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#### **HPRAC Questionnaire Re Eye Care Sector Issues**

**1) In order of priority, what do you think are the key issues facing the eye care sector?**

i) Demographics-aging population and aging pool of ophthalmologists

ii) Collaborative Care Models-need for integration vs. isolation

The current regulatory environment, which will introduce expanded scopes of practice for optometrists, runs the risk of establishing an independent clinical model where optometrists and ophthalmologists are functioning in isolation. This type of model would lead to an inefficient use of resources and concerns around patient safety.

**2) In your view, how can the key issues be resolved? What is your organization prepared to do to resolve them?**

We are prepared to work collaboratively with all groups involved in the delivery of eye care, as well as regulatory bodies, to develop collaborative care models optimizing the skill set that each group processes. By working collaboratively models can be developed that:

i) Ensure Patient Safety

ii) Improve Patient Access

iii) Optimize Resource Utilization- "The right professional at the right time"

Many of the conflicts and barriers to collaboration that have been identified in the past relate to rules and regulations regarding association of one eye care profession with another at the point of care, and limited collaboration among health Colleges in the development of regulations, standards of practice, guidelines and rules.

- 3) What should be the role of the health Colleges in defining and regulating appropriate business practice and business or professional association, and what is the rationale for your view? How are patients and the public interest served by such rules and regulations?

The Colleges need to communicate/collaborate in order to structure rules of professional association, and conflict of interest guidelines that are uniform and equitable.

**example.** It is not equitable to consider a physician prescribing and dispensing spectacles to be a conflict of interest when this is not considered to be a conflict of interest for an optometrist.

Uniformity of business practices, professional association and conflict of interest guidelines would improve patient choice and would stimulate an appropriate regulatory environment in which competition and market forces would be allowed to more appropriately influence pricing of products and services.

Ultimately potential conflicts of interest will always arise in a doctor/patient relationship. The fundamental reason for this is the difference in information possessed by the doctor vs. the patient. This power differential can lead to conflicts of interest in the sale of products (spectacles, lens implants, pharmaceuticals etc.), and the ordering diagnostic tests (fundus photography, pre-operative measurements etc). Clear, uniform guidelines need to be developed by the colleges around "informed consent" for these services. As well certain business models should be discouraged.

**example.** Many leasing agreements for diagnostic equipment (Optos Map, OCT) are volume based. This type of agreement can lead to undue temptation and pressure to over prescribe these diagnostic tests.

- 4) Please identify the basic principles that should guide any regulations regarding business practice, professional association and conflict of interest. (For instance, accountability of professional to the patient; patient access to appropriate care; obligation of professional to rebuff influences that interfere with professional judgment ...)

See above

- 5) How could collaboration among the opticianry and optometry professions be improved through changes to regulations and standards respecting business practices and association of professions? For instance:
- i. Should there be common conflict of interest regulations for both the professions of opticianry and optometry?
  - ii. Should there be common advertising regulations for both opticianry and optometry?
  - iii. Should the same code of ethics govern both professions?

What other matters should be considered?

N/A to ophthalmology

- 6) What steps could be taken to ensure that, if the regulations and ethical codes are the same for the professions of optometry and opticianry, they are developed jointly; or if not the same, that they are developed through significant consultation with the other profession?

N/A to ophthalmology

- 7) Should members of the eye care professions be permitted - or encouraged - to work together to provide patient care in a collaborative business partnership, corporate enterprise or professional team, or in the same setting? How can this best be accomplished? What are the benefits? What are the drawbacks? What are the standards that need to be in place to ensure that the patient is the focus of care, rather than the interests of the professionals?

There are tremendous potential benefits to encouraging the development of "Eye Care Teams". This type of multidisciplinary structure could capitalize on collaborative models developed through an "Eye Health Council" made up of representation from the leadership of all groups encompassed by the teams (see below). These multidisciplinary teams would need to clearly define scopes of practice of the groups involved.

