



INTRODUCTION

The purpose of this document is to provide health professionals and the general public with an overview of the practice activities of the optometrist and how they relate to the needs of the public and to the activities of other health care providers.

Optometrists are primary health care providers who diagnose and treat ocular health problems and visual defects. They practice independently or in group practices to provide services in the areas of spectacle lens therapy, contact lens therapy, low vision therapy, binocular vision therapy, occupational vision care, and anterior segment eye disease.

This document describes the key aspects of Optometry, beginning with optometric education and the optometric examination. Optometry's role in primary care is outlined in eight areas of specific duties. Optometrists are committed to protecting the vision and eye health of their patients, and through extensive training and continuing education, fulfilling their role as primary eye care providers.

OPTOMETRIC EDUCATION

Two of the 18 schools of Optometry in North America are located in Canadian universities: at the University of Waterloo and the University of Montreal. The former offers instruction in English, and the latter in French. The courses of both of these schools of Optometry are accredited by the National Council on Optometric Education (which in turn is recognized by the Council on Post Secondary Education). The Admissions Committee at the University of Waterloo looks for a university background to be completed in a faculty of science. Many applicants have a Bachelor of Science degree. Required prerequisites are general biology, general chemistry, physics, calculus, introductory psychology, English, physiology, genetics, introductory ethics, organic chemistry, microbiology, biochemistry, and statistics. Recommended courses are human anatomy, embryology, histology, immunology, virology, and sociology. These prerequisites are nearly identical to pre-Medicine or pre-Dentistry programs.

The professional program in Optometry comprises four years (five years at Montreal) of didactic, laboratory and clinical instruction. At Waterloo, the final year is composed of three clinical sessions, each lasting 14.5 weeks. Over the last 10 years, there has been increased emphasis on the diagnosis and treatment of eye disease. In addition to pathology, physiology and anatomy, pharmacology is a large part of optometric training.

Current enrolment of the School of Optometry at Waterloo is a maximum of 60 students per year, and at the University of Montreal School of Optometry, 41 students are enrolled per year. The program leads to the degree of Doctor of Optometry (O.D.).

To practice Optometry in Canada, a candidate must meet the requirements of the Act and Bylaws of the specific provinces' provincial licensing authority. These requirements may vary slightly from province to province. Candidates are required to successfully pass the national Canadian Standards Assessment in Optometry (CSAO) examination in order to practice in most provinces in Canada.

Once in practice, optometrists are required to complete each year a number of continuing education courses to update their skills and maintain certification. The requirements for continuing education are regulated by provincial regulatory authorities.

THE ROLE OF THE OPTOMETRIST IN HEALTH CARE DELIVERY

Introduction

The purpose of this document is to describe the role of the optometrist in Canada. By so doing, the goal is to identify specific skills and tasks that, through implementation, offer viable means of obtaining the benefits intrinsic in optometric training and practice. Another purpose is to provide health care professionals, health care planners and the general public with a comprehensive overview of the practice activities of optometrists and how these relate to the needs of the public and the activities of other health care workers.

Definition

An optometrist is a primary health care provider who specializes in the examination, diagnosis, treatment, management, and prevention of diseases and disorders of the visual system, the eye and associated structures.

The optometrist is a primary contact health care practitioner who cares for the functionally inadequate visual system. Optometrists are educated and trained in the normal and abnormal physiology of the eyes, the psychophysics of vision, and the perceptual processes and their relationships to the functional activities of learning, employment and recreation. Optometrists are educated and licensed to determine the health status and functional capability of the visual system, including the quantitative and qualitative evaluation of the refractive, accommodative, ocular-sensory-motor and perceptual components of the visual apparatus. Optometrists diagnose, treat and prescribe for conditions requiring (a) devices for the alteration of vision anomalies, (b) orthoptics, (c) vision therapy, (d) preventive and corrective procedures and (e) diagnosis and treatment of certain eye health conditions. Optometrists are trained to employ a spectrum of pharmaceutical agents in their diagnostic and therapeutic procedures. Optometrists also diagnose systemic disease conditions reflected in the eyes and, as necessary, refer patients for treatment to an appropriate health care provider. Optometrists are trained to take an active role in the co-management of vision and eye care problems of their patients along with physicians and other professionals.

