

THE OPPORTUNITY FOR INTERNATIONAL OPHTHALMOLOGY IN TREATING BLINDNESS*

BY Bruce Spivey, MD

ABSTRACT

As our worldview has become more pervasive, there has been a maturation of various international ophthalmological organizations. They have created several new initiatives that have the potential to dramatically affect preventable and treatable blindness, worldwide.

The first international ophthalmological organization (the International Council of Ophthalmology, established in 1927) evolved from the longest continuously held medical meeting in the world (the International Congress of Ophthalmology, first held in 1857). Subsequently, a number of supranational and international organizations have been created, and these groups are beginning to communicate with each other and with national ophthalmological societies in joint planning. The international nongovernmental organizations, lay ophthalmic international organizations (eg, International Agency for the Prevention of Blindness), and the World Health Organization have recently joined to create a proposal called *Vision 2020: The Right to Sight*. The International Council in partnership with Academia Ophthalmologica Internationalis has created a parallel and complementary plan, *Vision for the Future*.

The potential to alleviate or prevent blindness in over 150 million people requires our attention.

Understanding the seemingly complex interrelationships of these many organizations—often unfamiliar to American ophthalmology—is important for the uniquely strong ophthalmic organizations in the United States. American involvement can make a difference.

This presentation describes the background, relationships, and present plans, which, if implemented, will have a tremendous impact on treatable and preventable blindness and the level and quality of ophthalmic services throughout the world.

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INTRODUCTION

Over 2 million people each year go blind from treatable or preventable ocular disorders (Table I). The history and causes of blindness are well known. The magnitude of its incidence and prevalence is less well known. Two thirds of the over 160 million cases of blindness or serious visual impairment are avoidable. Cataract is the cause of three fourths of the cases of blindness. This paper describes the 150-year maturation process of international ophthalmology, its recent efforts and organizations, and 2 parallel and compatible efforts to confront blindness worldwide.

WORLDWIDE COOPERATION

Only since the latter half of the 20th century has it been possible to treat most forms of blinding conditions with consistently positive outcomes and to prevent blinding conditions such as vitamin A deficiency, trachoma, and onchocerciasis. For decades, there have been individuals and organizations dedicated to the alleviation of blindness in local, regional, and international purview.

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Coordination, however, has been sporadic. Given the maturity of international organizational structures and relationships, there are now several worldwide coordinated efforts, separate but parallel, distinct but intertwined, that are focusing on dramatically reducing worldwide blindness.

The prevention and treatment of blindness may be categorized under the public health sector (ie, prevention) and the ophthalmologic sector (ie, treatment solutions) (Table II). Governments and international nongovernmental organizations (INGOs), with the assistance of the World Health Organization (WHO), International Agency for the Prevention of Blindness (IAPB), World Bank, and other groups, are dedicated to prevention efforts. These same groups, along with ophthalmologists, are involved in treatment programs.

Substantial impact is now possible on account of a combination of advances in pharmacology and technology. First, medications for onchocerciasis, trachoma, and vitamin A deficiency are now widely available. Second, new technologies, sutures, and intraocular lenses in cost-affordable components are available in developing countries. Third, organizational maturity and focus, coupled with cooperative commitment by a variety of (and even competing) entities, have been linked in sufficient degree to create the momentum necessary to launch the

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TABLE I: STATISTICS RELATED TO BLINDNESS

160+ million people have visual impairment
 Two thirds of cases of blindness are avoidable
 Three fourths of cases of blindness are due to cataract (30+ million people)
 6+ million people are blind from glaucoma, 6+ million from trachoma
 60% of cases of blindness are in India, China, and Sub-Saharan Africa
 Blindness increases at an estimated rate of 2 million cases per year
 The number of people over age 45 will double (to 1 billion) by 2020

TABLE II: PREVENTABLE AND TREATABLE BLINDNESS

Preventable blindness: Largely a public health solution

- Vitamin A deficiency
- Trachoma
- Onchocerciasis

Treatable "blindness": Largely an ophthalmologic solution

- Cataract
- Diabetic retinopathy
- Glaucoma
- Congenital/heritable disorders (surgically amenable)
- Refractive errors

worldwide challenge of alleviating blindness.

