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YEAR BOOK OF OPHTHALMOLOGY[®] 2001

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Wills Eye Hospital[®]

2001

The Year Book of OPHTHALMOLOGY®

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2001 EDITION

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Printed in the United States of America
Composition by Thomas Technology Solutions, Inc
Printing/binding by Maple-Vail

Editorial Office:
Mosby, Inc
11830 Westline Industrial Dr
St Louis, MO 63146
Customer Service: hhspcs@harcourt.com

International Standard Serial Number: 0084-392X
International Standard Book Number: 0-323-00345-1

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**2001
YEAR BOOK OF
OPHTHALMOLOGY®**

Statement of Purpose

The YEAR BOOK Series

The YEAR BOOK series was devised in 1901 by health professionals who observed that the literature of medicine and related disciplines had become so voluminous that no one individual could read and place in perspective every potential advance in a major specialty. That has never been more true than it is today.

More than merely a series of books, YEAR BOOK volumes are the tangible results of a unique service designed to accomplish the following:

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- to *select* from those journals papers representing significant advances and statements of important clinical principles
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- to provide *informed commentary* about their relevance

These publications grow out of a unique process that draws on the talents of outstanding authorities in clinical and fundamental disciplines, trained literature specialists, and professional writers—all supported by the resources of Mosby, the world's preeminent publisher for the health professions.

The Literature Base

Mosby and its editors survey approximately 500 journals published worldwide, covering the full range of the health professions. On an annual basis, the publisher examines usage patterns and polls its expert authorities to add new journals to the literature base and to delete journals that are no longer useful as potential YEAR BOOK sources.

The Literature Survey

More than 250,000 peer-reviewed articles per year are scanned systematically—including title, text, illustrations, tables, and references—by the publisher's team of literature specialists. Each scan is compared, article by article, to the search strategies that the publisher has developed in consultation with the nearly 200 outside experts who form the pool of YEAR BOOK editors. A given article with broad scientific or clinical implications may be reviewed by any number of YEAR BOOK editors, from one to a dozen or more, regardless of the discipline for which the paper was originally published. In turn, each editor who receives the article reviews it to determine whether it should be included in his or her volume. This decision is based on the article's inherent quality, its relevance to readers of that YEAR BOOK, and the editor's goal to represent a comprehensive picture of a given field in each volume of the YEAR BOOK. In addition, the editor indicates when to include figures and tables from the article to help the YEAR BOOK reader better understand the information.

Of the quarter million articles scanned each year, only 5% are selected for publication within the YEAR BOOK series, thereby assuring readers of the high value of every selection.

The Abstract

The publisher's abstracting staff is headed by a seasoned medical editing professional and includes individuals with extensive experience in writing for the health professions. When an article is selected for inclusion in a YEAR BOOK, it is assigned to a member of the abstracting staff. The abstractor, guided in many cases by notations supplied by the physician editor, writes a structured, condensed summary designed to rapidly communicate to the reader the essential information contained in the article.

The Commentary

The YEAR BOOK editorial boards, sometimes assisted by guest contributors, write comments that place each article in perspective. This provides the reader with insights from authorities in each discipline that point out the value of the article and that often reflect the authority's thought processes in assessing the article.

Additional Editorial Features

The editorial boards of each YEAR BOOK organize the abstracts and comments to provide a logical and satisfying sequence of information. To enhance the organization, editors also provide introductions to sections or individual chapters, comments linking a number of abstracts, citations to additional literature, and other features.

The published YEAR BOOK contains enhanced bibliographic citations for each selected article, including extended listings of multiple authors and identification of author affiliations. Each YEAR BOOK contains a Table of Contents specific to that year's volume. From year to year, the Table of Contents for a given YEAR BOOK may vary, depending on developments within the field.

Every YEAR BOOK contains a list of the journals from which articles have been selected. This list represents a subset of approximately 500 journals surveyed by the publisher and occasionally reflects a particularly pertinent article from a journal that is not surveyed routinely.

Finally, each volume contains a comprehensive subject index and an index to authors of each selected article.

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Mosby and its editors survey approximately 500 journals for its abstract and commentary publications. From these journals, the editors select the articles to be abstracted. Journals represented in this YEAR BOOK are listed below.

