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YEAR BOOK OF ANESTHESIA® 1991

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The Year Book of ANESTHESIA®

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Journals Represented

Mosby–Year Book subscribes to and surveys nearly 850 U.S. and foreign medical and allied health journals. From these journals, the Editors select the articles to be abstracted. Journals represented in this YEAR BOOK are listed below.

Acta Anaesthesiologica Scandinavica
Acta Chirurgica Scandinavica
Acta Paediatrica Scandinavica
American Journal of Cardiology
American Journal of Neuroradiology
American Journal of Obstetrics and Gynecology
American Journal of Physiology
American Journal of Public Health
American Journal of Roentgenology
American Journal of Surgery
American Review of Respiratory Disease
American Surgeon
Anaesthesia
Anesthesia and Analgesia
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Anesthesiology
Annals Chirurgiae et Gynaecologiae
Annals of Emergency Medicine
Annals of Internal Medicine
Annals of Surgery
Annals of Thoracic Surgery
Annals of Vascular Surgery
Annals of the Royal College of Surgeons of England
Archives of Emergency Medicine
Archives of Internal Medicine
Archives of Surgery
British Journal of Anaesthesia
British Journal of Radiology
British Journal of Surgery
British Journal of Urology
British Medical Journal
Canadian Journal of Anaesthesia
Canadian Journal of Surgery
Chest
Circulation
Clinical Pharmacology and Therapeutics
Critical Care Medicine
Diseases of the Colon and Rectum
European Heart Journal
European Respiratory Journal
Intensive Care Medicine
Israel Journal of Medical Sciences
Journal of Allergy and Clinical Immunology
Journal of Applied Physiology

Journal of Biomedical Engineering
Journal of Bone and Joint Surgery (American Volume)
Journal of Electrocardiology
Journal of Laboratory and Clinical Medicine
Journal of Obstetrics and Gynaecology
Journal of Occupational Medicine
Journal of Parenteral and Enteral Nutrition
Journal of Thoracic and Cardiovascular Surgery
Journal of Trauma
Journal of Vascular Surgery
Journal of the American College of Cardiology
Journal of the American Medical Association
Lancet
Laryngoscope
Nature
New England Journal of Medicine
Obstetrics and Gynecology
Oral Surgery, Oral Medicine, Oral Pathology
Pain
Pediatric Emergency Care
Pediatric Pulmonology
Proceedings of the National Academy of Sciences
Radiology
Regional Anesthesia
S.A.M.J./S.A.M.T.—South African Medical Journal
Scandinavian Journal of Thoracic and Cardiovascular Surgery
Surgery
Surgery, Gynecology and Obstetrics
Therapeutic Drug Monitoring
Thorax

Standard Abbreviations

The following terms are abbreviated in this edition: acquired immunodeficiency syndrome (AIDS), central nervous system (CNS), cerebrospinal fluid (CSF), computed tomography (CT), electrocardiography (ECG), and human immunodeficiency virus (HIV).

Introduction

The 1991 YEAR BOOK OF ANESTHESIA continues to emphasize articles that are of special concern to anesthesia in particular and to society overall. It is increasingly difficult for anesthesiologists to keep themselves well informed because of the exponentially increasing numbers of journals and publications that are available. In his recent address to the International Anesthesia Research Society, the outgoing Editor-in-Chief of *Anesthesia and Analgesia*, Dr. Nicholas Greene, M.D., suggested that one of the adverse effects of the increasing number of publications is to dilute the impact of significant and important contributions to our literature. Putting this concept more bluntly, it is often more difficult to identify the important articles because so many relatively unimportant articles have to be screened initially.

The YEAR BOOK OF ANESTHESIA has more than a 30-year history of attempting to provide a synopsis and screening of the literature. The selections of the Editorial Board undoubtedly reflect some biased views because of our own interests, but we nevertheless have attempted to synthesize all of the literature to provide readers with a more concise approach to selecting that which is "important." Recognizing that most readers will read well-established journals, we have often paid particular attention to those journals that are not widely read by anesthesiologists.

