

Enhancing vision care integration: 1. Development of practice algorithms

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ABSTRACT • RÉSUMÉ

Background: Appropriate access to the best quality of vision care is enhanced when patients receive eye care services from the right professional, at the right time, and in the right place. This paper, the first in a two-part series, describes the development of an integrated framework for vision care delivery. Specifically, two patient-centred vision care algorithms for the multidisciplinary management of diabetic retinopathy and the red eye are outlined, and the process that resulted in their development is described.

Methods: The method used relies on a description of a multidisciplinary collaboration that occurred among ophthalmologists, optometrists, general practitioners and representatives of the Nova Scotia Department of Health with the aim of developing an integrated patient-focused multidisciplinary framework for vision care delivery.

Results: The process of collaborative negotiation among the four groups resulted in the development of multidisciplinary algorithms for the screening of patients with diabetes mellitus and the treatment of those presenting with a red eye.

Interpretation: Professional scope of practice has always been a contentious issue among health care professions. However, where parties agree to work within an atmosphere of respect and to accept guidance in areas of disagreement from a third party respected by all, compromise is possible. The result was the development of two vision care algorithms and ongoing efforts on the development of other algorithms.

Contexte : L'accès approprié aux meilleurs soins oculaires s'améliore lorsque les patients reçoivent ceux-ci du bon professionnel, au bon moment et au bon endroit. Cet article, le premier de deux, décrit la mise au point d'un cadre d'intégration des soins oculaires. Il traite particulièrement de deux algorithmes de soins oculaires centrés sur le patient pour le traitement multidisciplinaire de la rétinopathie diabétique et de l'œil rouge, et décrit le procédé qui a résulté de leur élaboration.

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Méthodes : La méthode utilisée consistait à amener les ophtalmologistes, optométristes, omnipraticiens et représentants du Ministère de la santé de Nouvelle-Écosse à définir un mode de collaboration multidisciplinaire permettant de mettre au point un cadre de prestation intégrée des soins oculaires centrés sur le patient.

Résultats : Le processus de négociation entre les quatre groupes a eu pour résultat la mise au point d'algorithmes multidisciplinaires pour le dépistage des patients qui ont le diabète sucré et le traitement de ceux qui sont atteints de l'œil rouge.

Interprétation : Le champ d'exercice des professions a toujours été un sujet de controverse dans le domaine de la santé. Toutefois, le compromis devient possible lorsque les parties concernées sont d'accord à travailler dans une ambiance de respect et acceptent d'être conseillées par une tierce partie respectée de tous pour résoudre leurs divergences. Il en est résulté la mise au point de deux algorithmes de soins oculaires et la poursuite du développement d'autres algorithmes.

The Romanow Commission report has identified timely access to effective health care as a major concern of Canadians.¹ Evidence also shows that ophthalmologists provide almost 70% of their services to patients aged 65 years or more, and population projections indicate that the number of citizens within this age group will increase dramatically in the next decade.² Given this projected aging of the population and the concomitant reduction in the numbers of ophthalmologists across Canada,³ it is imperative that vision care programs be designed to provide timely access to effective and efficient care. The way to accomplish these multiple objectives is to develop an integrated model of vision care that ensures that patients receive the proper vision care service from the right person, at the right time, at the right place, and at the right cost.

DRIVERS OF CHANGE IN NOVA SCOTIA

Data from the Nova Scotia Department of Health indicate that the number of ocular surgical procedures (age-standardized per 1000) increased from 5.2 in 1992–93 to 11.07 in 2000–01.⁴ Similarly, cataract extraction rates per 1000 increased from 4.0 in 1992–93 to 8.5 in 2000–01.⁴ This increase represents a doubling of the rate in 8 years. In addition, 80% of Nova Scotians over 30 years of age with diabetes mellitus are not being seen annually by an ophthalmologist or optometrist⁵ as recommended by the Expert Committee of the Canadian Diabetes Advisory Board.⁶ This low screening rate may result in those at risk presenting with advanced eye disease, a reduced

chance of effective treatment and eventual progression to preventable vision loss.

