

- **Recruitment of team members**
  When recruiting team members, the following aspects will need to be considered:
  - prioritizing diverse skills in roles such as vision screening, refraction, dispensing and community health;
  - ensuring clinical, administrative, and leadership competencies tailored to refractive error services; and
  - offering continuous training and career development opportunities to motivate and retain personnel.

- **Defining roles and responsibilities**
  The roles assigned should be based on strengths; job expectations should be clarified using competencies and activities of CRET and ECCF. Roles may include, but are not limited to:
  - clinical service delivery (screening, assessment, dispensing, referral, surveillance, health promotion);
  - logistical and administrative support (transportation, resource and site coordination, inventory management);
  - quality assurance (ensuring compliance with clinical protocols, data management, reporting, and feedback systems);
  - training and mentorship, community engagement and advocacy; and
  - research and innovation.

- **Optimizing workflows**
  Activities will include:
  - designing workflows and establishing clear standard operating procedures and referral pathways focused on person-centred care;
  - utilizing checklists;
  - adapting task allocation; and
  - integrating technology, such as electronic health records and information systems that enable seamless communication and patient tracking across all levels of care.

- **Promoting team culture**
  Activities will include:
  - fostering communication, celebrating successes, addressing conflicts; and encouraging idea-sharing to foster collaborative environments.

- **Integration at all health levels**
  Activities will include:
  - setting clear integration goals across community, primary, secondary, and tertiary levels, including standardized referral and counter-referral pathways (see examples in Box 1 and Figure 1); and
  - developing patient navigation systems to ensure smooth transitions between levels of care.

By effectively taking this collaborative, multilevel team approach, refractive error services can be made more accessible.

Box 1. Integrated refractive error personnel at all levels of the health system

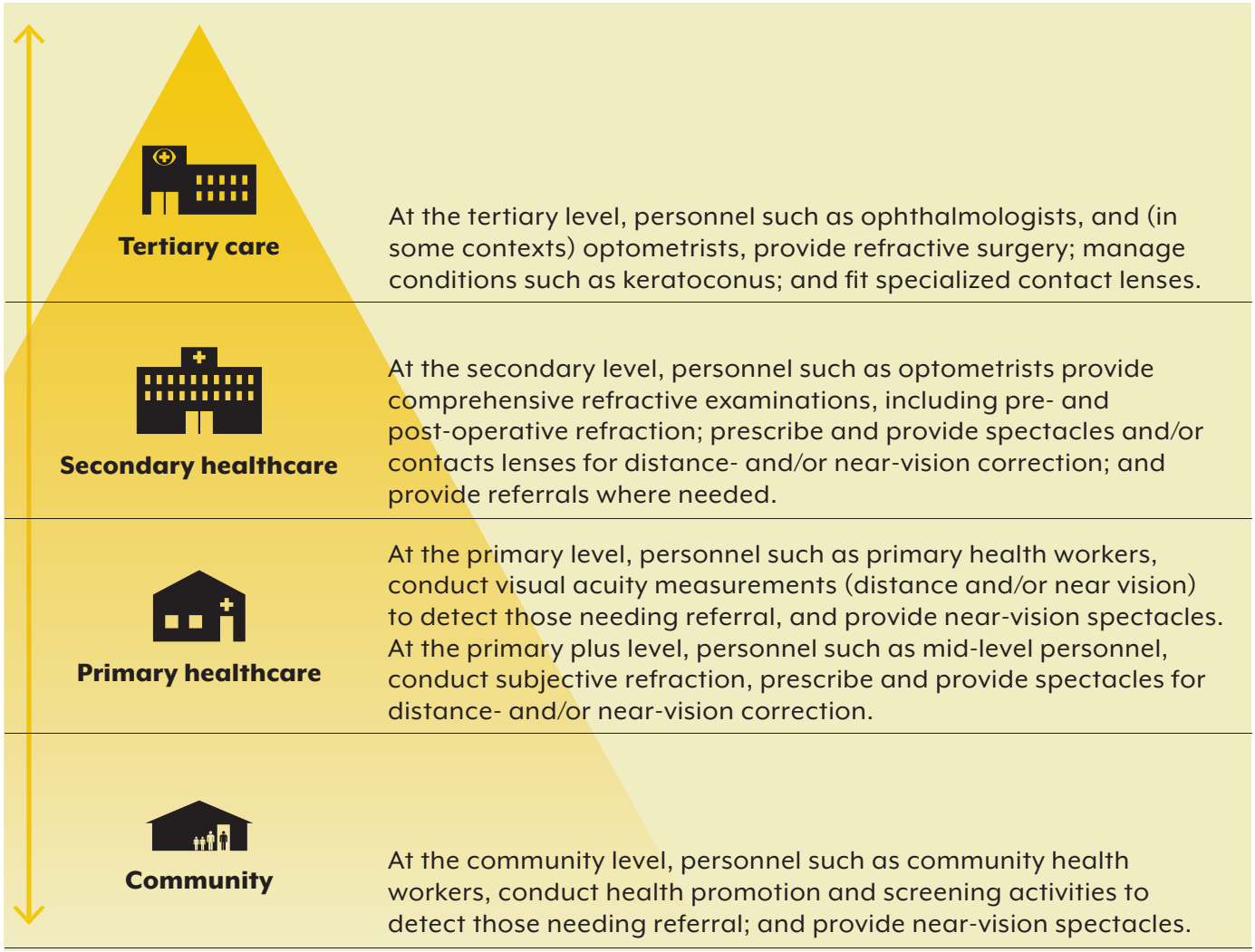
Through the implementation of CRET, eye care personnel work not as isolated practitioners but as an integrated team with shared responsibilities, established communication pathways, and unified person-centred workflows. Seamless connections between levels, bidirectional information flow, and collective accountability for patient outcomes, allow for an integrated team approach. The following points present examples of refractive error personnel and their responsibilities at the different levels of health care:

- **At the community level**, refractive error personnel, such as community health workers, conduct health promotion and screening (for refractive errors and other eye conditions) to identify individuals needing referrals, and provide near-vision spectacles where appropriate. Community level personnel maintain direct connections with primary level providers through standardized referral protocols and receive regular feedback on referred patients, creating a continuous loop of care.
- **At the primary level**, refractive error personnel, such as primary health workers, conduct visual acuity measurements (distance, near) to identify individuals needing referrals, and provide near-vision spectacles. Primary level personnel coordinate closely with both community workers and secondary facilities;
  - At the primary plus level, refractive error personnel, such as refractionists, conduct subjective refraction; they prescribe and provide spectacles for distance and/or near vision, and manage straightforward refractive needs. Active consultation with secondary level providers allows for a collaborative approach to decisions on care.
- **At the secondary level**, refractive error personnel, such as optometrists, provide comprehensive refractive examinations, including pre- and post-operative refraction and binocular vision assessment; they prescribe and provide spectacles and/or contacts lenses for distance and/or near vision, provide myopia management and referrals where needed. Secondary level personnel participate in regular cross-level case management with primary and tertiary providers, ensuring coordinated care plans and smooth transitions between levels of service.

  (Note: Comprehensive refractive examinations involve integrating various diagnostic and management strategies to address complex visual needs, taking into account person-specific factors such as age, ocular health, and binocular vision.)
- **At the tertiary level**, refractive error personnel, such as ophthalmologists and optometrists (in some contexts), provide refractive surgery, manage conditions such as keratoconus, and fit specialized contact lenses. Tertiary level personnel maintain close communication with secondary level providers.

Examples of refractive error personnel that are integrated across all levels of the health system are shown in Figure 1 below.

Figure 1. Refractive error personnel integrated across all levels of the health system



1.3.1 Key considerations implementing a team-based approach

When implementing a team-based approach for refractive error services, several important considerations must be addressed to ensure effective integrated people-centred eye care:

- **Person-centred focus:** accessible, coordinated care must be made available. This can be achieved by minimizing the need for patients to navigate multiple service points; and recognizing patients as participants and beneficiaries.
- **Private sector integration:** private sector services must be incorporated into the broader health system to establish clear pathways and create a cohesive service network.
- **Workforce capacity-building:** access to care must be expanded to address the gaps that exist due to the workforce being predominantly concentrated in secondary care. This can be achieved by strengthening the refractive error workforce at community and primary care levels.

1.3.2 Collaborative care approaches

Effective refractive error services rely on coordinated, multidisciplinary teams with clear communication between team members and a clear understanding of roles. Team members may collaborate closely or work independently. Intraprofessional and interprofessional care involve team members understanding their limits within the team and seeking help when needed. Multidisciplinary teams, including optometrists, ophthalmologists, orthoptists and optical dispensers, ensure a well-rounded approach. These approaches create a referral pathway within or outside the team, that supports comprehensive, integrated people-centred care. Tables 2 and 3 outline the collaborative care approaches for refractive error services.

Table 2. Intraprofessional collaboration to deliver refractive error services

Intraprofessional collaboration		
Team approach	**Teamwork benefits**	**Example**
Same occupational group Same location	– Allows for the sharing of workload, providing relief to personnel during busy periods or absences. – Facilitates technical support among colleagues, particularly in handling complex or challenging cases.	Refractionists working together in a vision centre.
Same occupational group Different locations	– Allows for the development of a community or network that supports continuing learning and professional development among colleagues. – Facilitates technical support among colleagues, particularly in handling complex or challenging cases.	Ophthalmic nurses work at multiple satellite clinics across a region.

Table 3. Interprofessional collaboration to deliver refractive error services

Interprofessional collaboration		
Team approach	**Teamwork benefits**	**Example**
Different occupational groups Same location	– Each group contributes expertise to the team, ensuring comprehensive care for patients with refractive errors while promoting collaboration and knowledge-sharing across disciplines.	Optometrists, spectacle technicians, and support staff working together in a shared clinic or vision centre.
Different occupational groups Different locations	– Continued teamwork and support in referral pathways help ensure a coordinated approach to treating refractive errors, leading to better outcomes for a person throughout their treatment. – Allows for streamlined care and comprehensive service delivery.	A collaborative pathway where an optical assistant conducts basic refractions through telehealth supported and supervised remotely by an optometrist.