Although many areas are covered in this 1991 YEAR BOOK OF ANESTHESIA, there continues to be an increasing emphasis on operating room environment. This emphasis ranges from the toxicity of anesthetics and the risk of hepatitis and AIDS to operating room personnel, to the effects of the environment on patients themselves, e.g., noise. Furthermore, there are increasing numbers of articles examining the cost and efficiency of utilizing the operating room. These are now starting to appear in the YEAR BOOK OF ANESTHESIA. Undoubtedly, epidemiologically based articles will become increasingly important as society and third-party carriers demand to know how effective health care is. It is distressing to have individuals outside the medical profession intruding into our arena, but the Editorial Board feels that some of their concerns are legitimate and "outcome" studies need to be emphasized.

As before, the Editorial Board of the YEAR BOOK OF ANESTHESIA will continue to seek out those anesthetic-related articles that provide a broad spectrum of clinical and scientific data as they relate to anesthesia.

Ronald D. Miller, M.D.

Table of Contents

The material in this volume represents literature reviewed through October 1990.

1 General

Anesthetic Practice

Designing a Practice Policy: Standards, Guidelines, and Options
Eddy DM (Duke Univ)
JAMA 263:3077–3084, 1990 1–1

The process of designing a practice policy is analogous to making a decision for an individual patient except that it is much more complex and of great potential importance. The higher stakes involved magnify the effect of uncertainty. Practitioners must have flexibility to tailor a policy to individual cases. Although standards are intended to be applied rigidly, guidelines are more flexible, although they usually should be followed. Options, in contrast, are neutral with respect to recommending an intervention. Nearly universal agreement is needed to formulate standards, and appreciable agreement is required for writing guidelines. If preferences for a given option are split, practitioners must describe outcomes to their patients.

An example of this approach is colorectal cancer screening, which, because of a lack of information on the desirability of various outcomes to patients, is an option. Few standards actually exist, because information on outcomes and preferences relating to many interventions is lacking. The term standard should not be used unless outcomes and preferences are truly known and the preferences are virtually unanimous. Although it may be difficult and time consuming to discuss outcomes and preferences with patients, such practice accords with a strong tradition of individual decision making. Most practioners resent being thought of as mere technologists who follow preformed rules. Discussing options with patients is the heart of the physician-patient relationship.

▶ This article is another in the excellent series by David Eddy on clinical decision making that attempts to teach us how to influence the guidelines set by policymakers concerning how practice will be reimbursed and what utilization to expect in the next decade. Dr. Eddy is very good at describing what can and can't be done. He defines standards, guidelines, and options. Practitioners, he states, must be given flexibility to tailor policy to individual cases. Standards are intended to be applied rigidly. They must be followed in virtually all cases. He says that there will be few standards because we lack information on outcomes and patient preferences related to many interventions. He goes on to define guidelines. Guidelines are intended to be more flexible, but they should be followed in most cases. He further states that guidelines can and should be tailored to fit individual needs.

Options are neutral with respect to recommending the use of an interven-

tion. He then details the need to understand outcomes before one can write about whether something should or should not be a policy. The outcome could be death or life, but the probability of the outcome must be known with some degree of certainty. To write a standard for or against the use of something, the main health and economic consequences of the intervention must be known sufficiently well, he states, to permit decisions, and there must be virtual unanimity among patients and physicians about the desired outcome and probability of the outcome.

An indication that outcomes are sufficiently well known, he states, is that policymakers should be able to fill out what he calls a balance sheet, referred to in a previous article (1). This balance sheet article, I think, is important reading for everyone; it states basically that one should be able to look at benefits and risks of both patient outcomes for health and in terms of dollar cost and risks to individual patients. For instance, he says, about the strategy of screening for colorectal cancer in high-risk populations, i.e., those in which a first-degree relative has cancer, to do the fecal occult blood test and sigmoidoscopy—the preferred approach because of its lesser risk and higher benefit than other strategies—would decrease the risk of colon cancer from 10.3% over a 26-year period to 7.3%, and the probability that an individual would die of colon cancer goes down by 2.4%. On the cost side of the balance sheet, 40% of individuals who have false positive test results will undergo more invasive testing than they might otherwise; further, because of this more invasive testing, 3 of every 1,000 persons will have colon perforations and need reparative surgery that would not have been needed had they not been screened.

