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YEAR BOOK OF PEDIATRICS® 1993

JAMES A. STOCKMAN III

1993

The Year Book of PEDIATRICS®

Editor

James A. Stockman, III, M.D.

President, The American Board of Pediatrics; Clinical Professor of Pediatrics, University of North Carolina at Chapel Hill

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Mosby–Year Book, Inc.
11830 Westline Industrial Drive
St. Louis, MO 63146

Editorial Office:
Mosby–Year Book, Inc.
200 North LaSalle St.
Chicago, IL 60601

International Standard Serial Number: 1041-1909
International Standard Book Number: 0-8151-8526-X

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Statement of Purpose

The YEAR BOOK Service

The YEAR BOOK series was devised in 1901 by practicing 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. In the final decade of the 20th century, this recognition is more acutely true than it was in 1901.

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

- to *survey* a wide range of journals of proven value
- to *select* from those journals papers representing significant advances and statements of important clinical principles
- to provide *abstracts* of those articles that are readable, convenient summaries of their key points
- to provide *commentary* about those articles to place them in perspective

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

THE LITERATURE BASE

Mosby–Year Book subscribes to nearly 1,000 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

The publisher's team of literature specialists, all of whom are trained and experienced health professionals, examines every original, peer-reviewed article in each journal issue. More than 250,000 articles per year are scanned systematically, including title, text, illustrations, tables, and references. Each scan is compared, article by article, to the search strategies that the publisher has developed in consultation with the 270 outside experts who form the pool of YEAR BOOK editors. A given article may be reviewed by any number of 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 or not the article should be included in the YEAR BOOK. This decision is based on the article's inherent quality, its probable usefulness to readers of that YEAR BOOK, and the editor's goal to represent a balanced 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 detailed analysis 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 physician-writer and includes individuals with training in the life sciences, medicine, and other areas, plus extensive experience in writing for the health professions and related industries. Each selected article is assigned to a specific writer on this abstracting staff. The abstracter, guided in many cases by notations supplied by the expert editor, writes a structured, condensed summary designed so that the reader can rapidly acquire the essential information contained in the article.

THE COMMENTARY

The YEAR BOOK editorial boards, sometimes assisted by guest commentators, write comments that place each article in perspective for the reader. This provides the reader with the equivalent of a personal consultation with a leading international authority—an opportunity to better understand the value of the article and to benefit from 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 will vary depending on developments within the field.

Every YEAR BOOK contains a list of the journals from which papers have been selected. This list represents a subset of the nearly 1,000 journals surveyed by the publisher, and occasionally reflects a particularly pertinent article from a journal that is not surveyed on a routine basis.

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

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Journals Represented

Mosby-Year Book subscribes to and surveys nearly 900 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.

American Journal of Cardiology
American Journal of Diseases of Children
American Journal of Emergency Medicine
American Journal of Gastroenterology
American Journal of Hematology
American Journal of Human Genetics
American Journal of Kidney Diseases
American Journal of Pediatric Hematology/Oncology
American Journal of Physical Medicine & Rehabilitation
American Journal of Preventive Medicine
American Journal of Psychiatry
American Journal of Public Health
American Journal of Roentgenology
American Journal of the Medical Sciences
Annals of Neurology
Annals of Otology, Rhinology and Laryngology
Archives of Disease in Childhood
Archives of Environmental Health
Archives of General Psychiatry
Archives of Pathology and Laboratory Medicine
Australian and New Zealand Journal of Obstetrics and Gynaecology
Blood
British Journal of Dermatology
British Journal of Ophthalmology
British Journal of Psychiatry
British Medical Journal
Canadian Journal of Neurological Sciences
Canadian Journal of Ophthalmology
Canadian Medical Association Journal
Cancer Research
Child Development
Chinese Medical Journal
Clinical Chemistry
Clinical Infectious Diseases
Clinical Pediatrics
Diabetes Care
Digestive Diseases and Sciences
Drug and Alcohol Dependence
Ear and Hearing
Epilepsia
European Journal of Pediatrics
Family Medicine
Gastroenterology
Human Reproduction
International Journal of Cancer
International Journal of Pediatric Otorhinolaryngology
Journal of Acquired Immune Deficiency Syndromes
Journal of Adolescent Health
Journal of Clinical Endocrinology and Metabolism
Journal of Clinical Investigation