Administrative Eyecare
American Journal of Managed Care
American Journal of Neuroradiology
American Journal of Ophthalmology
American Journal of Pathology
Annals of Neurology
Archives of Ophthalmology
British Journal of Ophthalmology
Canadian Journal of Ophthalmology
Cornea
Current Opinion in Ophthalmology
Diabetes Care
Investigative Ophthalmology and Visual Science
Japanese Journal of Ophthalmology
Journal of Cataract and Refractive Surgery
Journal of Pediatric Ophthalmology and Strabismus
Journal of the American Association for Pediatric Ophthalmology and Strabismus
Journal of the American Medical Association
MGM Journal
Medical Economics
New England Journal of Medicine
On Managing
Ophthalmic Plastic and Reconstructive Surgery
Ophthalmology

STANDARD ABBREVIATIONS

The following terms are abbreviated in this edition: acquired immunodeficiency syndrome (AIDS), cardiopulmonary resuscitation (CPR), central nervous system (CNS), cerebrospinal fluid (CSF), computed tomography (CT), deoxyribonucleic acid (DNA), diopter (D), electrocardiography (ECG), health maintenance organization (HMO), human immunodeficiency virus (HIV), intensive care unit (ICU), intramuscular (IM), intravenous (IV), magnetic resonance (MR) imaging (MRI), ribonucleic acid (RNA), ultrasound (US), and ultraviolet (UV).

NOTE

The YEAR BOOK OF OPHTHALMOLOGY® is a literature survey service providing abstracts of articles published in the professional literature. Every effort is made to assure the accuracy of the information presented in these pages. Neither the editors nor the publisher of the YEAR BOOK OF OPHTHALMOLOGY® can be responsible for errors in the original materials. The editors' comments are their own opinions. Mention of specific products within this publication does not constitute endorsement.

To facilitate the use of the YEAR BOOK OF OPHTHALMOLOGY® as a reference tool, all illustrations and tables included in this publication are now identified as they

appear in the original article. This change is meant to help the reader recognize that any illustration or table appearing in the YEAR BOOK OF OPHTHALMOLOGY® may be only one of many in the original article. For this reason, figure and table numbers will often appear to be out of sequence within the YEAR BOOK OF OPHTHALMOLOGY®.

Publisher's Preface

The publication of the 2001 YEAR BOOK series marks the 100th anniversary of the original Practical Medicine Series of Year Books. To commemorate this milestone, each 2001 Year Book includes an anniversary seal on the cover. The content and format of the Year Books remain unchanged from the beginning of the last century—each volume consists of abstracts of the best scholarly articles of the year, accompanied by expert critical commentaries.

The first Year Book appeared in 1900 when Gustavus P. Head, MD, produced the first *Year Book of the Nose, Throat and Ear*, a volume consisting of highlights from the previous year's best literature, enhanced by expert observations. Dr Head assembled a small group of distinguished physicians to serve as editors, and the first series of Year Books was published in 1901. The first volumes of the Year Book series—*General Medicine*, *General Surgery*, *The Eye*, *Gynecology*, *Obstetrics*, *Materia Medica and Therapeutics*, *Pediatrics*, *Physiology*, and *Skin and Venereal Diseases*—appeared at monthly intervals, with 10 volumes published in 1 year. The entire series was met with critical enthusiasm.

In 1904, Dr Head's brother, Cloyd, assumed responsibility for the management of the Year Books. In 1905, the volumes began to appear at regular intervals during the calendar year instead of on a monthly basis. By World War I, the Year Books had been established as an authority on medical and surgical progress.

The postwar period brought about a significant change in the practice of medicine: specialization. To accommodate the rise of specialization in medicine, the Year Books were now sold as individual volumes rather than only as a complete set. This change brought about a tremendous response and sales of the books increased. In 1922, the Year Books became even more specialized, as the books now had different editors for the different medical specialties covered in each volume. Later, in 1933, the title of the series changed from the Practical Medicine Series of Year Books to the Practical Medicine Year Books to reflect these new designs.

The Year Books have grown significantly from the first 10-volume series in 1901 to a diversified series of 32 volumes in 2001. That the Year Book series is the only series of their kind to have survived is a testament to the vision and commitment of its founders. Some minor changes in format and design have occurred throughout the years, but the mission of the Year Book series—to provide a record of exceptional medical achievements distinguished by the reflections of many of the great names in medicine today—has remained constant.