He further states that with screening there is an increased dollar cost to society based on both the extra cost of the screening and of the treatment. He also states that this is in face even of the strategy of treating the additional individuals in whom colon cancer develops but who were not screened. He goes on to say that, on average, the length of life saved because of fecal occult blood screening is approximately 1 month per person. He states that we don't know the preference for screening, but when he asked various medical groups and health professionals what their preferences were, their wish to undergo this screening ranged from 100% to less than 5%.

Thus he believes that colorectal screening in high-risk groups cannot be a standard or even a guideline but should be presented as an option. He goes on to say that, to write a guideline, at least some of the important outcomes of an intervention must be known, and what is known about the outcomes must be preferred or not preferred by an appreciable, but not necessarily unanimous, majority of people. Such a majority might be said to exist if 60% to 95% agreed on the overall desirability of an intervention. That is why, in the fecal occult blood and sigmoidoscopy screening process for colorectal cancer, this cannot be a guideline but must be an option.

He further states that the classification of practice policies has important implications because (1) we lack information on outcomes and the probability of outcomes, and (2) because it is dangerous to call something a standard unless the outcomes are truly known, the preferences are truly known, and the preferences are truly virtually unanimous.

I think we're lucky as a specialty, because the standards written today (as of

late August 1990) are grounded pretty solidly in fact and logic. We do have some outcome data to substantiate pulse oximetry. Many things really shouldn't be called standards but, rather, either guidelines or options, because the use of the term standards implies that we know more than we do and would expose practitioners to inappropriate professional, legal, and economic sanctions. He further states that, when in doubt, there is a rule: "Downgrade the rigidity of a practice policy." Life is much simpler if there are standards, but we don't have enough data to make standards. Although discussing options with patients might be difficult, it is the heart of the patient/physician relationship.

What I take from David Eddy's work is a heartwarming feeling that we ought to know more than we do about what we do, but until then, there is no way of rigidly saying one thing or another is true without pretending to have more knowledge than is actually the case. At a conference I attended recently, David Eddy said that, when something is a guideline, he will go to the ends of the earth, much as he hates doing it, to defend an M.D.'s right to either do or not do that as long as he thinks about it. He cited the fact that he's taking 5 days out of his life to defend a physician's ability *not* to follow guidelines, because the physician did not think it was appropriate for a particular patient.—M.F. Roizen, M.D.

Reference

1. Eddy DM: Comparing benefits and harms: The balance sheet. *JAMA* 263:2493, 2498, 2501, 2505, 1990.

Resolving Conflicts in Practice Policies

Eddy DM (Duke Univ)

JAMA 264:389–391, 1990 1–2

Resolution of conflicting practice policies is necessary to limit patient mistreatment and to avoid confusion among practitioners. Also, it is important not to impair the credibility of adopted policies and the organizations issuing them. Conflicts should be quickly identified and addressed, and resolved in an orderly manner according to the merits of the conflicting policies.

The most likely cause of misunderstanding is confusion about the intended target of a policy, and it often is possible to resolve conflict by rephrasing the policy to clarify the target. Objectives also are important; there may be conflict between a wish to maximize care of an individual patient and potential overall harm from devoting too many resources to a small number of patients. There also may be disagreement about the rationale for a policy that is based on the outcomes considered, the evidence for these outcomes, and estimates of policy effects on the outcomes.

The process of resolving policy conflicts must avoid both attempts to give everyone what they want and "copping out" altogether. If after gen-

uine attempts there remain unresolvable differences, the choices include ignoring the conflict, arbitration, and agreeing to disagree. In the latter instance both organizations agree to rewrite their policy statements to take note of the opposed policy and the sources of disagreement. Readers are invited to review all of the material and to select the policy that best matches their own beliefs.

▶ This article is another in the excellent series by David Eddy on clinical decision making that has appeared in *JAMA*. It is kind of a primer on how practice will be, and how we should make sure that the science behind guidelines, options, and standards is implemented. Practice policies are here to stay, and the government is spending a huge amount of money in the next 5 years to evolve them. It is important to resolve conflicts between individual practice policies; such conflicts are confusing to patients, physicians, and the press. Physicians become subject to conflicting standards, causing policies to lose credibility and hurting the image of the profession. In addition, the conflicts give rise to an inability to find truth.