The practice of Optometry is the examination, diagnosis, measurement and treatment of the ocular health of the human eye and includes, but is not limited to:

- the examination of the human eye by any method, other than surgery, to diagnose and to treat or to refer for consultation or treatment any abnormal condition of the eye and adnexa and to co-manage along with physicians and other professionals the ocular well-being of the patient;
- the employment of instruments, devices, test lenses, or any refractive procedures, automated or otherwise, pharmaceutical agents and procedures intended for the investigating, measuring, examining, treating, diagnosing or correcting of visual defects or abnormal conditions of the human eye or its adnexa as may be authorized by the provincial licensing authority;
- the prescribing of pharmaceutical agents, corrective lenses, devices containing lenses, prisms, contact lenses, orthoptics, vision therapy, and prosthetic devices to correct, relieve or treat defects or conditions of the human eye or its adnexa;

- the fitting and application of lenses, devices containing lenses, prisms, contact lenses, pharmaceutical agents and prosthetic devices intended to be placed directly upon or in contact with the tissues of the human eye or adnexa;
- the prescription, supervision and management of regimes of therapy for the improvement or monitoring of the visual health or function of patients;
- the diagnosis and treatment of the occupational and sports vision needs of patients.

Primary, Secondary and Tertiary Care Descriptions

Health care delivery in Canada has developed utilizing three levels of care. The public is provided with readily accessible health care services at reasonable costs. Definitions describing the three levels of care are taken from the report of the Health Planning Group of Johns Hopkins University (1).

A. Primary Care

"Primary care services are those ambulatory services that are required by most of the people most of the time to meet their non-specialized health problems. Primary care can be provided at various settings, e.g. group or solo practices, community health centres, etc., and should function as the primary point of entry into the system. Health resources found in a primary care unit....should provide a comprehensive range of diagnostic, therapeutic and preventive services. Travel time to obtain primary care services should be within 15-30 minutes. In order for this regional structure to have the greatest impact on the health status of the population, vertical and horizontal linkage must operate."

"Within the vertical dimension, patients are referred 'up' from the primary level to the secondary and tertiary levels....motivated by a desire to prevent duplication, better utilize the already existing resources and increase emphasis on primary health care services. [This allows] for the provision of care to the right patient, at the right time, in the right place, and for the right reason; [in other words] maximum consideration should be given to the population to be served."

B. Secondary Care

"Secondary care services are those relatively specialized services provided after referral to a consultant-specialist. The services are provided mainly by the community hospital [or health centre], on both inpatient and outpatient bases. ...Secondary care services should be available within 30-60 minutes travel time."

C. Tertiary Care

"Tertiary care services are those highly sophisticated services that require extensive technical capability and are almost always delivered on an in-patient basis. Because of the low frequency with which conditions requiring these services occur, they should be centralized at a major health complex (e.g. a medical teaching hospital)."

Optometrists meet the definition of independent primary health care providers (2,3). In its conclusions, the Ontario Health Planning Task Force stated, "Primary care constitutes the major vision and eye care sector. It is the first point of contact for the individual within the system." The report continued, "there has been general recognition and acceptance that optometrists are well qualified to diagnose and treat refractive, accommodative, and low vision anomalies ... [and] optometrists identify disease in accordance with ... their patient population."

D. Primary Care Responsibilities

The optometrist has responsibilities in the following areas of primary care:

- prevention;
- health education;
- health promotion;
- health maintenance;
- diagnosis;
- treatment and rehabilitation;
- counselling;
- consultation.

The optometrist's specific duties in performing each of these primary care responsibilities are as follows:

1. PREVENTION

One of the most important functions of health care is prevention. Rather than treating conditions only once they have caused a problem, the new approach to health care is treatment before the emergence of a greater problem or preventing altogether the development of an abnormal condition. The concept of preventive care is evident in the planning and implementation of school-based visual screening for school-aged children. "Occupational Vision" has been a foundation of Optometry for many years now. This field involves the assessment of occupational and vocational environments for hazards to vision and health. Prevention specifically incorporates the following responsibilities:

- to evaluate the systems of the body present in the eye, orbit and their adnexa in order to diagnose and treat, when appropriate, deficiencies contributory to sensory deficit and the onset of amblyopia and strabismus; further, to

diagnose, to treat where authorized, and to refer eye or systemic diseases or both;

