The Ever-changing Content of *Pediatrics* Over Fifty Years

Howard A. Pearson, MD, FAAP

At the time of the first edition of *Pediatrics*, the *Journal of Pediatrics* was the major pediatric publication in the United States. The American Academy of Pediatrics (AAP) was instrumental in the establishment of the *Journal of Pediatrics* in 1931 and had designated it as its “official organ.” The *Journal of Pediatrics*, owned by C. V. Mosby Company, was generating profit, the magnitude of which was kept secret by Mosby. This led to friction between the publisher and leaders of the AAP, and there also was concern about having the AAP’s official organ controlled by a “business concern foreign to pediatrics.”

At the February 1947 annual meeting of the AAP in Pittsburgh, PA, Dr Borden Veeder, who, with Dr Hugh McCulloch, was a coeditor of the *Journal of Pediatrics*, introduced a resolution that the AAP should discontinue its relationship and cease designating the *Journal of Pediatrics* as its official organ. It also was recommended that the *Journal of Pediatrics* editorial board, all of whom were members of the AAP, should resign immediately. It was finally recommended that the AAP should establish a new journal, to be named *Pediatrics*, with sole AAP ownership. Dr McCulloch was appointed the first editor. Despite his resolution, Borden Veeder remained as editor of the *Journal of Pediatrics*. The nine members of the editorial board of the *Journal of Pediatrics* who resigned became the first editorial board of *Pediatrics*. This included some of the foremost leaders in the field of pediatrics of the time. Fifty years of uninterrupted publication ensued, culminating in the semicentennial of *Pediatrics*, which this issue commemorates.

For my review of the content of *Pediatrics*, I divided the first 50 years of *Pediatrics* into five eras: 1) the Hugh McCulloch era, volumes 1 to 14, 1948 to 1954; 2) the Charles May era, volumes 15 to 28, 1955 to 1961; 3) the Clement Smith era, volumes 29 to 52, 1962 to 1973; 4) the first Jerold Lucey era, volumes 53 to 74, 1974 to 1984; and 5) the second Jerold Lucey era, volume 75 on, 1985 to the present.

**The Hugh McCulloch Era, Volumes 1 to 14, 1948 to 1954**

Volume 1, number 1, of *Pediatrics* appeared in January 1948. As outlined in Dr James Strain’s accompanying article on the history of *Pediatrics*, the new journal consisted of four divisions: original articles, proceedings and reports of the AAP, special features, and advertising.

The editor and editorial board insisted specifically that they should not be involved with the business, financial, or advertising aspects of *Pediatrics*. Advertising is detailed by Dr Larry Gartner elsewhere in this semicentennial publication.

Other components of the journal included book reports, letters to the editor, news and announcements, and editorials. A list of pediatricians newly certified by the American Board of Pediatrics was published regularly. In 1948, there were 132 American Board of Pediatrics diplomates; by 1997 this number grew to nearly 1500. An abstract in Spanish followed each original article. The Spanish abstracts were included to improve communications with pediatricians in Latin America, which, at that time, was designated District IX of the AAP.

The first 14 volumes had an average of 800 print pages. AAP Proceedings and Reports were a major part of *Pediatrics* during the McCulloch era. This included many AAP features such as a presidential report, a report of the executive committee, AAP committee and district reports, financial statements, the annual audit, and membership lists, as well as the proceedings of round tables, panel discussions, and seminars at the annual and regional meetings.

The results and conclusions of a very important AAP study were published in the first few volumes of *Pediatrics*.1-3 These articles summarized the results of the Study of Child Health Services and Pediatric Education that were published formally by the Commonwealth Fund in 1949. In a 50-year history of the AAP, Dr James Hughes characterized the study as the most extensive and important ever conducted by the AAP.4 The circumstances of the study have been well described by Dr Myron Wegman.5

The study arose because of post-World War II concerns involving the Emergency Maternity and Infant Care Program (EMIC). The EMIC was created by Dr Martha Eliot, director of the Children’s Bureau, at the beginning of World War II to care for the wives and children of US servicemen, many of whom had followed their husbands to military bases, often far from home. Costs of their medical care, including physician fees, were paid using federal funds allocated by the Children’s Bureau. Obstetricians and pediatricians participated despite concerns...
that the EMIC might be an opening wedge for socialized medicine. There were objections to the EMIC because it established minimal standards for quality of care and competency of the providers. Other major objections were that physician fees were fixed and that there was no means test. The pediatric and obstetric communities expected that EMIC would be terminated when the war ended. AAP concerns were heightened when Senator Claude Pepper sponsored federal legislation to extend EMIC into peacetime. Some pediatricians suspected that the legislation had been written by Martha Eliot.