1.4 Key competencies and activities in refractive error teams

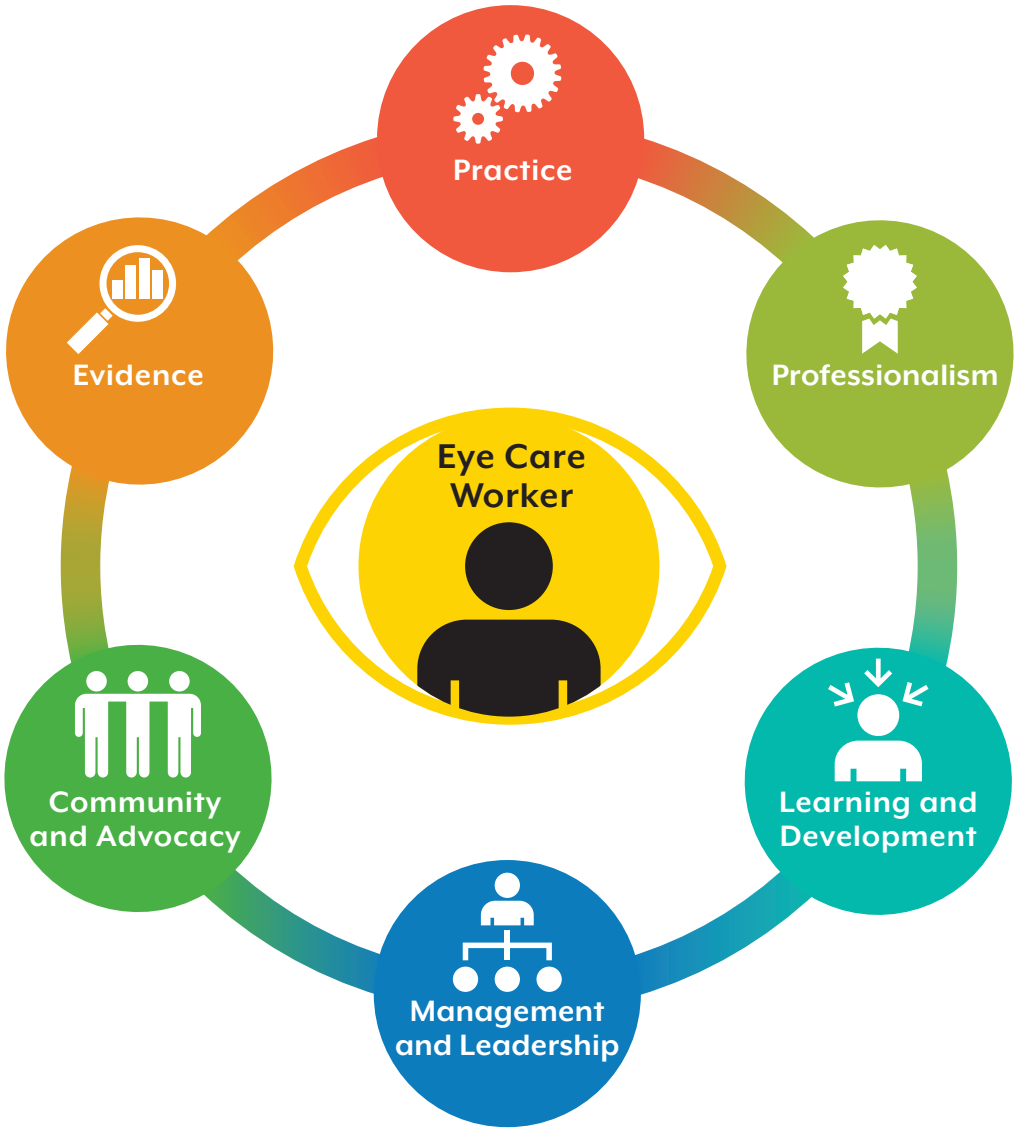
The ECCF contains the full set of competencies and activities expected from an eye care worker, at different levels of proficiencies *(2)* (definitions of competencies and activities are described below in Box 2). Each competency and activity is categorized into six domains: Practice; Professionalism; Learning and Development; Management and Leadership; Community and Advocacy; and Evidence (see Figure 2).

Box 2. Definitions in the *Eye care competency framework (2)*

Competencies: the ability of individuals to carry out activities and express behaviours, using their knowledge and skills. Competencies are ongoing, trainable, and able to be measured through observation of behaviours.

Activities: A group of tasks for an area of work, that are time-bound, trainable and able to be measured against work performance.

Figure 2. The six domains categorizing the competencies and activities of the eye care worker



Although "competencies" within each of the six domains apply to all refractive error personnel, "activities" are scope-dependent. In this section, the focus of CRET will be on the specific activities that are essential for refractive error teams in the Practice domain and the Management and Leadership domain.

Competencies and activities are expressed through four levels of proficiencies: level one is the Introductory level; level two is the Intermediate level; level 3 is the Advanced level; and level four is the Expert level. Levels of proficiency are used instead of occupational group titles to account for variations across different settings. Importantly, all levels of proficiencies are part of the refractive error team, to provide comprehensive refractive error services.

In resource-limited settings, priority should be given to develop levels one and two of proficiency. By increasing the refractive error personnel proficient at these levels within the primary and community settings, progress can be made in meeting the refractive error needs of the population.

1.4.1 Practice competencies and activities

The competencies in the Practice domain can be applied to all refractive error personnel. Table 4 provides a summary of the competencies that can be applied and remains unchanged from those described in the ECCF. Further details on each competency, and how they are expressed through the four levels of proficiency, can be found in the ECCF document *(2)*.

Table 4. Competencies of the Practice domain applicable to refractive error personnel

Practice domain (P)	
	Competency (C)
PC1	Maintains people-centred practice
PC2	Performs within scope of practice and abilities
PC3	Applies current evidence-based best practice appropriate to context
PC4	Applies a rational approach to problem-solving and decision-making
PC5	Communicates effectively with a person, their family and carers

Table 5 provides a summary of the Practice domain activities that can be applied to all refractive error personnel and which remain unchanged from those described in the ECCF *(2)*.

Table 5. Activities of the Practice domain applicable to refractive error personnel

Practice domain (P)	
	Activity (A)
PA1	Obtaining informed consent
PA2	Maintaining documentation
PA3	Conducting vision assessment and eye examination
PA4	Establishing a diagnosis
PA5	Providing information and advice to a person, their family and carers
PA6	Managing referrals
PA7	Establishing collaborative eye care management plans
PA8	Conducting eye care interventions
PA9	Ensuring continuity of care

Table 6 provides detailed information on activities of the Practice domain, outlining the knowledge, skills, and tasks across four proficiency levels for refractive error personnel. These activities, adapted from the ECCF, can be applied according to the scope of practice. Certification may be required for certain activities, depending on proficiency and country-specific regulations. Importantly, when reallocating tasks that may involve personnel with lower competency levels performing higher-skilled work, it is essential that public safety is prioritized. This can be ensured with appropriate oversight, adequate training, proper infrastructure, and access to the necessary equipment, along with adherence to national safety and quality standards.

Table 6. Activities, tasks, knowledge and skills of the Practice domain applicable to refractive error personnel

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
PA1 Obtaining informed consent	PA1K: Procedures, processes, and outcomes of refractive error care that will be provided; Definition and legal and ethical implications of written and verbal informed consent/assent; Legal and organizational policy on obtaining consent/assent; Legal and ethical frameworks regarding decision-making, rights, and treatment of incapacitated persons; Approaches to determining a person's decision-making capacity. PA1S: Communication and interviewing techniques; Using appropriate tone, language and content in verbal and written communication; Determining the party from whom consent must be obtained in the case of minors and people with cognitive impairment; Explaining processes, risks, benefits and potential outcomes to a person, their family and carers with various levels of health literacy; Preparing a person psychologically for the assessment; Recognizing power dynamics when obtaining consent/assent from vulnerable populations; Recognizing that consent/assent may need to be obtained continually throughout the care process	**PA1.1 Informing people**	Providing clear explanation of refractive error care that may be involved for the person, including potential benefits and risks, with support.	Providing clear explanation of refractive error care that may be involved for the person, including potential benefits and risks, basic refractive error care options and clarifying any misunderstandings.	Providing clear explanation and creating a dialogue to discuss all refractive error care options and alternatives that may be involved for the person, including potential benefits, risks and limitations for complex cases.	
		PA1.2 Confirming consent and assent	Adhering to the legal and/or organizational policies to confirm consent and assent; seeking support in situations when the person's cognitive or legal capacity to consent is unclear.		Adhering to the legal and/or organizational policies to confirm and obtain consent and assent, including in complex cases.	

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
PA2 Maintaining documentation	PA2K: Legal and organizational policy on collection, storage and access of information; Tools for documenting information; Access to the information system to maintain records; Type and purpose of information to be collected and documented; Standardized formats for documenting information; Definitions and use of standard nomenclature; Different platforms for data storage. PA2S: Documenting information legibly if in physical format; Documenting relevant information; Organizing and filing information; Digital literacy.	**PA2.1 Record-keeping**	Adhering to the legal and/or organizational policies to document information accurately, clearly, and securely, maintaining confidentiality on electronic, digital and physical documentation, with support.	Adhering to the legal and/or organizational policies to document information accurately, clearly, and securely, maintaining confidentiality on electronic, digital and physical documentation.	Adhering to the legal and/or organizational policies to share information, and evaluating policies to improve maintenance of documentation on all platforms.	Leading policy and systems-based changes to improve maintenance of documentation on all platforms.