- to obtain and use family health and oculo-visual history in the process of assessment, diagnosis, counselling and therapies directed toward the prevention of vision deficits and to direct individuals to genetic counselling when appropriate;
- to identify, through history and assessment, factors that place individuals or offsprings at risk of vision and ocular disorders or trauma and to provide preventive and corrective procedures;
- to monitor the growth and development of ocular structures and visual functions so that impediments to these processes are detected and remedied at the earliest time;
- to provide education on ocular health and visual function to parents, children, teachers, specific occupational groups and the general public related to prevention and maintenance of ocular health and visual efficiency;
- to provide planning, implementation, participation, monitoring and evaluation of vision screening of infants, children, institutionalized populations such as the aged, the developmentally delayed, and persons in work and recreational activities;
- to assess and evaluate various environments, work activities, hazards to vision and proper illumination contributory to efficient and comfortable use of the eyes and visual processes so as to protect persons at work or at recreation;
- to undertake and participate in research in conjunction with educational institutions or professional associations or other professions directed toward prevention of health and vision problems;
- to contribute to the knowledge of the visual factors of ocular disease or loss of visual functions;
- to monitor, in cooperation with physicians, the visual functions and ocular structures of patients being treated with drugs that may have a potential for ocular side effects.

2. HEALTH EDUCATION

Through education about the nature of vision and eye health, patients are encouraged to seek optometric care, and, thus, ensure early treatment. Health education specifically incorporates the following responsibilities:

- to provide and interpret information on ocular health, visual functions, visual efficiency and comfort as well as the general health factors contributory to the individual's welfare;
- to provide information to patients on the use of their eyes, the frequency of eye care, eye protection, illumination, luminaries and hazards to eyes and vision;
- to consider and advise patients on the ergonomics of vision;
- to explain the nature of vision and the risks that result from genetic factors, toxic and disease agents and environmental hazards detrimental to the eyes or vision;
- to act as a community resource for vision and health care information and as a repository for literature to this end.

3. HEALTH PROMOTION

Optometrists as health care providers have a duty to promote lifestyle choices that protect or enhance good vision and health. Health promotion specifically incorporates the following responsibilities:

- to act as a resource and to participate in the encouragement of children, young persons, parents, unions, industries and the public to practise preventive, protective aspects of eye care and visual processes;
- to inform the public on all aspects of ocular health maintenance, particularly those aspects that place persons visually at risk;
- to inform the media of conditions, events and circumstances that contribute to effective and efficient visual functions and to identify factors that contribute to the occurrence of vision and eye problems;
- to provide understanding of the part played by vision in human development and the caring process, so that maximum potential and efficiency are achieved and maintained in a manner promoting the full enjoyment of life.

4. HEALTH MAINTENANCE

It is important to encourage activities that will provide long-term ocular health and visual efficiency. Health maintenance specifically incorporates the following responsibilities:

- to undertake complete visual examinations of patients at appropriate intervals and to advise them on the care and

treatments necessary to maintain efficient and effective vision;

- to provide advice and recommend means by which vision and the visual system can be protected from factors that endanger sight or ocular welfare;
- to provide continuing care and monitoring of persons with health conditions that may place their eyes or vision at risk so that they may seek the assistance of an appropriate practitioner at the earliest time and thus prevent or minimize vision loss or ocular damage;
- to monitor and advise on the individual's visual system post-referral to physicians and other health professionals and thus to assist in compliance with the treatment and advice provided by them;
- to prescribe, provide and supervise programs of visual rehabilitation after disease or surgical treatments have been completed or stabilized;
- to provide continuing supervision of ocular health and visual functions in chronic or stabilized illness;
- to advise patients on ocular safety and environmental hazards to vision and to provide protective devices.

5. DIAGNOSIS

During an eye exam the optometrist will make a diagnosis concerning what is (are) the cause(s) of the patient's complaint. Patients may present a wide variety of symptoms and signs of visual or ocular problems.

Using a thorough case history and an extensive battery of tests, optometrists determine whether the eyes are healthy; vision is corrected to its sharpest clarity; the eyes are coordinating and focusing properly; colour vision is normal; depth perception is accurate; and visual perception is adequate. Optometrists are concerned not only about diseases of the eye, but the patient's overall health. Since many systemic diseases have ocular manifestations, optometrists regularly diagnose diseases with sources outside the eyes, or monitor the effects of these diseases on the eye. For example, in some patients one can see changes in the retina (retinopathy) which might be suggestive of a systemic disease or condition such as diabetes, hypertension or a carotid artery obstruction. Many medications taken for general health problems can also have effects on the eye. Knowing the patient's medication may help the optometrist diagnose an ocular health problem that is the result of taking certain medications. For example, patients with severe arthritis may take oral prednisone. This

medication can cause increased intraocular eye pressure and posterior subcapsular cataracts in some at-risk patients.