#### Benefits

- i) "Right professional at the right time"
- ii) Easier access to patient information/decreased duplication services
- iii) Efficient use of fixed capital
- iv) Streamlined referral process

#### Drawbacks

- i) Inappropriate scopes of practice if not properly defined
- ii) Potential conflicts of interest-inappropriate referrals

Clear standards around scope of practice and standardized conflict of interest guidelines would help ensure a patient centered model.

- 3) Are there issues that need to be addressed in the sharing of patient records among professionals in a collaborative practice or among professionals who share care of a patient? Are current regulations and statutory requirements appropriate, or are changes required? How can professions collaborate in developing shared standards in the absence of electronic health records?

Standards are currently adequate.

- 9) Would the regulation of optical premises (similar to the regulation of pharmacies under the Drug and Pharmacies Regulation Act in Ontario, or comparable to the regulation of optical premises in other jurisdictions) be in the public interest? Why or why not? What elements should be included in such legislation or regulation were it to be enacted? What is the impact on, or benefit, to the patient?

A similar regulatory environment of optical premises similar to Drug and Pharmacies Regulation Act is NOT necessary. These are completely different products i.e.) there are no concerns around product storage, narcotics etc.

- 10) A number of leaders in the eye care sector have suggested that an Eye Care Network or more formal organization, in Ontario, involving, perhaps, the health Colleges, professional associations, educators, retail corporations and suppliers would contribute to the development of all of the professions, and how they work together to benefit their patients.

- i. Is this a viable option and would it add value in patient care? In professional relations? In clinical competencies? In integrating new technologies or systems? In other ways?

The formation of an Eye Health Council is a very viable option and would add value to patient care. We have been working closely with the Ontario Association of Optometry (OAA) since late 2006 in an attempt to develop such an organization. We have agreed with the OAO that the primary providers of eye health in the province are the ophthalmologists and the optometrists. As such, any models designed to enhance inter-professional collaboration in the delivery of eye care would primarily be developed by these two groups. It is also recognized that Family Physicians are involved in the delivery of some eye care and are often the first point of access for patients seeking help. Consequently Family physicians need to be invited to participate in such a group in some fashion. Similarly other groups such as opticians and industry would need to be invited to participate as specific needs around education and information dissemination arise.

Both community and academic ophthalmology and optometry need to be actively involved in this group. It is envisioned that this Council would develop models of inter-professional collaboration for various disease entities involving the eye. Such a model for eye care as it pertains to diabetes has already been developed and agreed to through collaboration between the OMA Section on Ophthalmology and the OAO. Academic involvement is important in order to allow academic programs to incorporate these models into training methodology. There has been great interest on the part of academic optometry to improve the clinical component of optometric training by participating in ophthalmology training programs and clinics. The vast majority of Canadian Ophthalmology Programs, with the exception of one, have expressed concern over resource availability to provide this experience. This is primarily due to lack of resources, space and preceptor numbers in hospital based academic programs. In fact, presently, resources are barely adequate to provide training for the current numbers of ophthalmology residents, medical students and post-graduate trainees. In the future should resources be made available to provide this experience clear guidelines must be established as to scopes of practice and goals of training. Clinical training curriculum and expected competencies could be developed through the Eye Health Council. Such a group could greatly enhance professional relations by clearly defining scopes of practice and roles in the delivery of collaborative eye care. Currently, these roles and scopes of practice cannot be adequately determined by each group and college functioning in isolation. This type of Council could also play an advisory role as to the incorporation of new technologies, treatments and pharmaceuticals into clinical practice.

- ii. How would you see the establishment of such an organization in Ontario (e.g., a possible mandate, whether it should be voluntary or mandatory, i.e., a regulated body as occurs in some jurisdictions). What should be the specific roles of health colleges, professional associations, educators and the retail sector; how should funding and governance be addressed?**

Please see **Draft Terms of Reference** attached

We would envision the role of the Eye Health Council as advisory as opposed to regulatory. The implementation of collaborative models would ultimately occur at a local level. This would depend on local resources and needs. Advice around regulatory change would need to be acted upon by the Colleges and Government.