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
PA3 Conducting vision assessment and eye examination	PA3K: Anatomy, physiology and optics of the eye; In-depth knowledge of the biomedical, visual, pharmacological and clinical sciences in eye care relevant to scope of practice; Common problems encountered in health care with emphasis on ocular manifestations; Potential sources of information for gathering a person's history; Type and purpose of information to be collected and recorded; Methods of examination, such as testing, measurement and evaluation, and when these are applied; Examination options relevant to scope of practice; Types of examination tools relevant to scope of practice; Understanding of limitations of different examination procedures for refractive error assessment; Indications, contraindications and potential complications of examination including use of pharmaceutical agents; Resource requirements for examination relevant to scope of practice; Methods and techniques to conduct assessments relevant to scope of practice, including how to use relevant instruments or devices; Ways of preserving dignity and privacy during examination; Safety and infection control protocol for eye examination; Documentation of findings in standardized format.	**PA3.1 Case history**	Collecting information on a person's chief complaint; their status of vision; the distance at which vision is affected; whether one or both eyes are affected; how long vision has been affected; whether vision is better or worse in certain conditions; the use of medications; whether there is a family history of spectacle use, with the support of a checklist.	Collecting information on a person's chief complaint; their status of vision; the distance at which vision is affected; whether one or both eyes are affected; how long vision has been affected; whether vision is better or worse in certain conditions; the use of medications; whether there is a family history of spectacle use; the visual needs of home and workplace environments, including occupational safety issues.	Evaluating information and tailoring questions to further investigate potential differential diagnoses in the eye, including systemic conditions or pharmaceutical agents that could affect vision.	Evaluating comprehensive information including systemic health, medical history and tailoring questions to further investigate potential differential diagnoses affecting both the eye and systemic health.

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
	PA3S: Communication and interviewing techniques; Systematically obtaining a case history; Considering a person's case history to determine priorities for the examination; Determining what tests are appropriate for the examination; Preparing a person clinically for the examination; Cleaning, setting up and using equipment and consumables for examination; Conducting different types of examinations relevant to scope of practice; Adapting examination to a person's needs.	**PA3.2 Assessment plan**	Using standardized protocols as the refractive error assessment plan	Adapting standardized protocols to develop a basic refractive error assessment plan based on the person's case history, scope of practice and resources available.	Developing a comprehensive refractive error assessment plan based on the person's case history, scope of practice and resources available, adapting for situations of varying complexity and uncertainty, including the identification of potential differential diagnoses.	
		PA3.3 External eye examination	Conducting basic examination of the external eye, including the eyelids and eyelashes, using a standard checklist and distinguishing unhealthy from healthy.	Conducting basic examination of the ocular adnexa structure, health and functional ability.	Conducting a comprehensive examination of the structure and function of the ocular adnexa, face, and general observations of the body.	
		PA3.4 Anterior segment examination	Conducting a basic examination of the anterior segment of the eye, including the appearance of the conjunctiva and cornea.	Conducting a basic examination of the anterior segment of the eye, including the appearance of the cornea, iris and lens.	Conducting a comprehensive examination of the structure and function of the anterior segment of the eye, together with a basic systemic review.	
		PA3.5 Posterior segment examination	Conducting a basic examination of the posterior segment of eye, for example a fundus reflex and pupil light reflex.	Conducting a basic examination of the posterior segment of the eye including evaluation of the optic nerve head, macula, and posterior segment of the retina.	Conducting a comprehensive examination of the structure and function of the posterior segment of the eye, together with a basic systemic review such as for diabetes and hypertension.	

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
		PA3.6 Vision assessment	Conducting screening of distance and near visual acuity, using various charts, pinhole acuity as required, and utilizing telehealth methods under supervision of Proficiency Level 3 or higher in Vision assessment, as required.	Conducting a basic test of the visual function including distance and near visual acuity using various charts, objective refraction (retinoscopy), basic refraction (sphero-cylindrical, binocular balancing) using trial frames/ lenses or phoropter; determine need for cycloplegic refraction.	Conducting a comprehensive test of the visual function including distance and near visual acuity, using various charts; complex objective and subjective refraction (sphero-cylindrical, with cycloplegia as required, binocular balancing) using trial frames/ lenses or phoropter; assessment of ocular motility, binocularity, vergence and accommodation as required; and integrating findings onto decision-making for final optical prescriptions.	
		PA3.7 Examination using specialized equipment	Conducting basic tests to screen, including use of auto refractor, auto lensometer, digital visual acuity, and uploading data for telehealth.	Conducting basic tests to examine, including use of auto refractor, manual/ auto lensometer, digital vision testing platforms.	Conducting comprehensive tests to examine, including use of axial length biometry (myopia management), contact lens assessment (keratometry, corneal topography, anterior optical coherence topography (OCT)), wavefront aberrometry.	Conducting comprehensive tests to examine, including optical or ultrasound biometry, manual or auto keratometry, corneal topography, and wavefront aberrometry.

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
		PA3.8 Examination with pharmaceutical agents	Recognizing the need for pharmaceutical agents for refractive eye examinations, and providing referrals as required.		Conducting comprehensive diagnostic tests using pharmaceutical agents including cycloplegic refraction.	
		PA3.9 Examination of children	Conducting screening of distance visual acuity using charts for children aged ≥3 years, utilizing technology such as a photoscreener, and providing referrals as required for non-verbal or children aged <3 years.		Conducting screening of distance and near visual acuity using charts, preferential looking methods, and other diagnostic tools for infants, and children (preverbal/verbal); objective refraction of infants and children (preverbal/verbal) with the use of cycloplegia; subjective refraction of children with the use of cycloplegia; assessment of ocular motility, binocularity, vergence and accommodation as required; and integrating findings onto decision-making for final optical prescriptions.	

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
PA4 Establishing a diagnosis	PA4K: How to access examination results; How to interpret examination results relevant to scope of practice; Real and potential impact of examination results on health, personal and contextual factors; Differential diagnoses of eye conditions. PA4S: Interpreting examination results; Recognizing when emergency intervention is required; Sourcing and collating relevant information to assist in making a diagnosis; Using diagnostic flowcharts to categorize signs and symptoms and formulating a diagnosis/ appropriate intervention/referral.	**PA4.1 Diagnosis**	Identifying vision problems potentially resulting from refractive error through screening; recognizing emergency eye conditions, and implementing appropriate intervention (near-vision spectacles for presbyopia), or referral, with support, such as through diagnostic flowcharts.	Analysing assessment results to make a provisional diagnosis of refractive error; addressing the chief complaint; recommending and implementing appropriate refractive error intervention (spectacles: single vision/multifocal) or referral for refractive error cases beyond scope (complex/ progressive/myopia management/ contact lenses), with support as required.	Interpreting and evaluating assessment results for refractive error; consulting with peers and other health-care providers to make a diagnosis with potential differentials where possible; recommending and implementing appropriate intervention (spectacles: single vision/multifocal/ progressive/myopia management/ contact lenses: single vision (spherical/ toric)/multifocal/ extended depth of focus/monovision) with alternative options (refractive surgery); addressing binocular vision problems that impact refractive error, and appropriately referring if required.	Interpreting and evaluating assessment results for complex refractive error cases through subspeciality and innovative practice to make a diagnosis; recommending and implementing an appropriate intervention with alternative options (refractive surgery; advanced contact lenses: orthokeratology/ scleral/myopia management); addressing complex binocular vision problems, and appropriately referring if required.

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
PA5 Providing information and advice to a person, their family and carers	PA5K: Factors potentially impacting, and methods of determining, a person's health literacy; How to interpret and communicate an assessment outcome relevant to scope of practice; Health information tools. PA5S: Modifying communication according to the needs of an audience; Using a variety of media to convey information; Managing a person's expectations; Communication techniques; Using appropriate tone, language and content in verbal and written communication; Preparing a person psychologically for any intervention; Recognizing situations in which no interventions are necessary and explaining this to a person.	**PA5.1 Informing a person**	Providing information to a person, their family and carers on the outcome of the refractive error assessment, the impact of any diagnosis made, and the recommended management, with support through use of health information aids such as handouts.	Counselling a person, their family, and carers on the outcome of the refractive error assessment, the impact of any diagnosis made, and the recommended management.	Counselling a person, their family, and carers on the outcome of the refractive error assessment, the impact of any diagnosis made, and discussing aims and objectives of the management options and making a clear recommendation.	Counselling a person, their family, and carers on the outcome of the refractive error assessment, the impact of any diagnosis made, and discussing aims and objectives of the management options and making a clear recommendation on complex cases; and developing and/or procuring resources to assist with health information.
		PA5.2 Providing advice	Seeking guidance to provide advice on refractive error care to a person, their family and carers.	Providing advice on refractive error care to a person, their family and carers.	Providing expert advice on refractive error care to a person, their family and carers.	Providing detailed expert advice on speciality refractive error care to a person, their family and carers.

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
PA6 Managing referrals	PA6K: Range of appropriate providers; Potential barriers for accessing referral providers including cost, distance and culture; Referral pathways and procedures. PA6S: Recognizing the appropriate urgency associated with initiating assessment and/or intervention, including review of the person's condition and referral.	**PA6.1 Referrals**	Managing referrals to and from other health workers to ensure a person, their family and carers have the best available and accessible care, with support as required.		Initiating referral connections and exploring options for additional services required; identifying those who are best prepared and accessible to address the needs of a person, their family and carers.	
		PA6.2 Managing referral information	Managing referral information for incoming referrals, and providing all necessary information to the provider when referring a person, with support.		Managing referral information for incoming referrals, and providing all necessary information to the provider when referring a person.	
		PA6.3 Follow-up and updating records	Following up on referrals to ensure a person has received the required service or intervention, and recording it appropriately in their records, with support.		Following up on referrals to ensure a person has received the required service or intervention; identifying non-compliance; ensuring uptake, and recording it appropriately in their records.	
PA7 Establishing collaborative eye care management plans	PA7K: Methods of establishing priorities and desired outcomes of a person, their family and carers; Intervention options relevant to scope of practice and considerations for selection; Typical care pathways relevant to scope of practice; Methods of constructing an refractive error care management plan, including who should be involved; Indications of the need to, and approaches of, adapting an eye care management plan; Principles of interprofessional practice; Approaches to evaluating progress of the management plan. PA7S: Identifying the most appropriate intervention or treatment plan for a person; Setting and reviewing goals; Developing an appropriate eye care management plan collaboratively with the person.	**PA7.1 Identifying the intervention**	Contributing to identification of the appropriate refractive error intervention required to address the goal of a person, their family, and carers, including expected timelines.	Identifying the appropriate refractive error intervention required to address the goal of a person, their family, and carers, including expected timelines and identifying other health workers who may be involved.	Identifying the appropriate refractive error intervention and alternatives required to address the goals of a person, their family, and carers, including expected timelines and identifying other care providers who may be involved.	Determining which refractive error eye care interventions are required to address the goals of a person, their family, and carers, in complex cases.