Diagnosis specifically incorporates the following responsibilities:

- to carry out a comprehensive health and illness history of patients and to examine eyes, orbits and adnexa and those body systems represented in the eyes and orbits, including the skull, the soft tissues, glandular tissues, the lymphatic system, the vascular system, the neuromuscular system and the eyes as optical systems;
- to use appropriate equipment and available technology to carry out oculo-visual assessment procedures. This may include standard oculo-visual assessment equipment, electrodiagnostic instruments, visual field analyzers, binocular vision devices, low vision aids, laser interferometers, autorefractors, prisms, lenses, contact lenses, external and fundus cameras, keratometers, retinoscopes, tonometers, biomicroscopes, direct and indirect ophthalmoscopes, corneal topographers and a spectrum of drugs useful in the assessment of ocular refraction, binocular anomalies and the detection of diseases of the eye;
- to use appropriate assessment instruments and procedures in the evaluation of perception.

6. TREATMENT AND REHABILITATION

Lenses, prisms, contact lenses, sight-enhancing devices, orthoptics, vision therapy, perceptual training and counselling, and therapeutic drugs are the current realm of optometric treatment. Full treatment may require a combination of the above to relieve a patient's problem. Should an ocular or systemic disease be detected, optometrists refer the patient to the appropriate practitioner. Most referrals are to general practitioners or ophthalmologists, but may also be to neurologists, dermatologists, internists, geneticists, psychologists, and others. Optometrists typically consult with the family doctor and keep that person informed of where the patient is being referred.

Frames, optical lenses and contact lenses are becoming more complicated and specialized. Proper treatment involves far more than simply the required strength of a lens, but must include how the entire optical appliance is to be adapted to best suit a patient's visual and lifestyle demands. As acknowledged experts in optics, optometrists are the most qualified to adapt a written prescription to a usable optical appliance. This is why optometrists promote the concept of unified service - allowing the doctor who diagnosed and is most familiar with a patient's problem to

carry out the treatment and determine the efficacy of that treatment. Of course, the spectacle prescription is the property of the patient, who is free to seek treatment wherever he or she wishes. Treatment and rehabilitation specifically incorporates the following responsibilities:

- to treat vision anomalies by means of lenses, prisms, contact lenses, sight-enhancing devices, orthoptics, vision therapy, visual perceptual training or therapy and appropriate counselling on compliance with the prescribed treatment;
- to prescribe vision therapy and orthoptic treatment procedures, to supervise these procedures when therapeutically applied to the patient's sensory motor problems and to instruct patients in the proper application of various training and orthoptic procedures, whether they are performed under direct supervision or in the home environment;
- to initiate low vision services, contact lens applications or other rehabilitative procedures and thus to maximize the input of visual information and provide the patient with maximum opportunity for all activities;
- to advise and provide appropriate protective devices for work, sport and recreational activities so the integrity of vision and ocular structures is maintained. This activity includes counselling on lighting, glare and radiation protection, as well as on other hazards;
- to supervise or provide aid in the selection and provision of the appropriate ophthalmic materials, to provide for the adequate fit of appliances and to verify the accuracy, quality and serviceability of optical devices used in treatment;
- to treat with medication or by other means those ocular or systemic diseases or conditions of the eye or visual system for which the optometrist is authorized to provide care and treatment and, when not so authorized, to refer the patient to the appropriate physician who may provide that care and treatment. This referral is to be made accompanied by a report of the optometrist's observations, diagnostic findings and therapy, if any, performed at the time of the referral;
- to carry out diagnostic findings for physicians, other health professionals and other authorities that contribute to their diagnostic process;
- to assess the efficacy of treatment procedures and to modify them as required to maximize patient benefit.

7. COUNSELLING

Patients have a right to know the status of their vision and eye health. Optometrists also feel it is their duty to inform the patient of all aspects of their visual well-being. Counselling specifically incorporates the following responsibilities:

- to provide patients with knowledge of the status of their vision and its conservation;
- to provide patients with knowledge of their ocular health and its maintenance;
- to provide information on the protection of eyes and vision in various work, recreation and other environments;
- to provide counselling in support of the therapies of other health practitioners and thus to bring about compliance;
- to provide parents with knowledge of visual perceptual and ocular development of their children;
- to provide counselling on the use, function and quality of optical appliances provided to patients, and to make them aware of resources available to promote their visual comfort and welfare;
- to counsel patients on the use, function and efficacy of medications and other therapeutic treatments being provided to them and to make them aware of the visual and systemic side effects, if any, of these treatments;
- to counsel those persons with vision impairment so that the full use of available resources can be applied to maximize remaining visual function;
- to assist the visually-impaired to adapt to their condition;
- to provide counselling on the general principles of health in its preventive and maintenance aspects;
- to counsel the patient to seek genetic guidance when appropriate.