In June 1944, the Executive Board of the AAP recommended withdrawal of support from the Children’s Bureau. A number of pediatricians, both practitioners and academicians, recognized the importance of good relations between the AAP, which represented practicing pediatricians, and the Children’s Bureau, the key governmental agency supporting child health. Anxious to prevent additional conflict, Martha Eliot consulted with Dr Henry Hemholtz, who was AAP president. They decided jointly that there was a great need to determine the status of health care for children throughout the United States and that such a study could provide the facts for guiding future planning and programs. These matters were discussed at length at the 1944 meeting of the American Pediatric Society (APS). Recommendations were made that subsequently were also accepted by the AAP, that a Committee consisting of members from the AAP, the APS, and the Medical Advisory Board of the Children’s Bureau should conduct a national study of child health services and pediatric education. The costs of the study were covered amply by funds provided by the Public Health Service. As summarized by Hughes, the purpose of the study was to survey every state to obtain information concerning the status of child health and available health care resources; determine the distribution of children in rural and urban areas; determine the number and distribution of pediatricians and general practitioners; determine the status of pediatric graduate education; and examine hospital facilities in obstetrics, pediatrics, and communicable diseases throughout the United States.4

The study had an enormous influence on improving health care for children and strengthening support for pediatric education. However, perhaps its most important benefit was a strengthening of cooperation and communication as well as an avoidance of conflict and suspicion within the US pediatric community.

Toward the end of the McCulloch era, there was a substantial decrease in AAP Proceedings and Reports in Pediatrics. No explanation of this editorial decision is evident. Pediatrics also published addresses by recipients of the Borden Award for nutrition and the E. Mead Johnson Award for pediatric research. In 1952 and 1953, the APS’s John Howland Award Addresses of Edwards Park and Grover Powers were published. These were the only times that the addresses delivered before the pediatric research societies have appeared in Pediatrics.6,7

The special features section of Pediatrics initially had three components. The “Pediatrician and the Public,” “Trends in Health Legislation,” and “Administration.” In 1950, Dr Myron Wegman presented his first annual report of pediatric vital statistics in the United States, using data compiled by the National Center for Health Statistics.8 Dr Wegman continued his annual summary of national pediatric vital statistics for nearly 50 years, until 1995 when he turned over the task to Dr Bernard Guyer.9

In my review of the content of 50 years of Pediatrics, I will analyze primarily the articles that were submitted and subjected to peer review. I will not review the content or scope of the special features, commentaries, and AAP communications. I somewhat arbitrarily assigned the articles of the McCulloch and subsequent eras into three categories: case reports, descriptive reviews, and scientific studies (Table 1). Case reports are articles describing clinical and/or laboratory observations in a single or several patients. Descriptive reviews are descriptions of a series of patients or pathologic conditions, often from a single institution or physician, that are largely descriptive and often retrospective. Epidemiologic surveys also are classified as descriptive reviews. Scientific studies are articles with stated or implied hypotheses or goals that used physical, physiologic, laboratory, or epidemiologic data to reach conclusions. Obviously, the difference between descriptive reviews and scientific reports may be difficult and sometimes arbitrary.