There are many international ophthalmic organizations. The International Council of Ophthalmology (ICO), established in 1927, evolved from the International Congresses of Ophthalmology, which date from 1857 (Fig 1). National ophthalmology societies,

many in existence for over 100 years, are linked by the International Federation of Ophthalmological Societies (IFOS), established in 1933. The IAPB was established in 1975 by the ICO and the World Blind Union. Academia Ophthalmologica Internationalis (AOI) was also established in 1975. INGOs have evolved in the past 70 or more years. Also, over the past 50-plus years, supranational organizations have developed; these groups play regional roles in education and relationship building. Groups are the Pan-American Association of Ophthalmology (PAAO), established in 1939; the European Ophthalmological Society (SOE), established in 1956; the Asia-Pacific Academy of Ophthalmology (APAO), established in 1958; the Afro-Asian Council of Ophthalmology (AACO), established also in 1958; and the Pan-Arab African Council of Ophthalmology (PAACO), established in 1989. A large number of international sub-specialty organizations are becoming more prominent.

VISION 20/20 AND VISION FOR THE FUTURE

Several years ago, the INGOs, IAPB, and WHO began to plan for an effort called *Vision 20/20: The Right to Sight*. The focus of this effort is to eradicate most preventable and treatable blindness by the year 2020. The program is now in an early implementation stage after having been publicly announced in early 1999.

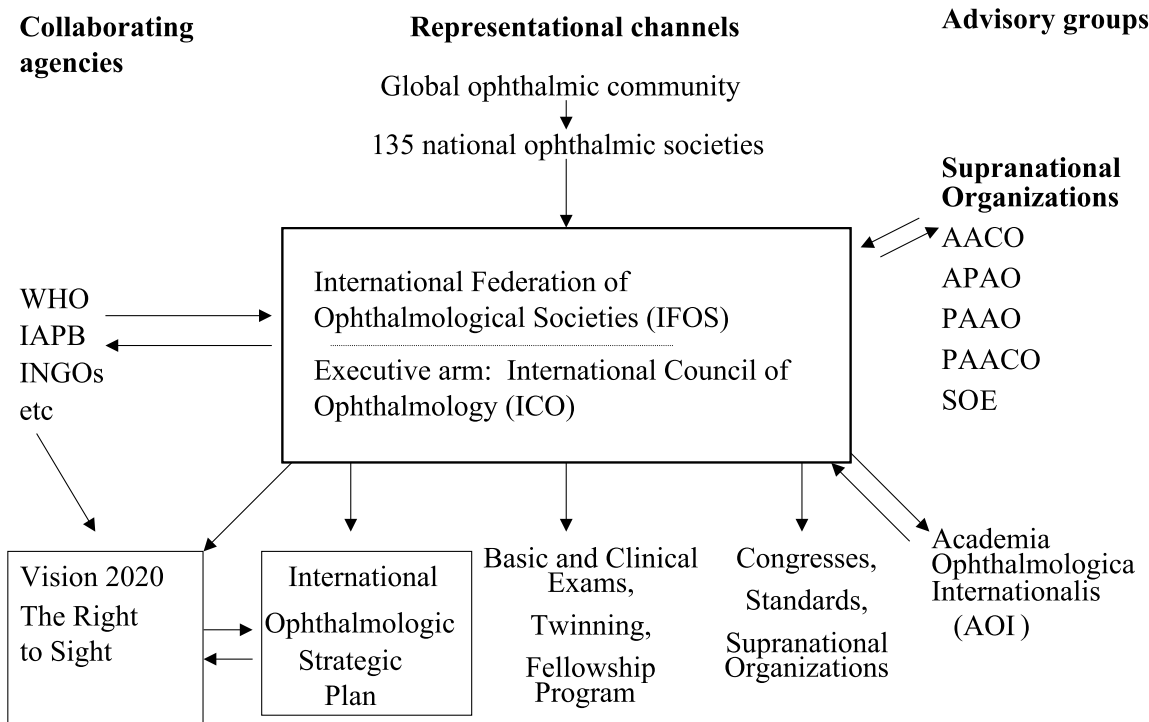


FIGURE 1

Components of international ophthalmology.