8. CONSULTATION

As providers of primary care, optometrists serve as the entry point into the eye care system. They routinely encounter conditions that require secondary or tertiary care and refer or consult regularly with those providers. Optometrists also will consult with and refer to family physicians and other primary health care providers. Consultation incorporates the following responsibilities:

- to consult with other optometrists on the patient's behalf so that their skill can contribute to the effective care of the patient;
- to consult with other health care practitioners such as physicians, dentists, geneticists and nurses as the patient's needs require;
- to consult with teachers, psychologists, nutritionists, audiologists, occupational therapists, physiotherapists and other therapists, as well as members of the clergy, as the patient's needs require.

Conclusion

Optometrists examine, diagnose, measure and treat the eye by any method other than surgery. Optometry is a primary care health profession providing a variety of services to the public. The traditional core of Optometry has been the assessment of the visual system and treatment procedures centered around spectacle lens or contact lens therapy. However, this core has expanded greatly over the past century to include a number of other important services. Although the scope of practice of Optometry may vary slightly from province to province due to provincial regulations, today's optometrists are educated and trained to provide the range of services outlined in Appendix 1C, entitled "Scope of Practice of Canadian Optometry". The diagnosis and treatment of eye diseases have now become an integral part of what optometrists do. Optometrists are now also playing a vital role in the pre and post operative care of patients who seek laser refractive eye surgery. The unique training received by optometrists, and their wide distribution throughout Canada, make them the only profession adequately educated to provide comprehensive primary eye care services.

References

- 1) A health services policy plan for the state of Maryland. Vol. 1, Report of the Multi-disciplinary Health Planning Group of Johns Hopkins University to the Maryland Comprehensive Health Planning Agency. Baltimore: John Hopkins University, 1974.
- 2) Ontario Ministry of Health. Report of the Health Planning Task Force. Toronto: Queen's Printer, 1974.
- 3) le Riche, W.H., et al. Vision Care, A survey of Optometrists in Ontario. Toronto: Department of Preventive Medicine and Biostatistics, Faculty of Medicine, University of Toronto, 1980.

OPTOMETRIC TREATMENT SERVICES

Spectacle Lens Therapy

Physiological optics, and the skilled application of appropriate lens therapy, has always been the basis of Optometry. Through continuous education in the advancements of theoretical and practical aspects of optics, the profession is able to provide the best spectacle lens therapy available today.

Optometrists provide a unified and complete treatment service for their patients. When utilized by the patient, quality control and quality of ophthalmic materials are of prime importance in the treatment service. After fabrication is completed by an optical laboratory, the practitioner is responsible for verification of the prescription and proper adjustment of the ophthalmic appliance. Additional counselling based on patient records is given regarding adaptation to change, wearing time, and instructions for care and use of occupationally-related lenses.

Contact Lens Therapy

The optometrist provides complete diagnostic and treatment services for contact lenses. This involves four separate services:

A. Contact Lens Diagnostic Examination

The purpose of this examination is to allow the optometrist to determine the correct design, type and power of the contact lens which will give maximum comfort, vision and physiological safety. In addition, specific tests are performed to determine suitability for contact lenses.

B. Contact Lenses and Solutions

The type of contact lens may include special designs such as toric, multifocal, keratoconic, therapeutic or bandage lenses. Both lens and solution type are chosen to give the patient maximum comfort, clearest vision and ensure biocompatibility, e.g. to decrease allergic responses.

C. Patient Instruction and Training

An instructional time is scheduled to teach correct methods of personal hygiene, lens insertion, removal, cleaning and disinfection.

D. Eye Health Evaluation

In some cases, even though contact lenses may mechanically fit well, feel comfortable and supply clear vision, it is possible that adverse changes could be occurring to the eye tissue without any symptoms. Patients must therefore be carefully examined on a regular basis by

their optometrist. The optometrist's responsibility is to ensure that the patient's eyes remain clear and healthy while wearing contact lenses. The patient's responsibility is to follow the doctor's instructions carefully and attend each one of the recommended eye health evaluations during the adaptation period and as recommended thereafter.

By providing all four portions of service, the patient receives comprehensive and continuous care while wearing contact lenses.

Children's Vision

Optometrists support the concept of the early identification, treatment and/or prevention of anomalies of the visual system. The Canadian Association of Optometrists' recommends that children have their first complete oculo-visual examination by the age of three years, or earlier for those who are visually at risk.