Journal of Clinical Oncology
Journal of Consulting and Clinical Psychology
Journal of Craniofacial Genetics and Developmental Biology
Journal of Cutaneous Pathology
Journal of Dermatologic Surgery and Oncology
Journal of Developmental and Behavioral Pediatrics
Journal of Infectious Diseases
Journal of Laryngology and Otology
Journal of Medical Genetics
Journal of Pediatric Gastroenterology and Nutrition
Journal of Pediatric Orthopedics
Journal of Pediatric Surgery
Journal of Pediatrics
Journal of Perinatology
Journal of Rheumatology
Journal of Trauma
Journal of Urology
Journal of the American Academy of Child Adolescent Psychiatry
Journal of the American College of Cardiology
Journal of the American Medical Association
Journal of the American Optometric Association
Lancet
Medical and Pediatric Oncology
Nature
Neuropsychologia
Neurosurgery
New England Journal of Medicine
Otolaryngology—Head and Neck Surgery
Pediatric Cardiology
Pediatric Dermatology
Pediatric Emergency Care
Pediatric Infectious Disease Journal
Pediatric Neurology
Pediatric Pathology
Pediatric Pulmonology
Pediatrics
Prenatal Diagnosis
Reviews of Infectious Diseases
Southern Medical Journal
Therapeutic Drug Monitoring
Transplantation
Urology

Standard Abbreviations

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

Publisher's Preface

As Publishers, we feel challenged to seek ways of presenting complex information in a clear and readable manner. To this end, the 1993 YEAR BOOK OF PEDIATRICS now provides structured abstracts in which the various components of a study can easily be identified through headings. These headings are not the same in all abstracts, but rather are those that most accurately designate the content of each particular journal article. We are confident that our readers will find the information contained in our abstracts to be more accessible than ever before. We welcome your comments.

Introduction

Each year, we continue to be amazed at the mushrooming volume of medical literature that crosses our desks. In no minor way, this is reflected in the number of YEAR BOOKS published by Mosby-Year Book. Approximately 25 years ago, there were just 20 YEAR BOOKS in various fields of medicine and 1 in dentistry. There are now 43 YEAR BOOKS related to specific medical areas, including 1 in podiatric medicine and surgery and 1 in dentistry. Who would have thought in 1968 that there would be an entire YEAR BOOK devoted to transplantation—or to ultrasound? To capture the essence of the pediatrics literature, there are now 2 YEAR BOOKS related to our field: this one, and the YEAR BOOK OF NEONATAL AND PERINATAL MEDICINE, which is ably edited by Drs. Klaus and Fanaroff.

What has changed about the YEAR BOOK OF PEDIATRICS in the past quarter century? Not that much, except that it has become larger. We tried to put it on a diet a couple of years back but, as with most diets, the initial goal was achieved without sustaining qualities. There are just too many refrigerators full of good articles out there to stay skinny . . . no Ultra Slim-Fast here. In this volume, you will see commentaries dealing with the role of oral acyclovir in the management of chickenpox; the use of polymerase chain reaction technology in the diagnosis of tuberculosis, adenovirus, herpes simplex, cytomegalovirus, and even in the detection of circulating malignant cells; and a recap of the American Academy of Pediatrics' report from the Task Force on Pediatric Aids. Although each of these commentaries adds to the corpulence of this book, we trust they do so in a necessary way.

Finally, in the previous sentence, you will note the use of the literary or editorial "we" rather than "I." Awhile back, Dr. Franz J. Ingelfinger, the former editor of the *New England Journal of Medicine* who is now deceased, wrote an editorial entitled "The Fraudulent We" (*N Engl J Med* 285:1145, 1971.). Dr. Ingelfinger scorned individuals who hid behind the editorial "we," noting that "the use of 'we' to represent a single person is an unpleasent affectation and unwarranted aggrandizement." Sidney Gellis, who was then editor of the YEAR BOOK OF PEDIATRICS, finally threw in the towel concerning his position on the editorial "we" and agreed with Dr. Ingelfinger, promising that he would no longer use "we" (a promise he kept through approximately 8 pages of the book that year). No such promises in this volume! This editor feels no specific compulsions against the use of "we" or, for that matter, "I," as seems appropriate. When "we" were in grade school, "we" had the same wonderful teacher for the fifth, sixth, seventh, and eighth grades. She instilled in us the need to be proper, which required the use of the literary "we" on occasion. Thanks to this superb teacher, this proper behavior has persisted for almost 40 years. An example of this editor's formalities occurred this past June at the graduation ceremonies for Northwestern University Medical School's pediatric residents. I indicated to them that,

after having survived 3 years of training, they were now free to call me by my first name . . . "Sir".