The only reason not to resolve conflicts is that resolution takes work, and each organization that has policies may lose some control and perhaps sustain some ego damage. But if we are to have the profession of medicine thought of in a valuable way, if we are to have our own understanding of truth, we ought to be able to resolve conflicts.

Eddy further states that there are 3 ways to do this. One is to ignore the conflict and carry on; the second is to arbitrate through it; and the third is to agree to disagree. In the latter option, both organizations agree to rewrite their policy statements to describe the existence of the opposing policy and the source of disagreement. One can confront these conflicts of practice policies only after identifying the problems, addressing them, and resolving them. Eddy states that the key to resolving differences is to diagnose the source(s) of conflict and find out why the conflict exists. Is it because the intended targets of the policy are different? Is it because the objectives of the policy are different? Is it because the intended persons to whom the policy applies are different? If one is applying a policy for men younger than age 30 as opposed to women older than age 70, a different policy or strategy may be invoked. Next is to ask whether the policy's estimate of the magnitude of outcomes is similar. Dr. Eddy uses excellent reasoning and common sense to show that whenever a policy exists that is in conflict with another policy, it ought to be resolved—otherwise, both sides will end up losing the public's trust and esteem.—M.F. Roizen, M.D.

A National Health Program, Abyss at the End of the Tunnel: The Position of Physicians Who Care

Bronow R (Natl Organization of Physicians Who Care, San Antonio, Tex)

JAMA 263:2488–2489, 1990 1–3

Compulsory health insurance in Canada had its start in Saskatchewan in 1961. In 1987 the province announced that it had run out of money

for medical care services and would be unable to pay for them. Presently, health care in most provinces consumes more than one third of the total provincial budget, and costs are still rising. A heated debate is ongoing over whether Canada can continue the publicly funded universal health care system. The politicians are restricting access to medical care, and they have blamed physicians for the crisis.

One scenario of where American medicine will be at the end of this century involves increased funding for health care for the poor from a direct tax increase or other form of taxation and coverage for all working Americans by a basic employer-funded program. Costs of care will decline as insurance companies pay health benefits according to scientifically developed guidelines. Health maintenance organizations will be limited to Kaiser-style staff model plans.

Another scenario involves a governmental 1-payer system with unlimited demand for services, as in Canada. Delays in testing and treatment will result, and physicians will be blamed for overusing resources to increase their personal incomes. The overall quality of care will decline as physicians lose their autonomy. The quality of incoming medical students will continue to decrease. The choice will depend on the involvement of physicians in the process.

▶ This article is very important because it describes what can tip the balance between the scenarios of having meaningful free choice in American medicine with good access to care vs. a system in which practice parameters and administrators tell us what we can and can't do. Dr. Bronow comes to the conclusion that what could tip the difference between the 2 scenarios is our own involvement. Will we physicians lead, or will we watch from the sidelines? I recommend this article to you if you don't want to be told how to practice in the future.—M.F. Roizen, M.D.

Theatre Delay for Emergency General Surgical Patients: A Cause for Concern?

Wyatt MG, Houghton PWJ, Brodribb AJM (Derriford Hosp, Plymouth, England)
Ann R Coll Surg Engl 72:236–238, 1990 1–4

With less money now available for staffing and equipping hospital operating theaters, there may be adverse effects on emergency surgical services. The delay in operating on emergency general surgical patients was examined prospectively in a district general hospital serving a catchment population of 450,000. During a 16-week period the data on 204 consecutive general surgical emergency operations were analyzed.

After essential resuscitation the median delay in operating on emergency general surgical patients was 3 hours. A delay of more than 6 hours was experienced by 15% of these patients. Although an operating theater was required after midnight in only 10% of cases, 26% procedures were performed between midnight and 8 AM. Delays were caused by a combination of factors: theater delay was mentioned in 47% of

cases, anesthetic delay was mentioned in 30%, and overrunning of routine lists was mentioned in 14%.

The results suggest that unnecessary theater delay results in an unacceptable number of emergency general surgical procedures being performed after midnight. If theater and anesthetic availability was insured in the afternoon and early evening, and if routine afternoon lists were not overrun, the after-midnight workload could be cut from 26% to 10%. This would result in more efficient use of theater capacity, cost effectiveness, and perhaps a safer emergency surgical service.