Early detection of conditions such as amblyopia and strabismus is critical to ensure successful treatment. If intervention is delayed, the development of cortical cells of the affected eye will lag behind that of the other eye due to sensory deprivation. Treatment in the form of eye patching and/or corrective lenses at a later age will not be as effective.

Optometrists are often the first professionals to see children with reading or learning problems. The approach to these cases is the same initially as any other patient, that is, to perform an oculo-visual assessment and to provide clear, comfortable, single, binocular vision.

The responsibility of the optometrist is to determine and diagnose the status of the visual system and to provide optometric treatment when indicated. This determination may also include visual perceptual testing as an adjunct to consultation or referral into the multi-disciplinary stream for diagnosis.

The role of the optometrist in the management of children with learning disabilities is that of a member of an interdisciplinary team which may include one or more of: an audiologist, educator, occupational therapist, physician, psychologist and speech pathologist. As part of that team, the optometrist accepts, with the other professionals, the need for consultation and inter-referral to ensure complete assessment.

Geriatric Vision

Through early detection of ocular and systemic diseases as they manifest in the eyes and visual system, vision impairments can be prevented or reduced. These

conditions include glaucoma, cataract, hypertension, arteriosclerosis, diabetes mellitus, and many other disease entities. Many disease conditions increase in prevalence as age increases and frequently medications are used that require assessment of the eyes and visual function on a continuing basis. The rehabilitation role of the optometrist with low vision and other sight enhancement methods is essential for this group.

Low Vision Therapy

Low vision is the term applied to losses of vision which cannot be treated by medicine, surgery, conventional eyeglasses or contact lenses. Optometrists who specialize in low vision prescribe aids which help visually-impaired people to use their remaining vision more effectively and efficiently.

In adults, these visual losses are usually the result of eye diseases which occur later in life. Cataracts, glaucoma, macular degeneration, diabetes and stroke are just a few examples of diseases which can cause low vision.

In children, low vision often results from pre-natal infections (e.g. rubella), cataract, hereditary eye diseases (e.g. albinism, retinitis pigmentosa), congenital factors (e.g. nystagmus, optic atrophy, glaucoma), birth defects (e.g. aniridia), excessive oxygen at birth in premature infants (retrolental fibroplasia) and many other factors.

Optometrists who specialize in low vision diagnosis prescribe low vision aids directly to their patients from their offices. The patient must first undergo a comprehensive oculo-visual examination in order to determine his or her particular level of visual function. Once this has been established, low vision aids are then prescribed which best meet the patient's specific visual needs. This process, sometimes referred to as visual rehabilitation, often requires innovative techniques, based on the skilled application of lens types and combinations to get the best results with residual vision.

Occupational Vision

Optometrists examine patients taking their occupational considerations into account and prescribe appropriate occupational and/or safety eyewear or treatment as required.

Formal education also includes the study of lighting levels, glare, safety lenses and frames, plant inspections and other ergonomic factors. Recently the study of the effects of video display terminals on vision has played a prominent role. In general, "how vision is used at work" is an

important aspect of the overall optometric examination.

Optometrists are skilled in providing the appropriate safety lenses and frames and can provide an employer with assurance that accepted safety standards are being met. Several provincial associations of optometrists provide employers with an Occupational Vision Care and Eye Protection Program for this purpose.

The program is also aimed at ensuring that all employees are functioning at peak visual efficiency. Visual requirements for specific jobs can be provided, as well as a base line for the visual status of all employees. Those below accepted visual standards, many of whom may not have been examined for years, can be helped to achieve improved vision. Eye health is also assessed and referrals made for both eye and systemic disease. The widespread factor of non-compliance with many eye safety programs can be prevented when the appropriate dispensing of safety and/or occupational eyewear is emphasized, with attention paid to the proper selection of the appropriate eyewear and correct fitting of frames and checking of lenses. Counselling as to the use, limitations and proper care of the eyewear is a key factor. The end result is clear, comfortable, efficient and safe vision.

Binocular Vision - Vision Therapy

Binocular vision involves the use of both eyes aimed simultaneously at the same visual target, with the eyes working together equally and accurately. A healthy binocular visual system allows important visual perceptual skills that are part of normal human vision. Binocular vision impairment is any visual condition where eye-teaming skills are inadequately developed.

A comprehensive binocular vision assessment involves testing of visual efficiency, which includes an evaluation of accommodation, alignment, vergence function and ocular motility function (fixation, pursuits, saccades). These skills are critical to the visual efficiency of healthy individuals, and lack of their development may lead to delays in reading and learning. It is possible through a series of progressive vision therapy exercises to rehabilitate impairments including amblyopia, strabismus, and accommodative dysfunction. Visual information processing, which involves perceptual skills, may also be improved with vision therapy.