It is evident that the balance of types of articles accepted for publication in Pediatrics throughout most of its 50-year history has been fairly constant, as has been the balance in medical subjects presented in the articles. For 50 years, Pediatrics has certainly followed the vision and objectives stated by Hugh McCulloch, the first editor, in 1948:

“The content of the journal is . . . intended to encompass the needs of the whole child in his physiologic, mental, emotional, and social structure. The single word Pediatrics has been chosen to indicate this catholic intent.”10

The growing complexity of the science of pediatrics, as well as a constantly widening spectrum of topics, outstripped the expertise of the editorial board very rapidly, leading to the use of reviewers who were not editorial board members. Eighty-seven “unknown reviewers” were acknowledged in 1957; in 1997, there were more than 1000.

When the subjects of the original articles over the entire 50 years are assigned to system or organ-related diseases or processes, some of the salient pediatric concerns and emphasis of the times are evident (Table 2). Many of the articles are assigned to more than one category; eg, an article on neonatal

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**TABLE 1.** Original Articles

<table>
<thead>
<tr>
<th>Era</th>
<th>McCulloch</th>
<th>May Smith</th>
<th>Lucey (First)</th>
<th>Lucey (Second)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific studies (%)</td>
<td>27</td>
<td>47</td>
<td>37</td>
<td>39</td>
</tr>
<tr>
<td>Descriptive reviews (%)</td>
<td>39</td>
<td>26</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>Case reports (%)</td>
<td>34</td>
<td>27</td>
<td>34</td>
<td>33</td>
</tr>
</tbody>
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TABLE 2. Salient Topics in Pediatrics 50-Year History

<table>
<thead>
<tr>
<th>Topics (% of Articles)</th>
<th>Era</th>
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<tbody>
<tr>
<td></td>
<td>McCulloch</td>
</tr>
<tr>
<td>Infectious disease, immunizations, and antibiotics</td>
<td>23</td>
</tr>
<tr>
<td>Hematology/oncology</td>
<td>11</td>
</tr>
<tr>
<td>Cardiology</td>
<td>10</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>9</td>
</tr>
<tr>
<td>Fetus and newborn</td>
<td>9</td>
</tr>
<tr>
<td>Neurology</td>
<td>7</td>
</tr>
<tr>
<td>Metabolism and genetics</td>
<td>7</td>
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<tr>
<td>Fluid and electrolytes</td>
<td>5</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>5</td>
</tr>
<tr>
<td>Surgery</td>
<td>5</td>
</tr>
<tr>
<td>Nutrition</td>
<td>5</td>
</tr>
<tr>
<td>Teratology and anomalies</td>
<td>4</td>
</tr>
<tr>
<td>Accidents and poisonings</td>
<td>3</td>
</tr>
<tr>
<td>Mental health/psychology/psychiatry</td>
<td>2</td>
</tr>
<tr>
<td>Studies using experimental animals (average number of articles/volume)</td>
<td>1.0</td>
</tr>
</tbody>
</table>

erythroblastosis is assigned both to newborn and to hematology.

During the McCulloch era, there were a number of articles about retrolental hyperplasia, for which the relationship to oxygen treatment was being increasingly accepted. Only 26 articles were on growth and development and 19 articles on mental health/psychiatry/psychology. One article was concerned with allergy, and there were no articles about asthma. There were two articles on pediatric history. The authors were almost exclusively from the United States.

Four scientific articles published in Pediatrics during the McCulloch era are especially important. Three are presented as seminal articles elsewhere in this semicentennial issue. In 1948, Dr Louis Diamond described a new technique for exchange transfusions.11 The 1953 article of Dr Ogden Bruton presented the first case of agammaglobulinemia.12 In 1952, Walter Kessler and Dorothy Anderson reported 10 children with cystic fibrosis (CF) of the pancreas who developed heat stroke during a heat wave in New York City. Serum electrolytes revealed that these children were hypochloremic.13 Only 1 year later, DiSantAgnese demonstrated that the sweat of children with CF contained markedly increased levels of chloride.14 As described elsewhere by Dr Victor Chernik, these early observations led to modern diagnostic tests for CF. In 1952, John Crigler, who was then an endocrinology fellow, and Victor Najaar at Johns Hopkins described pedigrees of children with severe hyperbilirubinemia and kernicterus without hemolysis and hypothesized that this was an inherited metabolic error of bilirubin metabolism.15 This heralded an explosion of biochemical genetics in pediatrics.