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	**Intermediate level (2)**	**Advanced level (3)**	**Expert level (4)**
		PA7.2 Developing an eye care management plan collaboratively	Participating in the development, communication and coordination of refractive error care management plans.	Contributing to the development, communication and coordination of refractive error care management plans.	Designing and coordinating a refractive error care management plan through interprofessional practice, together with a person, their family, and carers and other health workers involved in the care, and communicating and reviewing progress towards the desired outcome.	Evaluating and providing advice on a refractive error care management plan developed through interprofessional and intraprofessional practice, particularly for complex cases, and communicating and reviewing progress towards the desired outcome.
PA8 Conducting eye care interventions	PA8K: Range of refractive error intervention options; Evidence base, resource requirements and considerations for selection for scope of practice; Types and suitability of interventions (lenses, frames, ready-made spectacles, contact lenses, pharmacological, and surgical options); Risks associated with implementing interventions and how these are managed; Indications and contraindications for the implementation of interventions; Existing and emerging technologies for interventions; Methods and techniques for implementing interventions; Frequency and duration of an intervention relevant to scope of practice to achieve desired outcomes; Ways of preserving dignity and privacy; Knowledge of different types of spectacle frames, lenses, and dispensing techniques, including fitting and adjusting spectacles to meet individual needs.	**PA8.1 Preventive and promotive care**	Providing basic preventative and promotive care, including vision screenings, health education on regular eye checks, myopia prevention, risk factors for refractive error, visual hygiene with digital devices, and workplace health and safety.			Evaluating and providing preventative and promotive care on complex cases.

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	**Intermediate level (2)**	**Advanced level (3)**	**Expert level (4)**
	PA8S: Preparing a person clinically for the refractive error intervention; Setting up and using equipment and consumables; Prescribing interventions; Adapting to a person's needs; Administering, assisting or guiding interventions; Monitoring and evaluating interventions; Recognizing and considering factors affecting the person's ability to adhere to instructions given; Recognizing when a person is unable to carry out the instructions given; Dispensing and fitting spectacles, ensuring proper frame and lens selection, and making necessary adjustments for optimal comfort and vision.	**PA8.2a Refractive error care (non-surgical): prescribing**	Providing support to refractive error care, including simple fitting, and adjusting of spectacles; providing and dispensing of ready-made near-vision spectacles for presbyopia, and/or provision of simple spectacle prescriptions through telehealth, as approved by Proficiency Level 3 or higher in refractive error care.	Providing basic refractive error care, including prescribing and/or dispensing of simple spectacle prescriptions (spectacles: single vision/multifocal); seeking support when required.	Providing refractive error care, including prescribing and/or dispensing spectacles (single vision/multifocal/ progressive/myopia management), and contact lenses (single vision (spherical/ toric)/multifocal/ progressive/ monovision); myopia management; seeking support for complex cases.	Evaluating and providing refractive error and eye health care on complex cases including specialized spectacles, contact lenses (orthokeratology/ scleral).

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	**Intermediate level (2)**	**Advanced level (3)**	**Expert level (4)**
		PA8.2b Refractive error care (non-surgical): dispensing	Providing simple fitting, selection and adjusting of spectacles (basic alignment and fit); dispensing of ready-made near-vision spectacles for presbyopia; measuring lens power with auto lensometer; performing basic visual inspection of frames and lenses for obvious defects, such as scratches, cracks, or misalignment.	Providing dispensing, selection and fitting of simple spectacle prescriptions (spectacles: single vision/multifocal); measuring pupillary distance; measuring lens power with lensometer; cutting and fitting simple (single vision/bifocal) lenses into frames using manual or auto edgers; inspecting frames and lenses for surface quality, and ensuring lenses match the specified type; advising on appropriate type, materials and care of frames and lenses; seeking support when required.	Providing dispensing and fitting of spectacles for more advanced prescriptions (single vision/bifocal/ multifocal/myopia management); transposing lens powers, cutting and fitting (single vision/ multifocal/ progressive/myopia management) lenses into frames using manual or auto edger; adjusting of spectacles (alignment, fit, pantoscopic tilt, face form, vertex distance, centration and lens positioning); verifying lens power and accuracy against prescriptions; checking for appropriate coatings and finishes; advising on appropriate types, materials and care of frames and lenses; seeking support for complex cases.	Evaluating and managing complex cases including specialized spectacles; providing advanced dispensing and customized solution for specialized visual needs; conducting comprehensive quality checks (precise lens power verification, prescription compliance, lens centration, adherence to industry standards); advising on the appropriate types, materials and care of complex frames and lenses.

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
		PA8.3 Clinical care	Recognizing the need for non-surgical clinical care, and providing referrals as required.	Providing basic non-surgical care; seeking support when required.	Providing non-surgical care; seeking support for complex cases.	Evaluating and providing non-surgical care on complex cases.
		PA8.4 Pharmacological care	Recognizing the need for pharmacological care for myopia control agents; providing referrals as required.	Recognizing the need for pharmacological care for myopia control agents, including the importance of timely, safe, and competent instillation; providing referrals as required.	Providing pharmacological care, including prescribing myopia control agents, and recognizing adverse side effects relating to use; seeking support for complex cases.	Evaluating and providing pharmacological care on complex cases.
		PA8.5 Refractive surgical care	Recognizing the need for refractive surgical clinical care; providing referrals as required.	Providing basic refractive surgical care; discussing refractive surgical options; seeking support when required.	Providing non-complex refractive surgery, including advising and managing pre- and post-surgical care; seeking support for complex cases.	Evaluating and providing refractive surgical care on complex cases.
		PA8.6 Low vision and rehabilitative care	Recognizing the need for low vision and rehabilitative care; providing referrals as required.	Providing basic low vision and rehabilitative care, including basic vision rehabilitation and dispensing of basic assistive devices as part of a multidisciplinary team; seeking support when required.	Providing low vision and rehabilitative care, including comprehensive vision rehabilitation, and prescribing and/or dispensing of assistive devices as part of a multidisciplinary team; seeking support for complex cases.	Evaluating and providing low vision and rehabilitative care on complex cases as part of a multidisciplinary team, including palliative care support.

Practice Activities (PA)	Knowledge (K) and Skills (S)* *Updated to address refractive error	Summary	Tasks			
			Introductory level (1)	**Intermediate level (2)**	**Advanced level (3)**	**Expert level (4)**
PA9 Ensuring continuity of care	PA9K: Range of outcome measures relevant to scope of practice; Approaches to evaluating progress; Intervals for evaluating progress. PA9S: Managing handovers; Recognizing when additional support is required; Organizing and scheduling follow-up visits; Recognizing when to assess progress; Evaluating how the results of investigations will influence changes in the management of a person; Recognizing and considering factors affecting a person's ability to adhere to continuity of care plan; Recognizing when a person is unable to continue with the care plan.	**PA9.1 Continuity of care**	Seeking guidance to determine continuity of refractive error care and routinely following up.	Determining continuity of refractive error care and routinely following up; seeking support when required.	Managing continuity of refractive error care; facilitating handover processes, and routinely following up to identify and respond to non-compliance and gaps in care.	Managing specialized continuity of refractive error care; leading handover processes; managing follow-ups to identify and respond to non-compliance and gaps in care.

1.4.2 Management and Leadership competencies and activities

The competencies within the Management and Leadership domain can be applied to all refractive error personnel. Table 7 highlights the competency "Enhancing the eye care teams", as this is essential in developing competency-based refractive error teams. Further details on all competencies and how they are expressed through the four levels of proficiency can be found in the ECCF document *(2)*.

Table 7. Competencies of the Management and Leadership domain applicable to refractive error personnel

Management and Leadership domain (ML)	
	Competency (C)
MLC1	Enhances the eye care team

Table 8 provides detailed information on the competencies of the Management and Leadership domain, outlining the knowledge, skills, and behaviours across four proficiency levels for refractive error personnel. While this competency remains consistent with the ECCF, its inclusion in CRET is essential to emphasize the importance of communication, roles, and collaborative practices in developing effective refractive error teams.

Table 8. Competencies, behaviours, knowledge and skills of the Management and Leadership domain applicable to refractive error personnel

Management & Leadership Competencies (MLC)	Knowledge (K) & Skills (S)	Summary	Behaviours			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
MLC1 Enhances the eye care team	MLC1K: Process of team development; Ethical principles to guide all aspects of team work; Team roles, responsibilities and scope of practice; Own role within the team; Approaches of teamwork in people-centred eye care; Principles of interprofessional practice; Strategies to motivate, engage, recognize and reward others; Legal and ethical responsibilities of leaders and managers; Cultural factors impacting individual and team behaviours; Strategies for team communication and coordination; Range of leadership models; Differentiation of management and leadership roles.	**MLC1.1 Team communication**	Communicates information effectively and with confidence, clarity, and respect; uses active listening and encourages ideas and opinions of other team members.	Communicates knowledge and opinions to team members to facilitate discussions and interactions that enhance team function, while using communication tools and techniques, including information systems and communication technologies.	Seeks and provides feedback on performance from team members; facilitates conflict resolution as needed.	Facilitates regular eye care team-based feedback in complex situations; acts as role model for flexible communication strategies that value input from all eye care team members; facilitates complex conflict resolution as needed.
	MLC1S: Demonstrating interpersonal and communication skills resulting in effective information exchange; Active listening; Using language that values all members of the health-care team; Using available evidence to inform effective teamwork and team-based practices; Recognizing how own experience level, expertise, culture, power, and hierarchy within the team contributes to effective communication, conflict resolution, and positive interprofessional working relationships; Leading members of a team; Using bottom-up decision-making; Motivating others.	**MLC1.2 Team roles/ collaborative practice**	Works and interacts collaboratively as part of an eye care team.	Uses complementary abilities of all team members to optimize effectiveness of eye care delivery.	Performs effectively in a senior team role in a variety of settings, mentors and provides guidance to promote teamwork and collaboration for a healthy working environment.	Proactively applies leadership practices that support collaborative practice and team effectiveness.