Sports Vision

The importance of good vision and oculo-motor perceptual function in the participation and enjoyment of sports activities cannot be overemphasized. Optometrists,

specializing in sports vision, can prescribe protective/corrective eyewear, including contact lenses, to optimize sharpness of distance vision. This is very desirable in protecting the eyes and improving performance in most athletic endeavours.

Visual fitness is a term used to describe the ability of an athlete's eyes to be used efficiently over a sustained period of time. Visual fitness depends on the effective use of a variety of visual skills. Dynamic visual acuity, pursuit or tracking movements, peripheral awareness and visualization techniques are some of the skills that may be improved over time with appropriate vision therapy.

Sports vision optometrists, utilizing a battery of diagnostic tests, can diagnose weak or inefficient visual systems in the athlete. Enhancement training, either at home or in-office, can be prescribed to increase visual fitness. This training usually involves repetitive and varied exercises to improve the precision of focusing, eye muscle movement and eye/hand coordination.

These diagnostic and treatment services rendered by a sports vision optometrist can benefit the recreational or professional athlete through improved performance and enjoyment of sports.

Anterior Segment Disease Treatment

In 1997, changes were made to the Scope of Practice Bylaws to allow Alberta optometrists the ability to remove foreign bodies from the eye and treat anterior segment ocular disease by using and prescribing topical therapeutic pharmaceutical agents (eye drops/ointments). Similar changes in legislation were made in both New Brunswick and Saskatchewan a short time later. More recently, Quebec and Nova Scotia as well as the Yukon Territory passed legislation that enables optometrists to prescribe therapeutic pharmaceutical agents (TPAs). All the remaining provinces are actively pursuing changes.

Optometrists that hold a therapeutic licence have received extensive training, and are required to obtain continuing education in therapeutics on an ongoing basis. This legislation has enabled optometrists to be the primary contact for any eye care need. Patients spend less time waiting for treatment, as referral to an ophthalmologist may not be required. Because optometrists are widely distributed throughout the province, patients spend less time and money traveling for treatment services. Problems such as eye infections, inflammations, corneal abrasions and irritations due to foreign bodies can be dealt with more effectively and efficiently in the primary care setting of the optometric office.

Laser Refractive Eye Surgery Pre/Post Care

In recent years laser refractive eye surgery has become an increasingly popular option as patients seek to reduce their dependence on glasses and contact lenses. Laser refractive eye surgery can correct nearsightedness, farsightedness and astigmatism within a certain range of powers.

The optometrist is best suited to provide a patient with advice on whether he/she is a good candidate for laser refractive surgery. Optometrists can provide patients with information on the procedure and explain the risks and complications that are associated with each procedure. By knowing the patient's refractive status, ocular health and physiology the optometrist can provide counselling as to whether there are increased risks of complications. This allows the patient to make an informed decision. Optometrists can provide the extensive testing required prior to the surgery as well as follow patients after surgery to monitor the healing process and ensure the best surgical outcome.

Optometrists work closely with the laser centre that offers the surgery to provide updates on the patients' progress and notify them should a complication occur. The ability to prescribe topical medications has been beneficial in providing follow up care.

Optometry in the future will continue to meet the demand of patients as new technologies emerge in the field of vision care.

INTERPROFESSIONAL COMMUNICATION

Ongoing communication between optometric and other health care professionals (e.g. family physicians) allows the optometrist to report ocular changes which may occur with related health problems. These may include diabetes, high blood pressure and other systemic diseases. An understanding of the ocular side effects from medications is important in the continuing evaluation of the patient. The following reports describe a few of the methods that ensure the information concerning the visual status of the patients can be utilized to benefit their total health care.

Patient Referral Report

When a patient is referred directly to an ophthalmologist by an optometrist, the optometrist will inform the family physician, if known, by telephone or letter.

Typically, a recommended report provides the consulting practitioner with the major reason for referral and the

clinical findings of the optometric oculo-visual examination. In all cases, a copy is sent to the family physician to ensure that he/she is informed of the condition and receives subsequent reports from the ophthalmologist or other practitioner.

Oculo-visual Examination Summary

To keep the family physician informed about the ocular and visual status of optometric patients not actively requiring referral, an oculo-visual examination summary can be prepared which summarizes the optometric diagnoses and treatment recommendations. These reports may be used to provide information to assist the general practitioner in the daily management of his/her patients. For example, a patient may have an ocular component to headaches, or perhaps is developing ocular or visual changes as a result of taking certain medications. Another example is of patients with diabetes, who require regular retinal examination. Up-to-date information regarding these and other conditions is supplied to the family physician by means of these examination summaries.