- iii. What other options could be pursued for ongoing dialogue among the professions and is an organized forum necessary?**

An organized forum is absolutely necessary. Without such an organization there will exist 1000 points and sources of information and advice. The OMA Section on Ophthalmology represents the 300+ ophthalmologists of the province just as the OAO represents the optometrists of the province. Various academic leaders, splinter groups and societies function with narrow special interests and motivations. Just as organized government is necessary to draft legislation so too is an organized forum necessary to draft guidelines around the coordinated collaborative efforts of delivery eye care. Without government and without such an organized group exists anarchy. Ultimately two clinical models would arise with resulting inefficiencies, increasing costs and questionable patient safety. Efforts by government or their agents to seek advice would be schizophrenic and tainted by individual and narrow goals of self interest.

- 11) Opticianry, optometry and medicine (general practice and ophthalmology) are all regulated health care professions in Ontario, each with differing - and sometimes overlapping - scopes of practice. Historical and cultural differences among the professions, often having little to do with delivering optimal patient care, have resulted in longstanding antipathies and misunderstandings between or among these professions and their regulators.**

- i. How can respect among the three professions best be fostered, and what opportunities need to be**

**provided so that each of the professions understands and appreciates the skills, knowledge and qualifications of the other, and is able to work in a trusting, collaborative relationship with members of other professions?**

The key component to fostering respect and trust among the eye care professions is a clear delineation of scopes of practice and core competencies. This cannot be accomplished by each group identifying what they are able to do in isolation of the practical experience of other groups with overlapping scopes of practice. Many examples of this exist and have created difficulties in other areas of medicine.

**example.** Issues of patient safety and questionable clinical outcomes have occurred in the area of cosmetic/plastic surgery. Physicians practicing in Family Medicine, Pathology and other unrelated medical disciplines expanded their scope of practice to include cosmetic procedures and identified themselves as having competencies beyond their training. As a result of questionable outcomes the College of Physicians and Surgeons (CPSO) had to intervene to protect the public and restrict the use of terminology that may confuse the public. The CPSO has also developed guidelines around changing scopes of practice.

The fundamental difference between the CPSO and The College of Optometry (COO) is that, as in the example sighted above, the CPSO can rely on the advice of specialists (the most highly trained) when drafting guidelines around scopes of practice. Unfortunately this does not occur with the COO as they are relying on other optometrists to make recommendations around scopes of practice and core competencies. This reliance is flawed as optometrists just like Family Physicians are not the most highly trained group and therefore are not qualified to judge their qualifications to expand their scopes of practice ("you don't know what you don't know"). Very similar issues arise around the concerns that optometrists have with opticians expanding their scope of practice.

**ii. To what extent does this already occur?**

The establishment of scopes of practice and core competencies already occurs to some degree at a local level where each group develops a mutual respect for the clinical capabilities and mutual levels of comfort in managing various diseases.

- iii. What is the role of joint entry-to-practice education and joint continuing education in enhancing such understanding? Is public education required?**

There is no role for joint entry-to-practice education as the level of training is very different between the groups. With clearly defined scopes of practice and curriculum there may be a role for ophthalmologists training "optometrists to be better optometrists" (that is to say to perform better within their defined scope of practice). This training could occur through continuing education efforts or through properly developed externships.

Public education is an important component to defining scopes of practice. The public should not be given the false impression that the "services" offered are ubiquitous and simply a matter of "consumer choice". Just as differences exist between Plastic Surgeons and Family Physicians offering Plastic Surgery services, there are clear differences in the services and capabilities of ophthalmologists versus optometrists.