Table 9 summarizes activities of the Management and Leadership domain that can be applied to refractive error services and are unchanged from those described in the ECCF *(2)*.

Table 9. Activities of the Management and Leadership domain applicable to refractive error personnel

Management and Leadership domain (ML)	
	Activity (A)
MLA1	Managing an eye care team
MLA2	Managing eye care service delivery

Table 10 provides detailed information on activities of the Management and Leadership domain, outlining the knowledge, skills, and tasks across four proficiency levels for refractive error personnel. These selected activities, adapted from the ECCF, can be applied according to the scope of practice, guiding their expected performance within a team setting. Certification may be required for certain activities, depending on proficiency and country-specific regulations. Further details on all activities and how they are expressed through the four levels of proficiency are provided in the ECCF document *(2)*.

Table 10. Activities, tasks, knowledge and skills of the Management and Leadership domain applicable to refractive error personnel

Management & Leadership Activities (MLA)	Knowledge (K) & Skills (S)	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
MLA1 Managing an eye care team	MLA1K: Factors underlying effective teamwork; Team roles, responsibilities and scope of practice relevant to eye care service; Personal role within the team; Activities and tasks required to deliver eye care; Approaches to monitoring performance of eye care team members; Different management and leadership styles; Different levels of monitoring and supervision, delegation, reporting and indications for applying these; Policies and legislation for human resource management including recruitment processes and performance management; Approaches to interviews and selection processes. MLA1S: Maintaining accountability and responsibility during task delegation; Allocating tasks; Delegating responsibilities; Identifying strengths and limitations of team members and how to manage these to best effect; Using respectful language appropriate for a given difficult situation, crucial conversation, or conflict; Recruiting team members.	**MLA1.1 Delegating tasks/ Task allocation**	Adhering to delegated tasks, in line with personal level of proficiency and scope of practice.	Delegating tasks to others, according to ability, level of preparation, proficiency, and scope of practice.	Identifying, managing, and monitoring of delegated tasks within the eye care team with available resources; establishing appropriate human resources for the eye care service.	Evaluating and advocating for additional support for the eye care team to effectively distribute the task load and improve care.
		MLA1.2 Recruitment	Assisting in the induction of a new member to the eye care team.	Contributing to the recruitment process.	Managing the recruitment process.	Providing guidance to the recruitment process, particularly in the selection of the recruit.
		MLA1.3 Monitoring performance	Participating in self-performance reviews; setting of key performance indicators, with support.	Contributing to performance reviews of self and others; development of key performance indicators; seeking feedback to improve performance.	Carrying out performance review of self and eye care team members; giving constructive feedback to improve delivery of eye care.	Implementing and evaluating performance managing systems and procedures.
		MLA1.4 Reporting structures	Participating in, and providing input on, lines of reporting and support structures.		Implementing lines of reporting and supporting structure for eye care team members.	Evaluating lines of reporting and support structures for eye care team members, implementing changes for improvement.

Management & Leadership Activities (MLA)	Knowledge (K) & Skills (S)	Summary	Tasks			
			Introductory level (1)	Intermediate level (2)	Advanced level (3)	Expert level (4)
MLA2 Managing eye care service delivery	MLA2K: Practice management tools and software; Maintenance of equipment; Resource requirements for delivering services; Inventory management principles. MLA2S: Utilizing available resources to enhance outcomes; Translating policies and processes to tangible actions; Conducting stocktake of equipment and consumables; Procuring resources; Maintaining inventories; Invoicing; Finance literacy.	**MLA2.5 Equipment and consumables**	Adhering to equipment maintenance protocols; assisting in the stocktake of consumables (lenses, frames, ready-made spectacles and therapeutic goods), re-ordering stock as required.	Identifying and resolving any issues relating to equipment; stock management; implementing inventory management processes; ensuring stock levels are constantly maintained.		Evaluating equipment maintenance protocols and stocktaking processes; inventory management; implementing changes to improve efficiency, accuracy, and overall quality in stock and equipment management; ensuring stock levels are proactively maintained through strategic planning, forecasting, and review of usage trends; overseeing quality control; ensuring compliance with regulatory requirements.

2.

Implementation of competency-based refractive error teams

By using CRET, stakeholders can develop targeted strategies to strengthen refractive error services through improved workforce capacity, service integration, and policy alignment. The following actions are recommended to guide effective implementation:

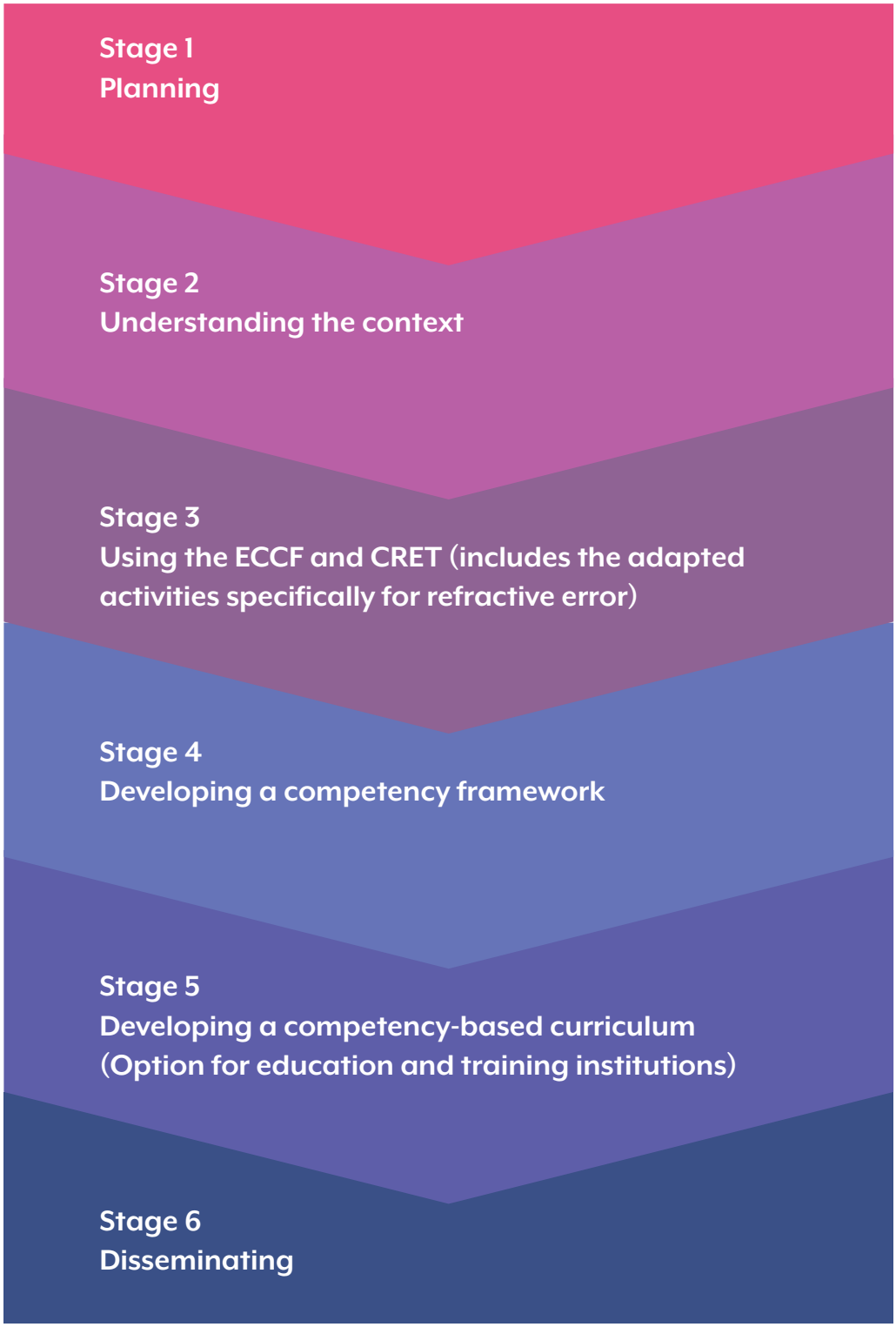
1. Stakeholders should utilize CRET alongside the ECCF to assess current gaps in the refractive error workforce and identify opportunities for competency development.
2. Health ministries and eye care providers should map existing service delivery pathways against CRET frameworks to identify integration points for refractive error teams.
3. Training institutions should align their curricula with CRET competencies to ensure a standardized preparation of refractive error personnel.
4. Implementers should leverage the case studies presented in section 3 as approaches for contextual adaptation.

Public and private sector stakeholders should establish collaborative models that maximize complementary strengths while maintaining quality standards.

By systematically implementing CRET principles, countries can make significant progress towards the global target of increased refractive error coverage, ultimately reducing the burden of unnecessary vision impairment.

Additionally, users of CRET can refer to the *Guide to applying the WHO eye care competency framework (3),* to help implement the tool at the national or subnational level. The application principles remain the same, with the addition of specialized Practice domain activities, tailored specifically for refractive error services (see Figure 3).