Student Vision Report

Reports can be sent to school teachers, special educators, psychologists and other professionals who work with children with vision, reading and/or learning difficulties. The purpose of these reports is to indicate whether or not there may be a visual component to the child's problems. Clinical findings, diagnoses and recommendations are included in these reports.

CONCLUSION

An optometrist functions as a primary health care provider who specializes in the examination, diagnosis, treatment, management and prevention of diseases and disorders of the visual system, the eye and associated structures.

In terms of primary care, optometrists play an active part in prevention as well as eye health education, promotion and maintenance.

The role of today's optometrists has expanded to include a wide range of services which include but are not limited to the following areas: spectacle therapy, contact lenses, children's vision, geriatric vision, low vision, occupational vision, binocular vision, sports vision, anterior segment eye disease and follow up care for laser refractive eye surgery.

The education and clinical training of optometrists continues to progress to meet the future needs of patients.

As new technologies emerge in the field of vision and eye health care, Optometry will continue to keep pace with new developments

APPENDIX

A. Scope of Practice of Canadian Optometry

APPENDIX A

I. While the Scope of Practice of Optometry may vary between provinces due to legislation, today's optometrists have the didactic and clinical training to provide a wide range of services. The following list describes services that all optometrists across Canada are licensed to provide.

1. Routine Examination

- Case History
- Habitual visual acuities
- Habitual binocular vision
- Refraction
- Ocular health assessment
- Diagnosis and recommendation

2. Supplementary Diagnostic Procedures

- Aniseikonia
- Anterior or posterior ocular photography
- Biomicroscopy (anterior or posterior ocular structures)
- Binocular indirect ophthalmoscopy
- Colour vision testing
- Corneal topography
- Cycloplegic refractive examination
- Contrast sensitivity testing
- Electrodiagnostic testing
- Gonioscopy
- Intraocular pressure testing
- Visual fields
- Low vision assessment
- Sports vision assessment
- Visual perceptual testing (visual efficiency, visual information processing, visual motor)

Optometrists are licensed to use topically applied diagnostic pharmaceutical agents for diagnosing disease or abnormal conditions of the eye, adnexa and visual system.

3. Treatment Services

- Spectacle treatment
- Contact lens treatment
- Vision therapy (including sports)
- Low vision
- Visual perceptual training (visual efficiency, visual information processing, visual motor)

Optometrists are also licensed to provide the following services:

- monitoring ocular manifestations of systemic conditions, and referring for treatment as required (e.g. patients with diabetes).
- pre and post surgical care (e.g. cataract or refractive surgery)
- other tests and procedures that are clinically indicated and within the scope of practice of optometrists.

II. Optometrists who are certified to prescribe a Therapeutic Pharmaceutical Agent (TPA) may prescribe and use topical eye drops/ointments for the treatment of ocular diseases and abnormal conditions as outlined by provincial bylaws.

In some jurisdictions there may be restrictions on the treatment of certain conditions such as glaucoma or posterior uveitis which may require co-management with a physician or referral to an ophthalmologist within certain time guidelines.

Optometrists certified to prescribe TPAs may remove foreign bodies from the eye when appropriate, perform punctal dilation and insertion of punctal plugs when clinically indicated.

III. In situations where secondary care is not immediately available, a primary care optometrist's skill and expertise can be utilized to stabilize a patient's ocular condition. This will be done in conjunction with the primary care physician, and may or may not lead to referral to an ophthalmologist for secondary care.

The various conditions that require secondary care that an optometrist can provide differential diagnosis can be classified within the following categories:

- STAT conditions (treatment started within minutes) e.g. chemical burn;
- URGENT conditions (treatment started within hours) e.g. acute angle closure glaucoma;
- SEMI-URGENT conditions (treatment started within hours) e.g. orbital cellulitis;

In each case the treatment may involve co-management with the primary care physician and a referral to an ophthalmologist may be required.

Laboratory testing may also be required for the differential diagnosis of some ocular conditions. This may be provided by co-management with the primary care physician.

In all cases optometrists will treat within the scope of practice of their provincial legislation and make timely referrals as required or deemed necessary.

Optometrists, as primary health care practitioners, are trained to take an active role in the management of vision and eye health problems. Co-management with the primary care physician will allow early diagnosis, treatment, or stabilization of patients. Secondary care can then be obtained as required.