- iv. Would joint health College professional development and continuing competence programs be useful in engendering trust and respectful working relationships? How can joint professional clinical experience, through clinical practice requirements, externships and other mechanisms at the educational level be introduced or enhanced? What steps have been taken to date to do so?**

See above

- 12) Please cite examples of successful inter-professional collaboration among eye care professions (including family physicians and general practitioners), educators or regula-**

tory organizations that have occurred or are occurring to date. For any unsuccessful projects undertaken within the past five years, please briefly describe them and explain why they failed.

Please see attached Model for Diabetic Eye Care, jointly developed by the OMA Section on Ophthalmology and the OAO. Also of note the OMA Section on Ophthalmology organizes an annual educational day in Primary Eye Care for family physicians. This educational event rotates around the province and is typically well attended. It is an ideal forum for educating family doctors about common eye problems and how to manage them.

- 13) In HPRAC's recent interviews, we heard that each eye care profession should practice to its highest level of competence, and this should be a continuing evolution, with each profession, within its scope of practice and under its controlled acts, taking on roles that reflect its members' growing knowledge, skills and judgment. We live in a society that is characterized by demographic change: an aging population, increased incidence of diseases or conditions that might impact eye health, and that these health care matters need to be addressed, in a co-ordinated way, by eye care professionals.

(This question is somewhat redundant.)

- i. How can the three professions work together to recognize this demographic change, to incorporate new proficiencies, accountabilities and skills of members of each profession so they are recognized and applied to patient care and to address increasing demand for appropriate eye healthcare?

The ideal forum for this is a multi-disciplinary group as identified above "Eye Health Council"

- ii. How confident are you, or members of your profession, about the clinical knowledge, skills and judgment of other professions that provide eye care to meet patient care needs? What needs to improve,

**and how can it be improved? What new information do you need to comprehend the roles and qualifications of eye care colleagues?**

We feel that other professions, namely optometrists, have a tremendous role to play in the delivery of eye care. However, we feel that this would be most effective through the implementation of collaborative models as opposed to the establishment of an independent isolated model of delivery. As identified above, models for collaboration can be developed for eye diseases that identify levels of morbidity that optometrists are able to manage independently versus levels of morbidity that require the more highly trained skill set of an ophthalmologist.

Such models will greatly enhance the delivery of eye care in terms of patient access and efficiency, while assuring patient safety.

**iii. Do you see evolving roles (e.g.. optometrists accepting, with appropriate training and skills, more responsibility for medical therapeutics) as a benefit for the patient, or as a matter that impacts financial sustainability for other professions? Can enhanced scopes of practice for some professions offer advantages for others in increased time and opportunity to care for patients with increased morbidity and complexity? How can competing professional interests be balanced in favour of the patient?**

See above

**14) What does your organization's ideal eye care world look like?**

Our ideal eye care world would consist of all the professional groups involved in the delivery of eye care working together as a team to provide the high quality eye care, improved patient access and the most efficient utilization of resources anywhere in the world.

**15) Are there other issues that you would like to raise for HPRAC's consideration? Please describe.**

Respectfully Submitted,

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Chair, OMA Section on Ophthalmology

# Draft Terms of Reference for An Ontario Eye Health Council

## Mandate

To support the provision of accessible high quality eye care to the population of Ontario by ensuring the best, most effective use of the continuum of eye care professionals in the interests of patient safety, quality of care, and cost-effective delivery.

The Challenge:

There are continuing concerns about access to appropriate eye care services in Ontario, with access varying across different parts of the province depending on the availability of health professionals across the entire spectrum of eye care delivery.

## GOALS

The Ontario Eye Care Council represents a forum and opportunity to:

1. Allow for maintenance of high quality eye care making the best use of all expertise available.
2. Avoid placing the public at risk
3. Avoid placing undue stress on providers of eye care that may further impair the system
4. Make the best and most cost effective use of resources available to Ontarians
5. Provide educational information to the public on how to most rapidly gain access to the appropriate level of eye care for their needs.