Introduction

Unfortunately and increasingly, ophthalmologists are getting access to new information about the care of patients in their specialty through “throw-away” newspapers like *Ocular Surgery News* and *Ophthalmology Today*, and journals like *Ophthalmology Management and Review of Ophthalmology*. This trend is understandable in the Information Age where a huge amount of information is at the fingertips of anyone with Internet access, where talks presented at the American Academy of Ophthalmology become articles in the throw-away news many months before they appear as papers in *Ophthalmology*, and when ophthalmologists struggling to increase volume to offset declining reimbursement rates and increasing overhead costs have only time for short summaries of recent advances. For these practitioners, who on average are more harried yet poorer than their predecessors, the price of the throw-aways is right, the force-feeding of one’s mail bin with throw-aways provides easy access, often with copies coming to the same individual at multiple branch offices, and the presentation of information fits their lifestyle.

On the downside, peer-review is almost nonexistent. The reports of studies are frequently biased by the author or influenced by the pharmaceutical company, the instrument maker, or the technology purveyor supporting the investigation. Many of the statements that I see published in the throw-away publications are self-serving and biased, with some being at odds with the views held by most experts in the field. In this environment, the YEAR BOOK stands out as a thorough review of the world’s literature, hand picked by experts who add their own views, and presented in small bites that are easily assimilated. The information is packaged so that there is the feeling of closure whether one is forced to stop after studying for 3 hours on a Saturday morning or 20 minutes between dinner and putting the kids to bed. The addition of legal and practice management advice from national experts along with a section on current socioeconomic issues is value added to the applied science presented.

I hope you appreciate the efforts of the experts Mosby has assembled and supported. If you have suggestions that would make the YEAR BOOK more helpful to you and help us evolve in the information age, please contact me at wilson@willsglaucoma.org.

Richard P. Wilson, MD

Evidence-Based Practice

Evidence-Guided Ophthalmology

Fong DS, Ferris FL III (Univ of California, Los Angeles; NIH, Bethesda, Md)
Arch Ophthalmol 119:585-589, 2001

Background.—As we enter the next century, ophthalmologists are expected to make clinical decisions based on scientifically obtained evidence rather than on intuition or hearsay or other less rigorously tested sources. An approach to evidence-guided ophthalmology (EGO) is described that involves asking a specific question to elicit the information you seek, identifying scientifically tested sources for that evidence, and evaluating the evidence. The ultimate goal is to incorporate it into clinical decision making.

EGO Step 1: Ask a Specific Question.—Posing a well-formed question that can be answered by the available literature requires knowledge of that literature. Reading peer-reviewed journals is important for many reasons, not the least of which is the ability to keep abreast of new developments in the field. A question contains 3 parts: exposure (what a patient is exposed to), outcome (the precise end point evaluated), and setting (the narrowly defined group or condition to which the evidence applies). Thus, for example, you might ask, “does oral aspirin therapy (exposure) affect vitreous hemorrhage (outcome) in patients with diabetes mellitus (setting)?”

EGO Step 2: Identify Sources of Information.—Electronic literature databases are a superb source of information, and ones such as the National Library of Medicine’s (NLM) MEDLINE can be easily accessed on a desktop computer via the Internet. MEDLINE asks you to identify query terms for performing the search, and it provides drop-down menus so that you can narrow the search based on the article’s language or type, the sex and age of the study group, and other parameters. Once appropriate articles are identified, read the abstracts to determine which articles are worth pursuing. The full text of an article can be obtained from interlibrary loan programs (such as DOCLINE) or the NLM’s Loansome Doc, and many journals are now on-line.

EGO Step 3: Evaluating the Evidence.—Even in peer-reviewed journals, the level of evidence can vary from one article to another. You must be able to separate hard evidence from conjecture meant to stimulate further inquiries. A working group for evidence-based medicine identified 3 specific questions to ask when evaluating evidence. First, are the results valid? In other words, how do the methods used affect the results? Were the patients randomly assigned to the active drug and placebo groups, and were all patients (even the drop-outs) accounted for? The latter point is extremely important, as the study population may not have been adequately followed up to ensure compliance with the study protocol, or

withdrawals may have occurred due to adverse effects of the study drug, and so forth. Additionally, were the patients and the study personnel unaware of which treatment group the patient was assigned to (ie, masking)? Were the treatment groups similar at baseline and treated equally throughout the study? All of these factors can influence how you should interpret the results. Second, what are the results? Are they dose-dependent (which confirms that the effect is related to the treatment) and/or biologically plausible, and have other clinical trials found similar results? Bias and confounding factors can significantly influence reported results. Too, there's always a chance that the results were due to chance, and the tightness of the confidence intervals reflects the magnitude of this uncertainty. A confidence interval that includes 1.0 indicates that there may be no true difference between active drug and placebo treatments. Third, can the results be applied to your patients? Are the patients in the study similar to yours (check the inclusion/exclusion criteria), and were all the clinically important outcomes assessed according to accepted clinical standards? Furthermore, the benefit/risk ratio and the study drug's impact on quality of life issues can be major determinants of whether your patients will accept the treatment.