THE CHARLES D MAY ERA, VOLUMES 15 TO 28, 1955 TO 1961

For the first 3 years of May’s editorship, the editorial board and contributing editors did not change. In an editorial in January 1955, a decision was announced to limit the tenure of the editorial board to two 3-year terms to include new perspectives and expertise. This practice continues to the present. An entire issue was devoted to articles in the field of rheumatology and rheumatic fever as a tribute to Dr Hugh McCulloch. This was done despite the fact that McCulloch had adamantly opposed publication of "Festschriften" when he had been editor. Another Festschrift was published in December 1960 to honor Dr James Gamble. An entire issue was written by fellows and colleagues of Gamble, one of the experts in fluid and electrolyte physiology.

The basic format of Pediatrics consisted of three major divisions: original articles, APP Reports and Proceedings, and special features. The articles consisted of case reports, descriptive reviews, and scientific studies. The AAP Reports and Proceedings consisted of messages from the AAP president; AAP committee statements; especially statements of the very active Committee on Nutrition; and proceedings of round tables, symposia, and clinical conferences that had been presented at AAP annual meetings. The special features included reviews and special articles about a wide variety of clinical, educational, and public health subjects.

Volumes 15 to 28 had approximately 1000 print pages each. Descriptive reviews and case reports constituted approximately half of the original articles. There were only 25 articles on growth and development and 14 articles on mental health/psychiatry/psychology. Seven articles were about allergy, and there were three articles on asthma. The first photomicrograph of a human karyotype was published in 1961. Articles written by non-North Americans were few.

For the first 4 years of the May era, each original article was followed by an abstract written in Interlingua, an artificial language that borrowed heavily from both romance and English languages ("Spanghilch"). Dr Thomas Cone presented a scholarly review of the history of weighing of newborns.16 A history and description of the Della Robia medallion from the Foundling Hospital in Florence, Italy, that became the basis of the AAP insignia was written by Dr P. W. Beaver, who was the historian of the AAP.17 Articles published during the May era are interesting and give insight into then current pediatric practice and problems. A large retrospective study as-
assessed the value of pneumoencephalograms that were performed as part of the work-up of children with epilepsy and mental retardation. These provided a paucity of diagnostic information and were associated with both mortality and morbidity, and thus were considered to be unnecessary in these clinical conditions.\(^{18}\)

In 1959, Monroe-Faure described a case of necrotizing coronary arteritis in a child with a generalized rash and conjunctivitis.\(^{19}\) He was able to find 20 similar cases in his review of the literature. There is little doubt that most of these cases represented what we now call Kawasaki disease, which was identified more clearly several years later because of its epidemisity in Japan. William Silverman published a number of important articles in Pediatrics over the years. One of these, described elsewhere as a seminal article, showed markedly different incidences of kernicterus in newborns treated with two prophylactic antibiotic regimens.\(^{20}\)

**THE CLEMENT SMITH ERA, VOLUMES 29 TO 52, 1962 TO 1973**

At the beginning of this era, the editorial board was expanded to 20 members. In 1965, Dr Thomas E. Cone Jr, named editor for books, and in 1968 also became assistant editor. Cone’s efforts were evident in the high-quality book reviews published in the next decade.

The format of the journal changed. Commentaries about important or controversial areas or assessments of articles in the same volume, often written by members of the editorial board, were placed first in each issue. These were followed by articles, and then by special articles and reviews. The AAP sections were almost exclusively reports from AAP Committees, especially the Committee on Nutrition. During most of the 1960s, the annual address by the AAP president and a brief acceptance by the president-elect were published. On occasion, the presentation of the Aldrich and Grulie Awards were published. The annual Borden and Mead Johnson Award addresses usually were published as articles rather than in the AAP section. Periodically, special features included noted lectureships such as the Blackfan, Ladd and Elly Lectures, and an Alpha Omega Alpha lecture delivered by Cicilly Williams.

In 1968, abstracts and key words for each original article were mandated. Authors also were encouraged to include a section entitled “Speculation or Implications” at the end of articles to indicate possible broader significance or potential clinical implications of their work.