▶ This study was performed in the United Kingdom; efforts at cost containment in the United States will undoubtedly constrict our ability to respond in an immediate fashion. The data were objectively obtained with regard to what the delays actually were, but one wonders, how objective was the finger pointing?—R.D. Miller, M.D.

Outcome

The Outcomes Movement: Will It Get Us Where We Want to Go?
Epstein AM (Brigham and Women's Hosp, Boston)
N Engl J Med 323:266–270, 1990 1–5

There is increasing activity today directed at assessing outcomes, analyzing efficacy, and assuring quality. Federal funding of these activities has risen rapidly and presently totals more than $30 million. While acknowledging that research on outcomes is able to clarify the efficacy of different interventions, it may be questioned whether this information is sufficient for establishing guidelines for rational decision-making in medical care.

Emphasis on outcome assessment has come from pressures to contain costs, a renewed sense of competition in the health care area, and findings of substantial geographic differences in the use of various medical procedures. Emphasis on the use of large computerized databases continues to increase, offering the opportunity to conduct very large natural experiments. This approach is most useful when data on the severity of illness are available. A wider range of outcomes now is being considered, including functional state, emotional health, social interaction, cognition, and degree of disability.

An attempt was made to determine outcomes as a useful extension of basic clinical research. A focus on outcomes that are meaningful to patients (e.g., dribbling, rather than urine flow, measurements) is welcome. Much more controversial is the attempt to develop guidelines for the use of physicians in providing care and of third-party payers to insure the appropriate use of services. Development of guidelines may be particularly problematic when patients' preferences are an important factor in clinical decision making. There also are potential difficulties with the implementation and monitoring of guidelines. Expectations in this area must be modest if disappointment is to be avoided.

▶ This article details the development of the outcomes movement and shows how it came out of a number of individuals working together, but the person who was instrumental in popularizing the concept of health maintenance organizations (HMOs), Paul Ellwood, has also been important in popularizing this outcomes movement. The outcomes movement is a national program in which clinical standards and guidelines are based systematically on patient outcome. The author states that this movement is now being driven by research dollars, with the National Center for Health Services Research (now called the Agency for Health Care Policy and Research) given 1.9 million to spend in 1988, 5.5 million in 1989, and 30 million allotted in fiscal year 1990.

The outcomes movement is based on 3 factors: First is the need for cost containment and the substantial fear that administrative and payment policies designed to control the increase in medical services would have deleterious effects on the quality of care. The outcomes movement arose from the need to eliminate unnecessary expenditure and is part of the vital monitoring system directed not so much to improving the quality of care as to making sure it doesn't deteriorate. The second factor is a renewed sense of competition, and the fact that HMOs can no longer compete on cost and want to compete on quality; thus the outcomes measures of functional status, not just whether you're alive or dead, are being judged by HMO players. The third factor arises from the key work of John Wennberg and others who found substantial geographic differences in the use of various medical procedures not attributable to disease but to uncertainty by physicians as to what was right.

The Epstein article further shows how this movement not only uses randomized clinical trials, but also uses large computer databases, to look for retrospective outcome advantages of one treatment vis-à-vis another. He cautions us at several points: He says that, so far, there aren't good enough measures of comorbidity in the databases to provide meaningful answers, and also that our expectations must be moderate if we are to avoid disappointment. The danger we face is that we will undermine a healthy evolution and allow revolutionary zeal to lead us to carry a good thing too fast and too far. The result will be that rigid practice procedures will be imposed that don't allow for improvement in practice, or there will be unrealistic expectations on the part of policymakers that aren't met, dooming medicine to disrespect in the future. One can't help but wonder whether one shouldn't use David Eddy's balance sheets to do a balance sheet for all these practice policies. Are the costs of the practice policies worth the benefit? Have the few limitations in our standards led to improvement in quality of care? What has been the cost? Have some of the standards and practice policies and efforts to assure patients' well-being left us being less human in our approach to patients?—M.F. Roizen, M.D.

Death Due to Anesthesia at Groote Schuur Hospital, Cape Town—1956–1987: II. Causes and Changes in Aetiological Pattern of Anaesthetic-Contributory Death

Harrison GG (Univ of Cape Town, South Africa)

S Afr Med J 77:416–421, 1990 1–6