The Ontario Eye Care Council will help to achieve these goals by:

1. By providing a high-level forum for interprofessional collaboration, facilitating knowledge transfer among participants
2. Developing flow charts to help optometrists, ophthalmologists, and family physicians deliver eye care in the most effective way. For example, to identify how diabetics should be screened; by whom and at what point should higher level of care be sought.
3. Developing innovative ways to define levels of screening and care making best use of latest knowledge and technology.

### The Model in detail:

The eye care council **through the cooperation and support of the Ministry** with the direction of participating professionals will facilitate knowledge transfer among the participants to ensure best practices in the delivery of eye care to Ontarians. These plans will be reviewed with the other members of the council and modified as necessary to allow for further consideration of council recommendations. Any implementation of the recommendations will be the sole responsibility of the respective professional Colleges, who will remain the sole determiners and arbiters of professional competence for their profession. Traditional paradigms will not be allowed to block introduction of new best practice models.

The inter-professional care model will be implemented allowing for the broader delivery of care by optometrists with support and input from ophthalmologists.

The end result should be the collaborative delivery of accessible, safe, quality eye care to the population by the provider best positioned to do so in their area of the province. Wait times should

decrease, quality of care should improve, and adverse outcomes should be minimized. The independent professional Colleges will continue to ensure public safety through regulation of their professional members. The Council, through knowledge transfer and cooperative sharing of best practice information, will be positioned to provide valuable information to all participants, including the Ministry, to continually improve the delivery of eye care in Ontario.

#### Eye care council Membership will consist of:

**Ministry of Health:** To provide strategic counsel to the Council as it relates to the health care system and the Ministry's stewardship.

To appoint a senior bureaucrat (not to be a physician, optometrist, optician or industry representative) to observe, consult and provide Ministry guidance and to assist in the implementation of a consult fee from optometry to ophthalmology.

**Ophthalmology:** Representatives of the most educated leaders in eye health care, providing the highest level of medical and surgical care. Ophthalmologists are physicians regulated by the College of Physicians and Surgeons of Ontario and certified by the Royal College of Surgeons of Canada.

To provide information that will assist in the development of treatment paradigms and facilitate the provision of eye care by those participants involved in its delivery and to work with the Colleges and Ministry to provide an audit system to review the risks and outcomes of treatments.

**Optometry:** Optometrists are the primary eye care professionals trained in the assessment, diagnosis, management and prevention of conditions of the eye and vision system. They provide treatment or correction of conditions of the eye and vision system through dispensing of eyeglasses or contact lenses and are regulated by the College of Optometrists of Ontario. Optometrists were recently given the ability to prescribe medications, with the goal of extending and improving the access for primary eye care to Ontarians.

To provide information that will assist in the development of treatment paradigms, and facilitate the provision of eye care by those participants involved in its delivery, and to work with the Colleges and Ministry to provide an audit system to review the risks and outcomes of treatments. Both groups are to work cooperatively to determine levels of accreditation; continually extend the completeness and availability of eye care in the province, and ensure that referrals are timely, efficient, and effective.

**Family Physicians:** Family Physicians are often the initial contact with the patient and as such have critical knowledge relating to their patients' overall health. They play a pivotal role in determining how treatment may impact their patients overall health and in accessing other health professionals.

To identify areas of eye care that patients are having difficulty accessing and participate in the development of patient referral streams. Family physicians will benefit from improved guidelines relating to the most appropriate direction of referral for their patients with eye complaints (optometrist vs ophthalmologist).

#### Expanded Contributors

It is recognized that other groups influence the delivery of eye care in the province. These groups are not involved in the provision of eye health and would not be actively involved in the development of collaborative models. They would be involved as the need arises for dissemination of information and educational purposes.

**Opticians:** Opticians have specialized training in the fitting, dispensing and proper use of glasses and other optical aids. Opticians form a critical link between the prescribed optical treatment (by

Optometrists and Ophthalmologists) and their practical implementation by the patient. They ensure safe application and monitoring of treatment and are well positioned to provide education to members of the public plus screening and referral to Optometrists and Ophthalmologists.