In Volume 31, a new section was added called “Experience and Reason.” This section was created to include “brief, factual articles.” It was noted by the editor that their “brevity should shorten the review process.” Most of the articles in this section were reports of a single or few interesting cases or descriptions of pediatric techniques or procedures.

In 1967, an editorial called attention to a plethora of articles submitted describing cytogenetic abnormalities. The editor stated a new policy: Pediatrics would limit the number of papers on chromosomal disorders to those that defined “a new syndrome that would probably have a significant frequency or illustrate an important principal.” Despite this intention, a substantial number of articles on cytogenetic were published that do not fulfill these criteria. A growing number of articles addressed problems that concerned the fetus and newborn, especially the premature infant. More than one third of the articles were concerned with neonatology. This was a time when major advances in the care of premature infants were occurring. Issues such as nutrition, temperature control, infections, and ventilatory methods were the topics of numerous articles. The etiology and treatment of hyaline membrane disease were explored in many studies. Pediatrics became the major US venue for reporting studies on newborns.

Relatively few papers addressed purely practice issues. From time to time, in the letters to the editor section, there were complaints from readers that the articles in Pediatrics were too scientific and laboratory-oriented to be of much value to the practicing pediatrician.\(^{21}\) These comments were obviously of concern to the editor, who pointed out that Pediatrics would be pleased to publish good practice papers, but that very few of them were submitted.\(^{22}\) In an editorial welcoming a new journal, Pediatric Research, Smith wrote, “Pediatric Research will avowedly be what many of its older brothers have been unconsciously and almost involuntarily becoming.”\(^{23}\) Several approaches to try to balance science and clinical relevance appeared such as “Diagnosis and Treatment,” “The Critically Ill Child,” and “Pharmacology for the Pediatrician.” These were clearly intended to be relevant to the practicing pediatrician.

The 20-year anniversary of Pediatrics evoked editorial reflections. Dr Smith commented on the changing relationship between the journal and its sponsor, the AAP.\(^{24}\) An increase in original articles had been accompanied by a corresponding decrease in the number of pages devoted to the AAP and its activities. One third of the pages in Volume 1 were listed as “Academy Proceedings and Reports.” This fraction decreased to one tenth in Volume 20. Much of this decrease was because summaries of round tables and panel discussions from the AAP annual meetings were not published.

A number of important articles appeared during the Smith era. A seminal article by Guthrie and Susi in 1963 described a bacteriologic mass assay system for the diagnosis of newborn infants with phenylketonuria.\(^{25}\) Two articles, one by Bowman and Pollack and the other by Liley, published consecutively in 1965, described the use of amniotic fluid spectroscopy for the assessment of severity of hemolytic disease as a guide for therapeutic interventions in fetuses with erythroblastosis fetalis.\(^{26-27}\)

Toward the end of his editorship, Clement Smith had disagreements with the AAP concerning advertising policies. In addition, he had health problems that limited his mobility. Many of the editorial duties were performed by Assistant Editor T. E. Cone Jr (T. E. Cone Jr, personal communication, 1997). The masthead of Volume 52 did not list an editor.
Jerold F Lucey has served as editor for 24 years. I have divided his editorial tenure into two approximately equal eras, first and second. The format of Pediatrics was fairly consistent. Commentaries written by members of the editorial board or invited authors were included in each issue. The commentary section was headed by a disclaimer: “The opinions expressed are those of the authors and are not necessarily those of the American Academy of Pediatrics or its Committees.” The number of committee statements escalated steadily. For several years in the late 1980s, statement were printed on perforated pages to make removal for saving easier. Although R. J. McKay was listed as editor for books for several years, formal book reviews virtually disappeared; however, a list of books received was printed in each volume.