Read on. Enjoy the refrigerator.

James A, Stockman III, M.D.

Table of Contents

1 The Newborn

Covering the Costs of Care in Neonatal Intensive Care Units
Imershein AW, Turner C, Wells JG, Pearman A (Florida State Univ; Health Care Cost Containment Board, Tallahassee, Fla)
Pediatrics 89:56–61, 1992 1–1

Background.—Cost containment continues to be a central issue in health care research and policy. Neonatal intensive care unit (NICU) costs reflect the complex factors and issues affecting the cost of other health services. The Florida Health Care Cost Containment Board determined the costs, charges, and net revenues of NICU services in individual hospitals; documented cost shifting and cross-subsidization as a means of financing NICU care for indigent patients; and assessed the financial effects of these units in state-sponsored vs. non–state-sponsored Regional Perinatal Intensive Care Center (RPICC) hospitals.

Methods.—The study, requested by the Florida state legislature, included 38 hospitals providing level I or III neonatal intensive care. Of these, 55% were non-RPICC hospitals. The data were collected through a special survey using discharge data forms for patients discharged during the last 6 months of 1985, for a total of 6,302 cases.

Findings.—In general, RPICC hospitals lost revenue from the NICUs, whereas non-RPICC hospitals gained revenue. Hospitals in the state-sponsored program lost about $16.5 million, but the non–state-sponsored hospitals gained $1 million. The average costs per admission varied from $922 to $25,225, which is partly explained by case-mix differ-

Average Costs Per Day and Average Length of Stay by Hospital Type

	RPICC Hospital	NONRPICC Hospital	All Hospitals
Cost/day, $	549.85	499.56	527.12
ALOS, d	17.41	11.89	14.6
Average cost/neonate, $ *	9555.48	5939.77	7695.95

Abbreviations: *RPICC*, state-sponsored Regional Perinatal Intensive Care Center; *NONRPICC*, non–state-sponsored Regional Perinatal Intensive Care Center; *ALOS*, average length of stay.

* Cost/day × ALOS.

(Courtesy of Imershein AW, Turner C, Wells JG, et al: *Pediatrics* 89:56–61, 1992.)

ences (table). Nearly 60% of the total revenues was generated by private-pay patients; however, those patients were associated with less than one third of costs in the state-sponsored hospitals, suggesting that a high level of cost shifting was taking place.

Conclusion.—Despite considerable government support of state-sponsored NICUs, the support to date has been insufficient. If constraints on this source of funding are increased, they will probably make the deficit worse and make cost shifting more necessary. In these circumstances, referrals may be based more on ability to pay than medical need.

► Can a child afford to be born into this world in 1993? Maybe yes and maybe no. The information that has been unearthed in the past couple of years addressing this question can easily cause loss of sleep. For example, more than one third of all infants now born in the United States have at least 1 nonteratologic perinatal condition (1). To be precise, 33.7% of newborns have a discharge diagnosis of some problem other than normal term delivery. Overall, 6.8% have physiologic jaundice as their discharge diagnosis. Of all newborn discharges, nonphysiologic jaundice is seen in 4.4%, maternal causes of perinatal morbidity in 3.1%, birth trauma in 2.5%, fetal distress in 2.3%, birth asphyxia in 2.1%, and infection specific to the perinatal period in 2%. Having at least 1 perinatal condition has a profound effect on perinatal cost. The average hospital stay for all newborns is 3.5 days, but it increases by 2 days with the addition of just 1 diagnosis.