Figure 3. The key stages of applying CRET



Stages 2 and 3 of Figure 3: "Understanding the context" and "Using the ECCF and CRET", are critical for identifying current gaps in refractive error care pathways, as well as the associated gaps in human resources. These tools allow for assessing and comparing competencies within the current workforce, pinpointing specific areas that require targeted development, and identifying opportunities for improvement. With this information in hand, a competency-based approach can be applied to develop education and training programmes. This approach will enhance both the workforce and the care pathways for refractive error and, additionally, improve workforce planning by identifying positions where critically-needed resources should be allocated. For example, CRET identified a gap in the

workforce regarding visual function examinations within the Practice domain (PA3.6) at Level 1 proficiency. This specifically concerned the conducting of screenings for distance and near visual acuity using various charts, including those for children aged 3 and above years, pinhole acuity as required , and utilizing telehealth methods under supervision of Proficiency Level 3 or higher in Vision assessment, as required. This insight enabled the targeted implementation of appropriate training and workforce development.

2.1 Integration of CRET into educational programmes, including continuous education

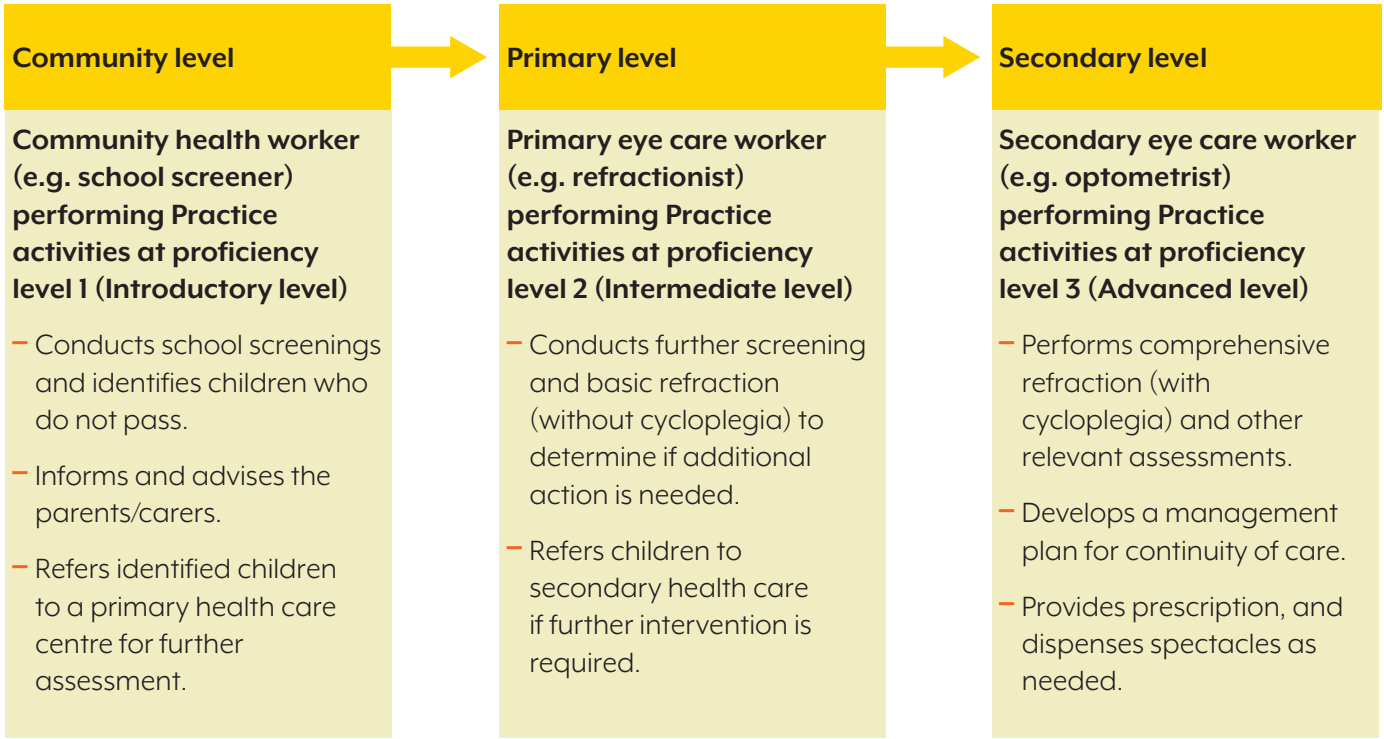
Integrating a competency-based team approach into educational programmes ensures standardized training for all refractive error personnel, promoting interdisciplinary learning and a clear understanding of roles at all levels. Continuous education helps keep teams updated and fosters effective collaboration in delivering people-centred care. Training programmes should meet set standards and use valid evaluation methods for learning effectiveness. Standardized reference points ensure consistent competencies across all levels of proficiency in CRET. Programmes based on CRET should have sufficient staffing, resources, qualified instructors, and strong assessment methods to support the progress and competence of learners. The *Guide to applying the WHO eye care competency framework (3)* is a helpful resource for users when integrating CRET into educational programmes.

2.2 Integration of CRET into service delivery pathways

A competency-based team approach in service delivery pathways ensures that each team member is equipped with the necessary skills and knowledge to manage refractive errors effectively. This structured approach allows for seamless collaboration among refractive error personnel across community to tertiary care settings, establishing comprehensive and coordinated people-centred care. By covering every aspect of refractive error management and defining clear competencies and roles of personnel, this approach minimizes errors, enhances efficiency, and improves a patient's outcomes.

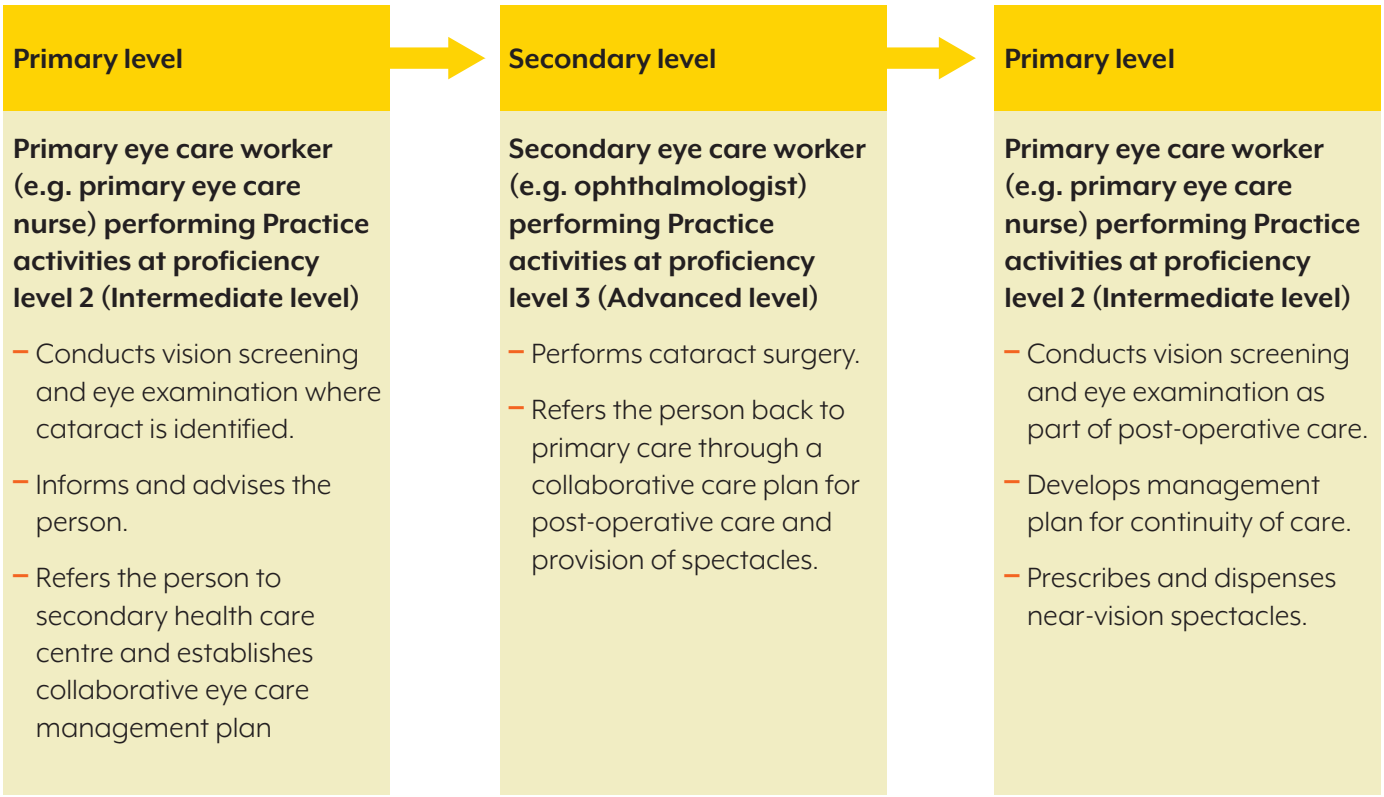
The examples in Figures 4 and 5 below illustrate how refractive error teams can operate based on level of proficiency. In the first example (Figure 4), the pathway focuses on identifying children with refractive errors through school vision screenings and providing follow-up care through different levels of the health-care system.

Figure 4. Pathway for managing uncorrected refractive error in children identified through school screenings



In the second example (Figure 5), the pathway focuses on individuals with vision needs, such as refractive errors and cataracts, who are identified, assessed, and treated through a team-based approach that crosses primary and secondary levels of care. By addressing both refractive and cataract-related needs, this approach helps optimize visual outcomes and continuity of care, reinforcing integrated people-centred eye care.