► This descriptive article provides a primer of the elements of EGO; it covers framing the question, getting the evidence from electronic sources, evaluating the evidence, and applying the results to patients. The article uses the results from several studies to demonstrate application of a format developed by the Evidence-Based Medicine Working Group for evaluating the evidence for treatments.¹

This article serves to alert ophthalmologists to the need for an evidence-based approach in their clinical practice, and it demonstrates how such evaluation can help to assess treatment outcomes. The authors provide an important reference, the user's guide on how to use an article about therapy or prevention. However, unstated is the fact that there are some 20 other articles included in the Evidence-Based Medicine Working Group User's Guide to the literature. Each addresses a different type of study and each provides the proforma and/or caveats relative to evaluating the evidence when derived from that type of study design. Hence, one should not underestimate the magnitude of acquiring the knowledge base and fundamental skills needed to evaluate the broad range of studies a clinician might need to pursue. This is nothing to say about the additional understanding and command of study design, biostatistics, and fundamentals of clinical research that some would say is necessary to enable reviewers to critically evaluate reports of clinical studies.

So while it is laudable, this article underestimates the nature of the task and the magnitude and extent of the problem. Is it reasonable to assume that busy clinicians can discern through all the evidence that they must use in their busy clinical practices? Furthermore, those of us who know and teach fundamental critical appraisal skills remain skeptical of the practicality of this approach, given the 30 or more minutes we require to digest each article in more detail after we retrieve it and decide to consume it. The fact

is that it is unreasonable to expect clinicians to sort their way through flawed literature to find the evidence that they need to define their clinical practices. And, would this be necessary if the literature, when published, had already been exposed to critical review and had been made right before leaving the desks of the editors?

The recent push for the practice of evidence-based medicine is not new. It follows on prior efforts in the 1980s to teach clinicians the fundamentals of clinical epidemiology and medical decision making, to enable them to evaluate the diagnostic and therapeutic regimens they choose in practice. The emphasis was on the evaluation of the medical literature by the consumer and was advocated then by those who now tout the journal *Evidence-Based Medicine*.^{2,3} The articles titled "Critical Appraisal for the Busy Clinician" advocated this approach and provided a framework for review were published first in a Canadian Medical Journal in 1984⁴ and in an expanded format as a "Users' Guide to the Medical Literature" in a series in the *Journal of the American Medical Association* beginning in 1993.⁵ The fact that the evaluation of the medical literature has been advocated for more than 20 years and still has not found its way into the routine activities of clinical practitioners across subspecialties gives credence to the nature of the obstacles that we face in expecting clinicians to discern the evidence that defines their clinical practices.

An alternative approach is for surrogate reviews of journal articles such as those published in the journal *Evidence-Based Medicine* or *The New England Journal of Medicine's Journal Watch*. While not yet targeted specifically to ophthalmologic practices, the published evidence as presented in this format more likely fits the realities of practitioners, both in terms of their critical appraisal skills and their time constraints. Other venues, such as guidelines published by expert bodies such as the American Academy of Ophthalmology, provide evidence-based recommendations, but many of them are not supported by strong evidence.⁶

This brings us to the heart of the problem, a flawed medical literature of supporting evidence that requires careful scrutiny before it can be used in clinical practice. In fact, a recent published study evaluated the strength of the evidence from screening and diagnostic studies and concluded that, compared with 1984, the evidence is "getting better, but still not good".⁷ The state of the randomized control trial literature is such that recommendations have been published by expert bodies that specify criteria that should be used by researchers in preparing reports of their results.^{8,9} So, while the evidence-guided ophthalmology approach hypothetically is valued and laudable, especially as it relates to the emphasis on physicians to carefully consider and choose the diagnostic and therapeutic modalities they use in practice, it can't rectify the more pernicious problems of the failings of the supporting evidence at the time it is published. These are that serious methodological deficiencies characterize the published research findings and necessitate that an evidence-based approach be used to determine if these findings are fit for consumption.¹⁰⁻¹³ To be sure, the evidence supports that the clinical specialty of ophthalmology is no exception.⁶ So as with other clinical specialties, the evidence-guided ophthalmology approach would