**Industry:** Private industry provide the basic tools for examination and surgery, and optical devices (glasses, contact lenses and intraocular lenses) and, as such, are a key partner in the delivery of safe, quality, cost-effective eye care in Ontario.

To provide continuing support for providers.. To follow approved protocols for marketing of medications to optometry and ophthalmology.

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## **Guidelines for the Collaborative Management of Persons with Diabetes Mellitus by Eye Care Professionals**

### **Background:**

Diabetes is a disease that is growing rapidly in both incidence and prevalence in Ontario (in fact, dramatically exceeding the global estimates of the World Health Organization), and poses a major public health challenge on many fronts (1). More specifically, diabetic retinopathy is the most common cause of new cases of legal blindness in people of working age (2, 12).

Approximately 12% of new cases of blindness are caused by diabetic retinopathy, and people with diabetic retinopathy are 25 to 29 times more likely than the general population to become blind within four years (3, 13). As many as 20% of patients newly diagnosed with type 2 diabetes (90% of cases of diabetes are type 2) having some evidence of diabetes-related eye disease at the time of diagnosis; approximately 5% will need immediate treatment to help prevent permanent vision loss. Within 7 years of diagnosis, 50% of patients with type 2 diabetes will have developed diabetes-related changes to the eye. By 15 years, this number increases to as many as 85%, with 25% requiring treatment (3). In type 1 diabetes, essentially 100% of patients will exhibit some diabetes-related eye disease 15 to 20 years after diagnosis (3, 8).

Vision loss from diabetic retinopathy is best treated, and, in fact, may be prevented, if caught in time (4). Unfortunately, US and Australian data show that 50% of people with diabetes are not receiving regular eye examinations (9, 10). These numbers are staggering when extrapolated to the approximately 2 million Canadians currently living with diabetes (one-third of whom are unaware they are diabetic), a number predicted to increase by 50% by the end of the decade (5). Further, the vascular changes that occur within the eye are predictive of vascular changes occurring elsewhere in the body (6, 7).

Eye care providers face a challenge in the management and coordination of care for patients with diabetes. The delivery of eye care must provide cost effective and efficient use of resources to minimize preventable vision loss.

*“Preventing blindness in people with diabetes is uniquely cost-saving and cost-effective.  
There are few cases in health care that are so self-evident.”*

*JC Javitt, MD, MPH*

*“Blindness: We Know What It Costs! Now What?”  
Cost of Blindness Symposium (11)*

**Goal:**

The goal of these guidelines is to coordinate the services of ophthalmologists, optometrists and family physicians in the management of patients with diabetes, thereby ensuring the most effective use of these professionals in the interest of patient safety, quality of care, accessibility and cost effectiveness.

**Roles:****Family Physician:**

The first step in preventing ocular complications from diabetes is identifying the population at risk. Family physicians are responsible for identifying the majority of patients with diabetes and play a key role in the care and treatment process. As the coordinator of patient care, the family physician should promptly refer any newly diagnosed diabetic patient for an assessment by an optometrist and ensure established patients with diabetes attend an optometrist annually or as recommended by the optometrist. Ideally, each referral would be accompanied by lab results, including fasting blood glucose, HbA1c, and lipid profile.

**Optometrist:**

Optometrists will assess patients, on an annual basis at minimum, for ocular complications of diabetes and should provide a report of the findings to the family physician. In cases where diabetic eye disease is detected, optometrists should use generally accepted criteria (Appendix 1) when managing and/or referring the patient to a general ophthalmologist or retinal specialist. Referral for subsequent care should include a report to the ophthalmologist and family physician.

**Ophthalmologist:**

Ophthalmologists are responsible for assessing and (if necessary) treating diabetic eye disease to prevent, minimize or restore vision loss. Patients with diabetic eye disease who remain at high risk of vision loss should continue to be monitored by the ophthalmologist. Acceptance of patients referred from the optometrist should respect generally accepted guidelines (Appendix 1) and include a report to the optometrist and family physician.