Figure 5. Pathway for managing uncorrected refractive error and cataract through primary and secondary care levels



2.3 Technology integrations and innovations

A competency-based team approach, supported by technology, bridges gaps in the workforce and strengthens the efficiency of refractive error management. Telehealth platforms enable remote consultations, allowing refractive error personnel to reach underserved areas. An example of this can be seen in the second case study, which highlights the role of competency-based telehealth in expanding eye care access in rural Kenya. Additionally, diagnostic tools such as portable autorefractors that use artificial intelligence to assist with swift assessments, make the team's workflow more efficient. Virtual reality and simulation-based training programmes offer immersive, hands-on experiences for refractive error personnel, optimizing appropriate competency levels across the team. By integrating technology, the team can function more smoothly, thereby coordinating care more effectively and improving a patient's outcomes, even in resource-limited settings.

3.

Case studies

1. Collaborative workforce in eye care provision at a refugee camp in Jordan

Figure 6. A community health worker in a refugee camp in Jordan assesses an adult male with near vision difficulties using a near vision chart and ready-made near-vision spectacles.

Near vision screening with ready-made spectacles in a Jordanian refugee camp.

In November 2024, a volunteer-led medical day at a UNRWA[1] refugee camp in Jordan, focused on providing essential eye care to refugees in a setting with limited health-care access. The event brought together health-care professionals from various disciplines, each contributing their expertise to create a holistic care model. This collaborative effort not only addressed immediate eye care needs, but also helped build workforce competencies, demonstrating how different occupational groups can work together to provide effective care.

1 UNRWA: The United Nations Relief and Works Agency for Palestine Refugees in the Near East.

Competency- based teams approach

The initiative employed a competency-based, integrative teams approach, approved by the Ministry of Health of Jordan, that leveraged the skills of community workers, health-care trainees and other personnel, to provide eye care, including refractive error care. Unlike traditional siloed approaches, this model featured shared responsibilities, unified workflows, and collective decision-making. The team included:

- Community health workers: were trained by qualified optometrists, and were responsible for screening elderly refugees for near-vision problems and for providing ready-made near-vision spectacles donated by the International Eye Health and Vision Association.
- Medical students and optometry trainees: conducted refractive error screenings under the supervision of qualified optometrists, gaining practical experience while contributing to the service delivery.
- Optometrists (volunteer optometrists from the Jordan Optometry Association, and the International Eye Health and Vision Association): provided training for community workers as well as supervising screenings, ensuring high standards of care. Rather than working in isolation, optometrists collaborated directly with all team members.
- Ophthalmologists: conducted eye health assessments and managed more complex cases, referring those needing further treatment. They functioned as integral team members rather than external specialists.
- Opticians: dispensed frames and lenses donated by industry partners, ensuring that each refugee received the appropriate care. They were embedded within the team structure, providing real-time input on spectacle solutions.

Impact of collaboration

The initiative successfully trained five community workers to provide ready-made near-vision spectacles. Over 50 refugees received eye health assessments, through a person-centred pathway facilitated by the integrated team model. A supply chain for frames and lenses was established, ensuring a sustainable approach to eye care. Collaboration with a local university eye clinic allowed junior optometrists to participate in the screenings, further strengthening the workforce model.

Lessons learned

- The integrated team model proved scalable, with documentation of workflows, roles, and training materials designed for national-level implementation.
- Training community workers and health-care trainees is critical for addressing eye care needs in resource-limited settings.
- Effective eye care requires teamwork from a range of personnel, including community workers, medical students, optometrists, ophthalmologists, and opticians.

- Developing a sustainable model relies on building local capacity and fostering partnerships with community-based opticians and industry partners.
- Understanding logistical challenges, including transportation and security, is essential for ensuring the success of such initiatives in remote areas. The team created standardized protocols for implementing CRET in similar settings across the country.

This case study demonstrates the power of a collaborative and integrative team that transcends traditional professional boundaries in addressing eye care needs in refugee communities. By drawing on the expertise of various occupational groups and building on a competency framework, the initiative developed a scalable solution to eye health in refugee camps.

Case study and photo supplied by Dr Yazan Gammoh, Al-Ahliyya Amman University, Jordan; Dr Bahaa Jaber and Isra'a Al-Dhayat of the International Eye Health and Vision Association.

2. Innovative eye care: competency-based telehealth in rural Kenya

Figure 7. In a Kenyan health centre, a health worker conducts telehealth under the remote supervision of an optometrist.

Telehealth conducted by a health worker in Kenya.

From January to August 2023, a telehealth pilot project was implemented in Machakos County, Kenya, to address gaps in eye care delivery. This project, led by the Kenya Society for the Blind (KSB), improved access to refractive error services by utilizing technology and community health systems. It addressed challenges such as limited human resources, high costs, and inadequate infrastructure, particularly in rural areas. With uncorrected refractive errors accounting for 51.7% of visual impairments in Kenya, this innovative approach was vital.

Competency-based teams approach

The project adopted a competency-based teams approach to enhance service delivery and workforce capacity. Unlike traditional fragmented approaches, the CRET approach created a truly integrated care team where each member functioned as part of a cohesive unit rather than in isolation. Key team members and their roles included:

- Community health promoters: 35 community health promoters were trained to conduct screenings using Click-Check devices, dispense ready-made near-vision spectacles, and refer cases for further care.
- Nurses: eight nurses at link facilities were trained in telehealth using the TeleRefraction App, connecting them with optometrists for subjective refraction. Rather than working in silos, nurses collaborated directly with both community health promoters and optometrists through digital platforms, creating a seamless continuum of care.
- Optometrists: provided remote support and supervision to nurses, ensuring accurate refraction and quality care. Optometrists functioned as integral team members rather than external consultants, sharing collective responsibility for patient outcomes.
- Local leaders and community representatives: played an instrumental role in mobilizing communities, creating awareness about the services, and providing real-time community insights that shaped the approach.

Implementation steps

The project was implemented through stakeholder engagement, training, and technology integration. Key steps included collaborating with the Kenyan Ministry of Health, Machakos County Health Management Team, and local leaders, to ensure alignment with national health goals. Community health promoters and nurses were trained to conduct screenings and refraction through telehealth, while Click-Check devices and the TeleRefraction App enabled remote consultations. The implementation focused on creating unified workflows where team members had shared visibility of patient treatment outcomes and took collective responsibility for the outcome. Community outreach programmes conducted door-to-door screenings and sessions, reaching over 26 000 individuals. Renovated optical units at Matuu Level 4 and Mitaboni Level 3 hospitals provided affordable spectacles, with donations for those in need.

Impact of collaboration

The project achieved significant outcomes by increasing access to eye care, enhancing workforce capacity, integrating technology, and establishing sustainability. More than 26 438 individuals were screened, surpassing the initial target of 24 000, with 5960 (21.5 %) referred for further care and 1551 (6%) receiving refraction services. The workforce was strengthened through the training of 35 community health promoters and 8 nurses, empowering local health-care providers to deliver primary eye care. The adoption of technology, including the Click-Check devices and TeleRefraction App, reduced refraction times from 12 minutes to 7 minutes per person, ensuring efficient service delivery. Sustainability was supported by the establishment of optical units with donated equipment and the reinforcement of local infrastructure, demonstrating a scalable model for long-term impact.

Key partnerships

The success of the telehealth project relied on the collaboration of several key partners. The OneSight EssilorLuxottica Foundation (OSELF) provided funding, technical support, and equipment such as Click-Check devices and the TeleRefraction App. Christian Blind Mission (CBM) International co-funded the initiative and offered technical expertise. The Kenyan Ministry of Health, through its National Ophthalmic Service Unit, endorsed the project and facilitated its integration into the national health system. Additionally, the Machakos County Government contributed local health infrastructure and human resources to ensure smooth implementation. All partners functioned as integral components of the integrated approach rather than external supporters, creating a unified model of care.

Lessons learned

- Training community health promoters and nurses is critical for expanding access to eye care in resource-limited settings.
- Leveraging technology can address workforce shortages and improve efficiency.
- Collaboration with community leaders and local stakeholders is essential for successful implementation.
- Addressing logistical challenges, such as referral adherence and transportation, is crucial for sustainability.
- The innovative CRET approach demonstrated cost–efficiencies when compared to traditional siloed care models, with formal documentation of workflows, and protocols designed for national scaling and potential implementation in other countries.

The telehealth pilot in Machakos County demonstrated the potential of competency-based teams to bridge gaps in eye care services. By leveraging technology, training, remote support provided by optometrists, and community engagement, the initiative created a scalable model for addressing uncorrected refractive errors in underserved populations. Future investment and policy support are essential to expand this approach nationwide, contributing to universal eye health coverage and sustainable development goals.

Case study and photo supplied by Raphael Okumu, Kovin Naidoo, Patricia Koh (OneSight EssilorLuxottica Foundation); Kennedy Odero (CBM) and Albert Masua (Kenya Society for the Blind)

3. Strengthening eye care access through community health worker integration: a Cambodian case study

Figure 8. Community health workers in Cambodia being trained in vision screening to deliver near-vision spectacles to members of the community.

Community health workers in Cambodia trained to screen vision and deliver near-vision spectacles.

In late 2024, a pilot programme was launched in Cambodia to empower community health workers with vision screening capabilities; the programme was implemented at two vision centres in Kampong Speu and Kampong Cham provinces. The initiative, led by the National Program for Eye Health, Provincial Health Departments, in partnership with The Fred Hollows Foundation and the OneSight EssilorLuxottica Foundation, aimed to improve access to eye care services, particularly refractive error correction, in underserved communities through a integrated team approach rather than siloed care delivery. At Chamkar Leu Public Vision Centre, a group of nine community health workers (four of which were women), comprised village health volunteers, health centre staff, and village chiefs. The health workers were trained in basic vision screening and equipped with screening kits and a referral application; they served as the first point of contact in their communities.

Integrated team-based approach

The programme demonstrated an effective competency-based workforce model where different eye care personnel functioned as a unified team with shared goals and collective responsibility for patient outcomes.. The teams included:

- Community health workers: conducted vision screenings, dispensed near-vision spectacles where needed, provided basic eye health education, and managed referrals.
- Refraction nurses: performed comprehensive eye examinations, including refraction and the dispensing of spectacles.
- Vision centre staff: provided primary eye care services (vision screening) and managed referrals.
- Provincial hospital eye specialists: handled complex cases such as cataract surgeries.