At the time of this study there were 46 registered ophthalmologists in Nova Scotia. More than 30% of these will be over the age of 65 by 2005. Ophthalmologists tend to reduce their workload at this age, thus further decreasing the active complement.³ Two other factors exacerbate this situation. The first element relates to the number of ophthalmologists entering the workforce. In 1994 there were approximately 45 licensed ophthalmology graduates from residency programs in English-speaking Canada.⁷ This number has since dropped to 22 owing to a 50% reduction in residency positions. Unfortunately, these workforce changes are occurring at a time when the population — and ophthalmologists themselves — are aging. The second factor is the change in ophthalmologist practice patterns as some ophthalmologists become involved in the delivery of uninsured services such as keratorefractive surgery. Moreover, this combination of factors exists throughout Canada, and adequate access to vision care services will decrease dramatically unless a better framework for vision care delivery is developed.³

Studies have shown that health care that is delivered in an integrated and coordinated manner uses human and fiscal resources effectively.⁸ Fortunately, such a system is being implemented in Nova Scotia. This new model had its beginnings about a decade ago when the concerns related to decreased access to ophthalmologists were becoming obvious to ophthalmologists in the province. Informal meetings were initiated by an academic ophthalmologist and a com-

munity-based counterpart along with two optometrists and a general practitioner. The discussions identified enough common ground among the three groups, and this led to a strategic decision to develop an integrated model of vision care for the province. This led to the formation of the Eye Care Working Group (ECWG), with the mandate of developing guidelines for the clinical integration of vision care services. The aim of the group was to improve the coordination of vision care so as to enhance timely access to health care services.

This new model will ensure that vision care is provided by an appropriate mix of professionals and allows ophthalmologists to provide care that cannot be delivered by other medical practitioners. This mode of delivery will also help alleviate the inevitable pressures on eye care delivery resulting from the aging population and the reduced numbers of ophthalmologists.

THE EYE CARE WORKING GROUP

In 1994 an ECWG of two ophthalmologists (one university-based, one community-based), two optometrists (both community-based) and a family physician (community-based) as well as members of the Nova Scotia Department of Health met to develop a comprehensive model of vision care that would address the lifetime primary vision care needs of all Nova Scotians. In order for the ECWG to succeed, it was essential that these stakeholders work together toward a common goal. Although optometrists and ophthalmologists have not always agreed on scope-of-practice issues, there was a pervasive feeling that if they worked collaboratively to develop a "patient-centred" vision care program, the scope of practice of general practitioners, optometrists and ophthalmologists would be defined more clearly. The groups worked intermittently over the following 3 years to determine impediments to collaboration so as to improve overall access to vision care through the use of a patient-centred collaborative model. To speed up the process and keep the group focused on the issues, a non-ophthalmologist senior physician who was well regarded by all groups was appointed by the Nova Scotia Department of Health to facilitate discussions among the three professional groups and representatives of the department.

The group then focused on two specific eye problems commonly encountered by general practitioners,

optometrists and ophthalmologists: the person with diabetes needing diabetic retinopathy screening and the patient presenting with "red eye." This resulted in the development of two sets of patient-centred collaborative algorithms for these conditions. The first set of algorithms, entitled "Ocular management of the diabetic patient" (Fig. 1) and "Optometric management of the diabetic patient" (Fig. 2), were designed to prevent vision loss in people with diabetes by enabling them to receive the proper care. The second set of algorithms were entitled "Management algorithm for the red eye based on presumed diagnosis" (Fig. 3) and "Optometric management of the red eye" (Fig. 4).

PRACTICE ALGORITHMS

Diabetic retinopathy

The prevalence of diabetic retinopathy in Canada is estimated to be 5%.⁹ As outlined earlier, it has been observed that a majority of Nova Scotians with diabetes were not being screened at appropriate intervals by an ophthalmologist or optometrist.⁵ The proposed diabetic screening algorithms were designed to allow patients under an ophthalmologist's care to continue to be assessed by the ophthalmologist. An ophthalmologist may choose to send a patient to a diabetic screening centre for further documentation and confirmation of disease. Patients in whom macular edema develops or with high-risk characteristics can then be treated with laser photocoagulation. Family physicians who make the diagnosis of diabetes have the option of referring the patient to an ophthalmologist, optometrist, endocrinologist or other medical specialist or to a fundus photography centre. Patients under an optometrist's care can continue to be monitored and followed for the presence and progression to a level of minimal diabetic retinopathy. This is defined as the presence of five microaneurysms or less and a visual acuity of 6/6, except when other, previously investigated causes of vision loss are present. Patients identified with greater than minimal retinopathy should be referred to a photographic screening centre or to an ophthalmologist.

Red eye

The principal sign of any insult to the eye and its adnexa is redness. The red eye is not a diagnosis but,