One third of the articles during the first Lucey era involved the fetus and newborn. Other topics received major emphasis in many articles published during the first and second Lucey eras. In 1972, Steinschneider from Syracuse University Medical School described a family in which several infants had died from apparent sudden infant death syndrome (SIDS). In his paper, Steinschneider hypothesized that there might be a genetic predisposition to SIDS as well as a causal association between SIDS and infantile apnea. This became the subject of more than 20 articles that described monitoring breathing and heart rates of infants who had episodes of apnea requiring resuscitation (called near-misses) as well as of siblings of infants who had died of SIDS. A home monitoring industry emerged in the United States. Literally millions of federal research dollars were awarded for investigation of the apnea/SIDS relationship. The National Institutes of Health conducted a consensus conference on SIDS, infantile apnea, and home monitoring. Although there were no convincing data to support the value of home monitoring in predicting or preventing SIDS, the recommendations of the conference advocated monitoring only at the discretion of the physician. Articles about apnea, monitoring, and SIDS continue to be published in Pediatrics in the late 1980s and in the 1990s. Despite the widespread use of monitoring in the United States, the annual incidence of SIDS did not change.

In 1992, an AAP task force reviewed a growing body of international data that showed an association between prone sleeping position and some cases of SIDS. The task force concluded that supine, as opposed to prone, positioning of the infant during sleep could reduce the incidence of SIDS. This recommendation was greeted by criticism and opposition, much of it by individuals with long-standing involvement in monitoring. During the next 5 years, prone sleeping was advocated increasingly by the AAP and the Centers for Disease Control and Prevention as the “Back to Sleep” initiative. The incidence of SIDS in the United States decreased by approximately one third. In 1997, a book documented that children reported in the 1972 article by Steinschneider were victims of parental homicide rather than of SIDS. In a remarkable comment, the editor reviewed this book and summarized his views of the more than 25 years and scores of articles that had been published in Pediatrics concerning apnea, monitoring, and SIDS. Lucey stated that the article by Steinschneider was flawed and should never have been published. Despite this editorial opinion, articles about SIDS, monitoring, and apnea continue to be published.

A recurrent worry of the editors of Pediatrics from the earliest days of the journal has been its perceived relevance and usefulness to its readers. This concern inspired a survey of subscriber opinion about the journal in 1976, early in the first Lucey era. Assistant editor Robert Haggerty reported that approximately equal numbers of subscribers believed that Pediatrics was either too research-oriented or too clinically oriented.

A seminal article by Starko and associates in the first Lucey era suggested a possible epidemiologic association between Reye syndrome and use of salicylates. In 1983, Smythe and associates suggested the possible benefit of surfactant treatment for hyaline membrane disease. The value of surfactant replacement in preventing and ameliorating respiratory distress syndrome was proven conclusively by large randomized studies so that, in a 1991 editorial, Dr Lucey was able to cite 32 randomized studies demonstrating the effectiveness of surfactant therapy.

This era of pediatrics was characterized by increasing numbers of articles about psychosocial and behavioral issues and articles concerning the delivery, costs, and control of health care. The involvement of pediatricians in the multiple problems of adolescents was reflected in many articles. Articles on the newborn continued to take up a significant proportion of the pages of Pediatrics, but often they involved teenage or drug-abusing mothers. Articles about classic diseases such as CF still were published, but in the second Lucey era, they often discussed psychosocial adjustments of patients and families as much as pathophysiologic processes or treatment. It should be noted that there has been a marked proliferation of subspecialty journals in the field of pediatrics during the past 2 decades. The competition for excellent articles is fierce.

Articles about pediatric practice issues including managed care, Medicaid, office records, and computers were published. Descriptions of pediatric house staff education including continuity clinics and telephone practice appeared. There were few aspects of the practice of pediatrics that were not addressed. With the increased emphasis on psychosocial, economic, and epidemiologic issues, the proportion of original articles that could be classified as scientific studies decreased.

It was more difficult to categorize the content of the articles of the second Lucey era because of new or
emerging conditions. The human immunodeficiency virus/acquired immunodeficiency syndrome epidemic was apparent in articles that addressed psychosocial, behavioral, epidemiologic, and medical issues. Sexual and child abuse, substance abuse, adolescent suicide, and teenage pregnancy, and contraception were hot topics. A series of book reports written by the Child Development Center of Vanderbilt University were published called “Reviews in the Lay Literature. What Parents Are Reading.”