As the report from Florida indicates, the charges for initial hospitalization are quite high. Other studies estimate these charges to be between $30,000 and $70,000, on average, for a newborn admitted to the NICU. Charges of more than $150,000 for selected infants are common. In a sense, these charges are only the tip of the iceberg in terms of problems from some families. Although insurance may pick up the lion's share of initial hospitalization costs, it is important to recognize that the average cost of medical care in the year subsequent to discharge runs between $10,000 and $11,000 for a low-birth-weight infant (more than tenfold greater than the cost of care for a healthy term newborn) (2).

Finally, there is the ever-present issue of discrimination, even in the nursery. As seen in Florida, the poor are unable to get their fair share from the government. This has been looked at in California as well. A survey of all California civilian acute-care hospitals recently showed that length of stay, total charges, and charges per day were 16%, 28%, and 10% less, respectively, for uninsured newborns than for privately insured newborns. Because it can fairly safely be assumed that uninsured newborns do not have a lesser probability of serious medical problems, there must be some discrimination occurring—either that, or there is a significant padding of the bills of insured patients (3).—J.A. Stockman, III, M.D.

References

1. Vecerra JE, et al: *Pediatrics* 88:553, 1991.
2. McCormick MC, et al: *Pediatrics* 88:533, 1991.
3. Braveman PA, et al: *JAMA* 266:3300, 1991.

Cardiopulmonary Resuscitation of Apparently Stillborn Infants: Survival and Long-Term Outcome

Jain L, Ferre C, Vidyasagar D, Nath S, Sheftel D (Univ of Illinois at Chicago; Illinois Masonic Med Ctr, Chicago; Lutheran Gen Hosp, Park Ridge, Ill)

J Pediatr 118:778–782, 1991 1–2

Introduction.—Severe perinatal asphyxia continues to be a major cause of morbidity and death, despite advances in neonatal management. No guidelines exist concerning the extent and degee of resuscitation to be used with an apparently stillborn infant. Data were reviewed from the largest study on the outcome of infants who had an Apgar score of 0 at 1 minute and who were resuscitated.

Methods.—The data for the study were obtained from the records of 11 level II and 2 level III hospitals. In 1982–1986, 613 of 81,242 infants were apparently stillborn. All but 93 had lacked signs of life before delivery and, therefore, were not resuscitated. The 93 infants who received

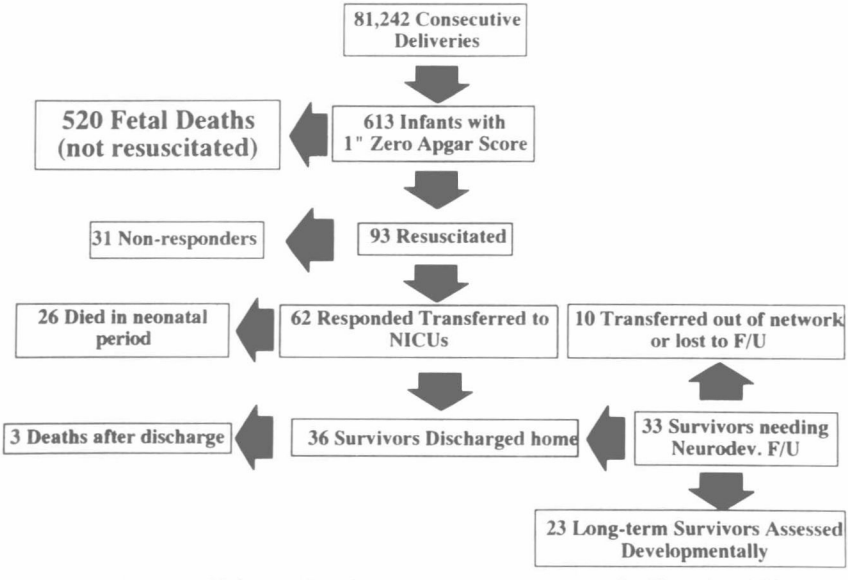

Fig 1–1.—Outcome of infants with an Apgar score of 0 at 1 minute, at the University of Illinois regional perinatal network, 1982–1986. *Abbreviations: NICU,* neonatal intensive care unit; *F/U,* follow-up. (Courtesy of Jain L, Ferre C, Vidyasagar D, et al: *J Pediatr* 118:778–782, 1991.)