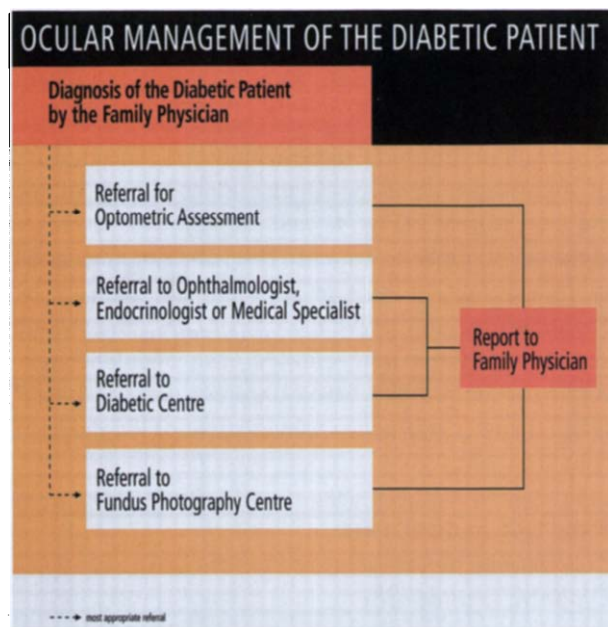


Fig. 1—Ocular management of the diabetic patient.

rather, a clinical indicator of a problem. Although the problem may be minor and no threat to the patient, it can represent a potentially blinding eye disease or even a life-threatening condition. The first algorithm, "Management algorithm for the red eye based on presumed diagnosis" (Fig. 3), outlines the common causes of red eye and identifies which professionals (i.e., family physician, optometrist or medical/surgical specialist) should be responsible or is appropriate

for management of the patient. The second algorithm, "Optometric management of the red eye" (Fig. 4), describes the general principles and processes involved when the initial caregiver is an optometrist. Clinical assessment and management are carried out independently and in consultation with medical and surgical specialists when required. The importance of patient education, follow-up and obligatory notification of the patient's family physician are acknowledged.

FUTURE WORK

The ECWG is currently working on other patient-centred multidisciplinary collaborative algorithms for the treatment of glaucoma and screening for strabismus and amblyopia. However, the group decided in 2001 that the diabetic retinopathy and red eye algorithms were ready for dissemination and implementation throughout Nova Scotia. In the following paper we describe a study that was carried out to gather input from ophthalmologists, optometrists and general practitioners into the implementation of the algorithms. The overall aim of the study was to fulfil the goal of the ECWG: to facilitate the integration of vision care services in Nova Scotia by implementing these algorithms into the practices of vision care professionals and general practitioners. Integration will be achieved because implementing a system-wide guideline for a particular practice or service increases

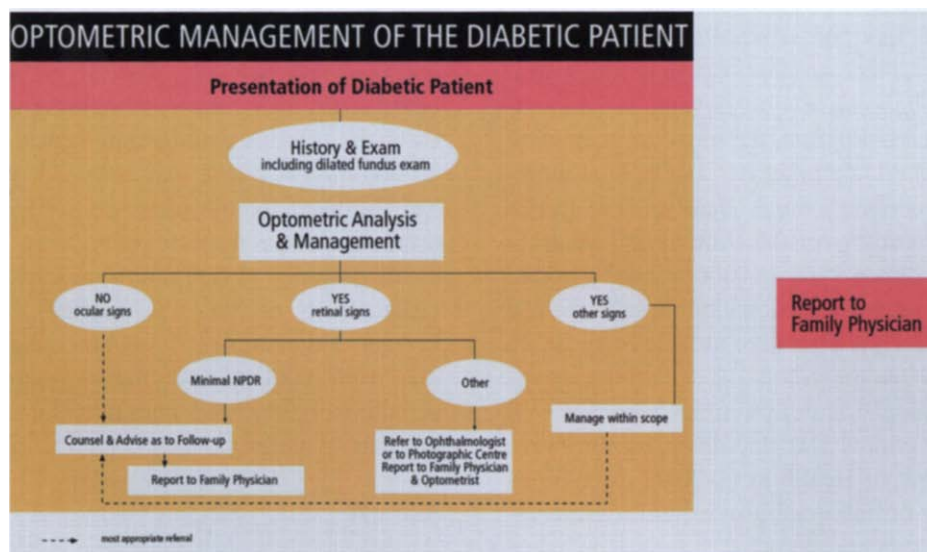


Fig. 2—Optometric management of the diabetic patient. NPDR = nonproliferative diabetic retinopathy.