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Earlier in 1999, international ophthalmology through the ICO and the AOI, along with a variety of consultants, began a planning effort concluded in early 2001. This effort, parallel to and supportive of *Vision 20/20*, is called *Vision for the Future*. It is to be implemented under the aegis of the ICO, and it focuses on the knowledge and skills particularly unique to or in the province of ophthalmology and ophthalmologists. The program is beginning to gain momentum.

The commitment and focus of ophthalmology's international efforts are directed toward developing countries, but the products and outcome of these efforts are applicable and useful in developed nations as well.

GOALS

Vision for the Future has 5 major goals:

1. Ophthalmologic education and training
 - A. To provide curricula for allied health, medical student, and residency education
 - B. To provide individual assessment of resident performance (basic and clinical science assessment programs)
2. Ophthalmology continuing education
 - A. To identify and disseminate appropriate curricular content
 - B. To disseminate educational materials
3. Eye care guidelines
 - A. To develop clinical guidelines that define appropriate care for existing capabilities
 - B. To disseminate and continue to develop guidelines for all ophthalmologists to ensure a basic international standard
4. Advocacy for the preservation and restoration of vision
 - A. To facilitate global initiatives for elimination of avoidable blindness (*Vision 20/20: The Right to Sight*)
 - B. To mobilize ophthalmologists and governments by their understanding of and interest in blinding disorders worldwide
5. Research in ophthalmology and vision
 - A. To facilitate basic and clinical science focused on global needs
 - B. To provide particular emphasis on the acquisition of clinical population and epidemiological research skills

Substantial progress has already been made in developing curricula and clinical guidelines. Continuing medical education surveys are complete. Advocacy and research are never-ending challenges that require substantial augmentation. Educational curricula and clinical guidelines are being made available through the ICO Web

site (www.icoph.org) and then through the various supra-national and national ophthalmological organizations.

Vision for the Future includes commitments to the conditions of glaucoma and diabetic retinopathy that were not part of the initial *Vision 20/20*.

Vision 20/20 has 3 major areas of focus.

1. Control of major causes of blindness
 - A. Cataract
 - B. Trachoma
 - C. Onchocerciasis
 - D. Childhood blindness (vitamin A deficiency and surgically treatable disorders)
 - E. Refractive errors and low vision
2. Human research development
 - A. Community workers
 - C. Secondary and tertiary professionals with emphasis directed toward Africa
3. Infrastructure and appropriate technology development
 - A. Infrastructure, including the structure itself, finances to support, and motivation to continue
 - B. Technology

Vision 20/20 is to be developed and implemented by plans created in each country. Efforts are currently under way; the challenge is for multiple organizations to come together for the funding and functionality required. The various INGOs are continuing their plans and priorities, which are being considered as part of the overall *Vision 20/20* plan.

The immediate task is to closely link these 2 major efforts by building on the strengths of the parties involved. Ophthalmologists alone can create curricula, basic and continuing education materials, basic and clinic ophthalmic assessment examinations, clinical guidelines, and ophthalmic research. Once accomplished, especially in developing countries, these efforts will markedly facilitate eye care and, thus, *Vision 20/20*.

CONCLUSION

Together with the WHO, IAPB, and INGOs, the international ophthalmic community can advocate for support to prevent and treat world blindness. Such an effort will require the cooperation of individual ophthalmologists, their organizations, and INGO-led and INGO-supported infrastructure to deal with cataract, diabetes, diabetic retinopathy, glaucoma, surgically treatable childhood blindness, and refractive errors.

The INGOs and IAPB, with support and curricula from ophthalmologists, can and must create the primary care human resources capability and infrastructure necessary to support the final implementation of blindness prevention and treatment.

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The common good is obvious, and the tasks are clear but daunting. Close coordination, as well as sublimation of ego and the natural desire to control, will be required. Good will, thoughtful coordination, consistent communication, and persistence of commitment will be necessary for success.