Case example

San Nim, a 56-year-old community health worker, successfully screened and referred four patients to the vision centre within his first month of work. One notable case was 70-year-old Leng, who was diagnosed with cataracts and required surgery. Through the referral system, Leng not only received proper diagnosis, but also learned about the available Health Equity Fund benefits for her treatment. The seamless transition between care levels was possible because San Nim remained part of Leng's care team.

Lessons learned

- The clearly-defined roles and competency-based training enabled effective collaboration between different levels of eye care providers while fostering a unified team identity rather than separate professional silos.
- Community health workers proved effective in bridging the gap between communities and eye care services; their local presence increased trust and service uptake in communities.
- Integration with existing health systems and social protection schemes enhanced programme sustainability. This was clearly illustrated when the refractionist helped Leng understand her Health Equity Fund benefits for cataract surgery, making treatment more accessible. The integrated approach meant all team members were trained to provide consistent information about available benefits, regardless of their specific role.
- Digital referral systems allowed better monitoring of patient referrals and attendance at vision centres. The systems facilitated better communication between different levels of care, with clear referral pathways helping to optimize resource utilization across the eye care network, replacing previous practices where villagers would seek unqualified care at local pharmacies or markets. The shared digital platform created transparency across the entire team, with community health workers able to track their patients' progress through the system, and vision centre staff able to provide feedback directly to referring health workers.

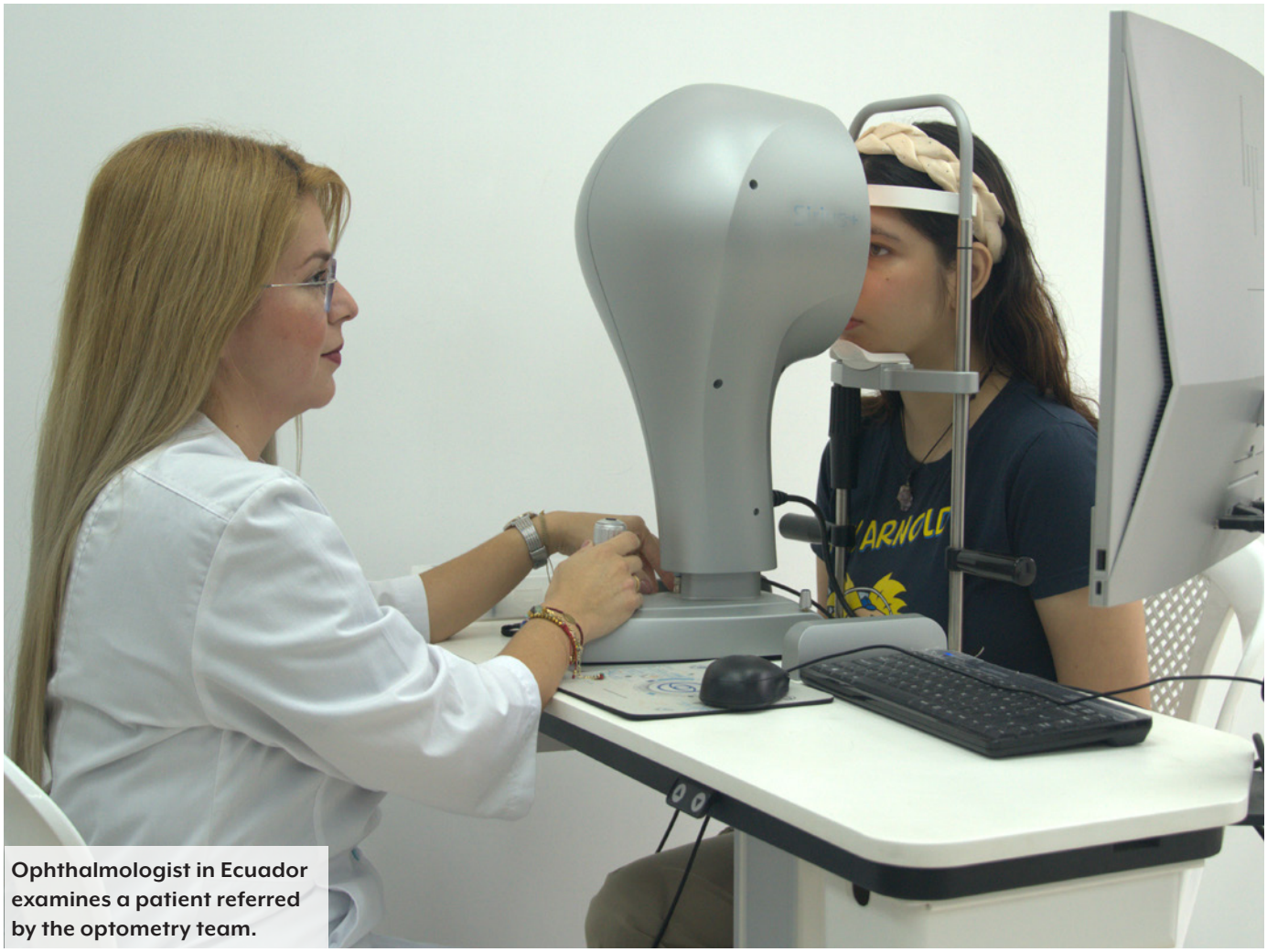
- The competency-based approach ensured appropriate service delivery at each level. This was demonstrated when Leng received a first level of vision screening by community health workers at community level, with a proper diagnosis at the vision centre. She was then appropriately referred to the provincial hospital for specialized cataract surgery, receiving interim care through the provision of sunglasses. Unlike traditional referral models, Leng experienced this as a single, coordinated treatment outcome rather than separate encounters with disconnected providers.

This pilot demonstrates how a competency-based team approach can expand access to sustainable eye care successfully in rural communities. By clearly defining roles and establishing strong referral pathways, different eye care personnel can collaborate effectively to provide comprehensive care. As Leng noted, “Without him [the community health worker] I don’t know my eye condition and where to find the service”. This firsthand experience, along with the programme’s overall success, suggests the potential for scaling to other regions facing similar challenges in access to eye care.

Case study and photo supplied by Ms Nita Sovat and Dr May Ho (The Fred Hollows Foundation, Australia); Prof Do Seiha (National Program for Eye Health, Cambodia); and Ms Patricia Koh (OneSight EssilorLuxottica Foundation).

4. Expanding eye health access for vulnerable communities through partnerships in Ecuador

Figure 9. At the Technical University of Manabí in Ecuador, optometry and ophthalmology teams work together to help prevent and manage vision problems. Here, the ophthalmologist, is examining a patient referred by the optometry team.



Ophthalmologist in Ecuador examines a patient referred by the optometry team.

Since 2003, the optometry program at the Technical University of Manabi (UTM) in Ecuador has included optometrists and ophthalmologists offering comprehensive education complemented by community outreach. In October 2024, UTM and VOSH/International (V/I) engaged in an initiative addressing eye health needs of vulnerable local groups.

This initiative addressed immediate eye health needs while identifying elements for long-term care strategy, involving optometry students, eye health professionals, and local volunteers in an integrated team approach where members functioned as a unified entity with shared goals and collective responsibility for patient outcomes. The work strengthened the optometry school's infrastructure and developed professional skills including communication competencies to examine vulnerable communities with humanity and empathy.

Integrated competency-based team activities:

1. Training for UTM students and eye care personnel: V/I offered training on visual examination for HIV patients and children with special needs, along with advanced techniques.
2. Comprehensive visual examinations: In coordination with local NGOs, eye examinations were performed, conditions identified, and prescriptions provided. Rather than functioning as separate professional groups, the team adopted a competency-based integrated model where tasks were allocated based on skills rather than traditional professional boundaries, with students practicing under supervision.
3. Clinical intervention for complex cases: Priority attention was given to complex cases and economically vulnerable patients. The integrated team approach eliminated referral barriers, creating a smooth experience for patients through unified care planning and joint case management. All patients received their discounted prescription spectacles through coordination with local optical shops.
4. Institutional strengthening: The collaboration included equipment donations and a cooperation agreement between V/I and UTM. This agreement guarantees the continuity of future academic strengthening and vision clinics supporting local communities. This will open doors for new collaborations at the international and regional levels.

Impact of the integrated team collaboration:

This collaboration established foundations for sustainable care, with trained professionals becoming change agents in their communities. The joint work created an integrated interprofessional team model where optometrists, ophthalmologists and students work together offering personalized eye health services. Unlike traditional models where professionals merely coordinate separate activities, this approach featured shared decision-making, unified workflows, and collective accountability, demonstrating effective solutions for communities with limited resources.

Lessons Learned:

1. Ongoing training strengthens service delivery: Equipping students and local eye care professionals with both clinical skills and communication techniques ensures high-quality, sustainable care. When training emphasizes collaboration and shared competencies, service effectiveness improves.
2. Teamwork enhances care quality: Collaboration among optometrists, ophthalmologists, and community health workers leads to more comprehensive and efficient care, particularly in low-resource settings. Establishing clear communication and coordinated decision-making strengthens patient outcomes and follow-up.
3. Sustainable impact requires system integration: International cooperation agreements and local capacity-building efforts help ensure that initiatives are not stand-alone but instead become embedded within the local health system for long-term impact.
4. Accessible eye care transforms lives: First-hand experiences showed students how an integrated approach to eye health services can profoundly improve patient well-being, reinforcing the value of their profession and the power of interdisciplinary collaboration.

This joint effort shows how an integrated, competency-based team approach improves eye health in vulnerable communities with lasting impact. The model has been documented for potential scaling and received recognition as an exemplary approach to eye care delivery for vulnerable populations.

Case study and photo supplied by Maria Arce Moreira (VOSH/International, USA), and Genny del Carmen Arteaga Loor (Technical University of Manabi, Ecuador).

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