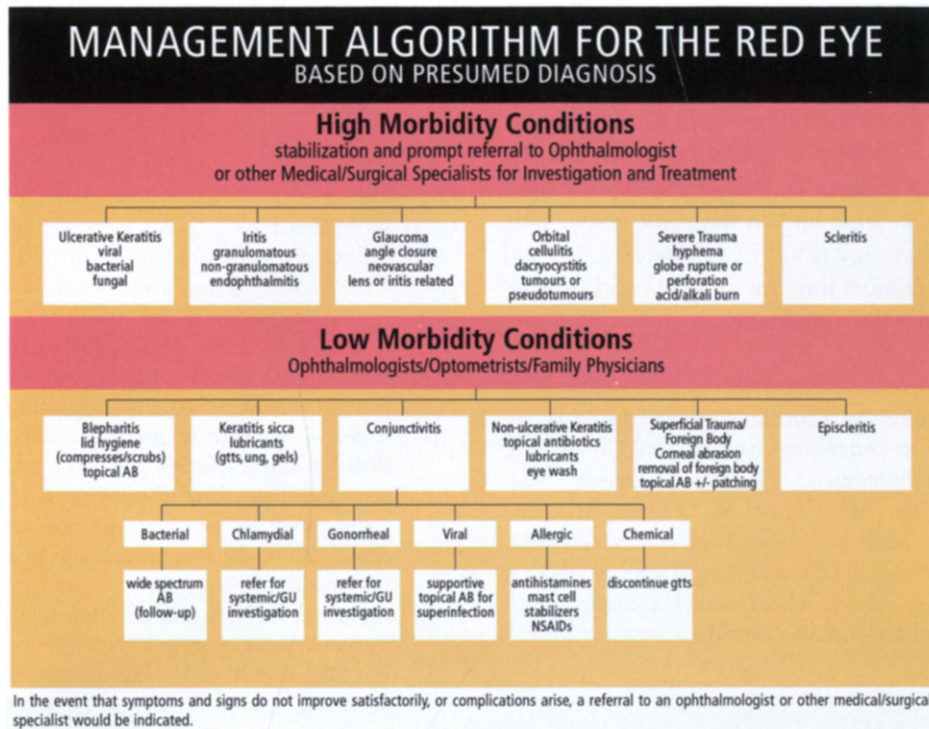


Fig. 3—Management algorithm for the red eye based on presumed diagnosis. AB = antibiotics; GU = genitourinary.

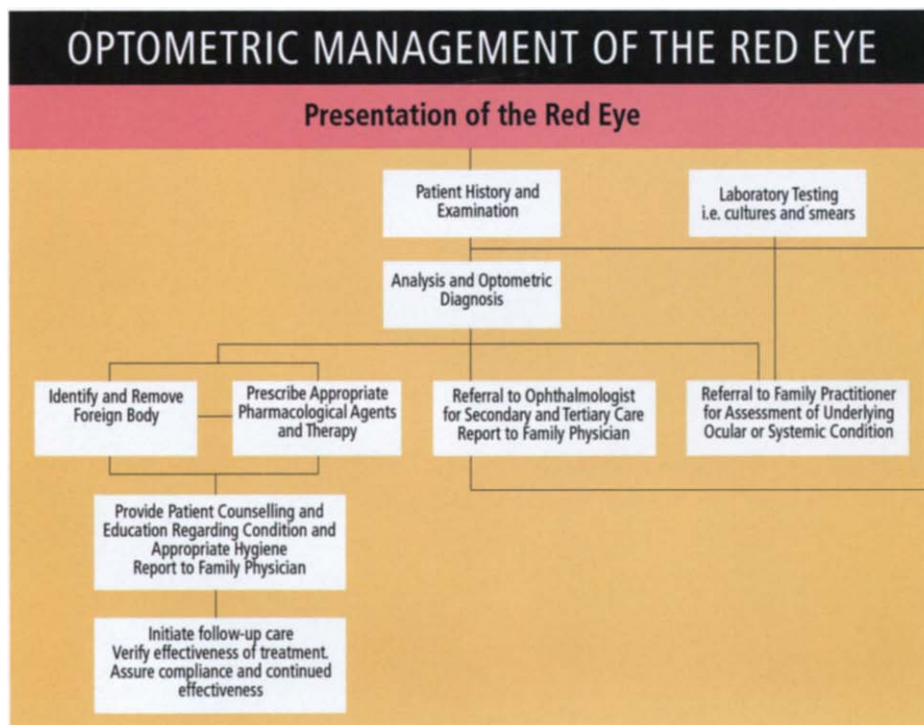


Fig. 4—Optometric management of the red eye.

standardization and reduces variability of that service. It may also decrease the duplication of many tasks and procedures by avoiding unnecessary visits to the same professional and avoiding visits to several professionals. These guidelines will also ensure that the patients requiring vision care will be seen by the right person at the right time and in the right place. This streamlining effect may result in a more efficient and effective use of clinical time for general practitioners, optometrists and ophthalmologists.

The following people were very involved in the elaboration of the process and of the algorithms presented in this and the following article: committee chair: Richard Goldbloom, OC, MD; ophthalmologists: Vladimir Kozousek, MD, Raymond P. LeBlanc, MD, Daniel M. O'Brien, MD, and Paul Rafuse, MD; family physician: Mark Kazimirski, MD; optometrists: Carl Davis, OD, and Dave Dobblesstyn, OD; and representatives of the Nova Scotia Department of Health: Marianne Ellis and Abe Almeda.

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