Ophthalmologists in developed countries have a particular role and responsibility in the implementation of both *Vision 20/20* and *Vision for the Future*.

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DISCUSSION

DR ALFRED SOMMER, MD, MHS. Bruce Spivey's presentation could not be more timely. The dramatic advances in ophthalmic knowledge and surgical techniques of the past quarter century are matched, if largely disconnected from, the growing collaboration among nongovernmental organizations (NGOs) mounting a global campaign to prevent blindness.

The challenge laid out by Dr Spivey is quite simply: How can ophthalmologists and their professional societies best enhance the global initiative against avoidable blindness? The simple answer is, not easily! It is not that ophthalmology has too little to offer, but rather too much.

Individual ophthalmologists have played important roles in generating the global initiative:

- Barry Jones, Chan Dawson, Hugh Taylor, Allen Foster, myself, and others provided insights and energy into (public health) approaches that are reducing the burden of onchocerciasis, trachoma, and xerophthalmia.
- Venkataswamy, Ruit, Albrecht Hennig, and others have perfected high volume, low cost, efficient cataract surgery that has established a single, global standard for quality outcomes.
- Ed Maumenee joined with John Wilson in creating the International Agency for Prevention of Blindness (IAPB), (relinquishing the presidency of IAPB's forerunner, the International Association for the Prevention of Blindness, in the process).¹

Success of public health prevention programs, and growth in the number of elderly, ensures that cataract and other surgically remedial conditions will increasingly account for the vast majority of unnecessary blindness in the world. By training, qualifications, and licensure, these conditions can only be dealt with by ophthalmologists.

The problem is that there are not enough ophthalmologists, performing enough surgery, in the places that most need them:²

- There is 1 ophthalmologist per 10,000 population in the US; 1 per 100,000 in India; and 1 per million in (urban) Sub-Saharan Africa.
- The average American ophthalmologist performs 10 times as many cataract operations a year as the average Chinese ophthalmologist.
- The average ophthalmologist is exquisitely responsive to market forces: Despite millions of cataract blind, Chinese ophthalmologists in Beijing, Shanghai, Guangzhou, Chengdu, and other large cities perform more refractive surgery than cataract surgery.

The problem is not purely of ophthalmology's making. Government policies determine the number of trained ophthalmic surgeons, and directly or indirectly influence their behavior. (The UK's National Health Service waiting list for cataract surgery is presently 6 months; for privately funded surgery it is less than 6 weeks).

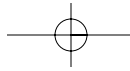
NGOs, the World Health Organization, "summits," and "strategic plans" can quantify global blindness and launch valuable demonstration projects and initiatives. But none of this can solve the problem until incentives and market forces engage the broad ophthalmologic community in providing eye care to all who need it.

Dr Spivey, whose understanding of ophthalmologists, their organizations, and behavior is unmatched, has provided our profession another useful service. By introducing us to the magnitude and parameters of the global challenge, and the multitude of agencies that would be our allies, he has taken the first, vital step in engaging ophthalmology in a crusade that cannot succeed without it.

REFERENCES

1. Wilson J. *World Blindness and Its Prevention*. Oxford: Oxford University Press; 1980.
2. West S, Sommer A. Prevention of blindness and priorities for the future. *Bull WHO* 2001;79:244-248.

DR BRUCE E. SPIVEY. I would like to thank all the discussants, particularly Dr Sommer who is universally acknowledged as a world leader in International Ophthalmology. His work on Vitamin A, with which I hope all of you are conversant, establishes a standard of treatment not only for the prevention of blindness but to protect life itself. Al



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is being appropriately recognized for this dramatic breakthrough worldwide.

“Vision for the Future” and “Vision 2020” are huge endeavors and we are just getting started. Any of you who have ideas or interests let me or other members of the International Council know. AOS members, Brad Straatsma, Mark Tso and Paul Lichter, your President, are

also members of the International Council of Ophthalmology. I appreciate this opportunity to inform you about something with which you may not have been conversant. I look forward over the years to your involvement and to giving you updates about our progress. Thank you.