All professionals share the common role of ensuring their patients are educated with respect to diabetes in general, and their specific clinical situation.

**Conclusion:**

The coordination of health care resources is essential in the care and treatment of patients at risk for ocular complications from diabetes. Timely optometric assessment of newly diagnosed diabetic patients will identify patients at risk for diabetic eye disease. Early intervention and treatment of eye disease through appropriate and timely referral for ophthalmologic care will assist in the preservation of quality vision for patients with diabetes. Inter-professional guidelines and generally accepted management and referral criteria will ensure appropriate coordination of care and the most effective use of health professional resources.

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## Appendix 1

### Diabetic Retinopathy (DR) Disease Severity Scale

#### No Apparent Diabetic Retinopathy

#### Non-proliferative Diabetic Retinopathy (NPDR)

- Mild to moderate NPDR – micro-aneurysms, intra-retinal hemorrhages, hard exudates, foveal avascular zone abnormalities
- Moderate to severe NPDR – cotton wool spots, venous beading, intra-retinal microvascular abnormalities (IRMA)
- Severe NPDR (4-2-1 rule) – any one of: severe (>20) intra-retinal hemorrhages in each of four quadrants; definite venous beading in two or more quadrants; prominent IRMA in one or more quadrant(s).
- Very severe NPDR – any two of the above criteria.

**Proliferative Diabetic Retinopathy (PDR)** – one or more of: neovascularization (of the disc – NVD (particularly greater than 1 disc diameter in size); elsewhere – NVE); vitreous/pre-retinal hemorrhage.

#### Clinically Significant (Diabetic) Macular Edema (CSME)

- any retinal thickening within 500 microns of the center of the macula (fovea), or;
- retinal thickening at least one disc area in size, any part of which is within one disc diameter of the center of the macula (fovea), or;
- hard exudates within 500 microns of the center of the macula (fovea) with adjacent retinal thickening.

It is important to note that hard exudates are a sign of current or previous macular edema. CSME may be focal (leakage from micro-aneurysms or IRMA) or diffuse (leakage from the underlying capillary bed). CSME is the most common cause of decreased vision and blindness among patients with diabetes, and may occur concurrent with any stage of diabetic retinopathy.

## Management Criteria

Management of patients with diabetes and/or diabetic retinopathy (DR) should be consistent with generally accepted protocol. The following criteria should be considered:

- Mild to moderate NPDR – generally, patients with this degree of DR can be safely monitored by their optometrist every six to twelve months, with caution being taken to monitor for CSME (which necessitates an urgent referral to a retinal specialist). The one-year risk of progression to early PDR is 5.4 to 11.9%, and 16% of patients with mild to moderate NPDR progress to PDR within 4 years.
- Moderate to severe NPDR – these stages merit more frequent monitoring by an optometrist, generally at least every 6 months depending upon severity and co-morbidities; caution must be exercised in the presence of increasing retinal ischemia. The one-year risk of moderate NPDR progressing to early PDR is 26.3%, and 8.1% for progression to high-risk PDR.
- Severe and very severe NPDR – these presentations necessitate prompt referral to an ophthalmologist/retinal specialist, as they often indicate imminent PDR (the one-year risk of severe NPDR progressing to early PDR is 50.2%, and between 14.6% (for severe NPDR) and 45.0% (for very severe NPDR) for progression to high-risk PDR), and may warrant prophylactic laser surgery. Appropriate laser surgery can reduce the risk of severe vision loss/vitreectomy by 50%, particularly in patients with type 2 diabetes.
- CSME – as noted above, the presence of CSME necessitates an immediate referral to an ophthalmologist/retinal specialist for the consideration of fundus fluorescein angiography, and grid and/or focal laser photocoagulation. Appropriate laser treatment can reduce the risk of vision loss by more than 50%.