During the Clement Smith era, the editor expressed his concerns that Pediatrics was becoming "too scientific." In an era of increasing psychosocial emphasis, the question might be asked: Is Pediatrics now becoming too unscientific?

Large, multiinstitutional cooperative studies were published more often. These used standardized protocols to conduct large studies of problems such as surfactant therapy, newer techniques of respiratory support, extracorporeal membrane oxygenation, nitric oxide therapy, and others. These studies often were able to reach definitive conclusions quickly because of the large numbers of experimental subjects that could be recruited in the cooperating institutions. Meta-analyses were performed increasingly to analyze a variety of clinical problems.

Major advances in caring for ever smaller infants were described. In the McCulloch era, even large premature infants had high morbidity and mortality. Bain and colleagues reported in 1948 that the mortality of premature infants with birth weights <1000 g was 90%. As the Smith and the two Lucey eras progressed, studies describing lower mortality and morbidity of infants with ever-decreasing birth weight appeared. By the end of the second Lucey era, reports of decreased mortality and improved long-term follow-up of very low birth weight infants (<700 g) appeared more regularly.

During the second Lucey era, AAP communications consisted primarily of Statements of Committees and Task Forces. The section on pediatric urology regularly presented abstracts from its annual meeting. Brief descriptions and photographs of the winners of the AAP Resident and Practitioner Research Awards were published. However, AAP presidential addresses were published only sporadically, the last of these being that by AAP President Birt Harvey in 1991. Discontinuing publication of the presidential addresses was not an editorial decision, but apparently occurred because the presidents just did not submit their addresses (J. F. Lucey, personal communication, 1998). The AAP News also provided a rapid, alternative venue for these addresses. Articles covering a wide spectrum of subjects such as history and international pediatrics often were accepted, which expanded and enhanced the content of Pediatrics.

Pediatrics became a sounding board for controversial issues that were aired in special articles as well as in letters to the editor. This is well illustrated by the issue of lead poisoning. Although long recognized as a problem for the pediatric population, this issue was prominent on the pages of Pediatrics in the 1990s. In 1991, the Centers for Disease Control and Prevention issued new and much more rigorous recommendations that involved routine screening of all infants for lead poisoning as well as a change in the definition of what constituted a significant level of blood lead. In 1993, a single issue contained eight separate articles about the epidemiology of lead poisoning. During this same time, commentaries, editorials, and letters to the editor addressed, with considerable passion, the alleged falsification of scientific data in an earlier article in the New England Journal of Medicine by Dr Herbert Needleman. These kinds of exchanges certainly made the pages of Pediatrics more lively!

**OVERVIEWS**

**Statistics and Controlled Studies**

Statistical analyses were used in ~20% of the scientific studies that appeared in Pediatrics during the McCulloch era. These were usually very simple, such as the determination of the mean and standard deviation of groups of numerical data. In <10% of the articles, the statistical significance of differences between groups of experimental data determined with a t test or similar calculation appeared. Only one article contained a calculated regression coefficient.

During the May era, statistics became more common, with 40% of the scientific articles using at least minimal analyses, usually the determination of t or P values for significance of differences between groups of data.

By the middle of the Smith era, most of the scientific articles used some statistical evaluations, and early in the Lucey era, the review process included an assessment of the statistical evaluation of scientific data by the referees. However, it was not until 1983 that, for several years, directions concerning statistics were included in the instructions for manuscript preparations. Authors were instructed: “For advice concerning the statistical aspects of studies, consult ‘Statistic Guidelines for Contributions to Medical Journals,’ Br Med J. 1983;286:1485–1488.”

The first prospective, double-blind, controlled study to be published in Pediatrics was reported by Abernathy and colleagues from the University of Minnesota. Their study showed no significant clinical differences from the administration of either intramuscular gamma globulin or placebo to asthmatic children. The first meta-analysis was published in Pediatrics in 1988.

**Ethical Issues and Informed Consent**

Modern ethical concerns are not evident in the scientific studies published in Pediatrics through much of the 1960s. In many studies, groups of control subjects including premature and newborn infants from the authors’ own institutions were used to generate normative data. In many instances, the interventions used were not especially harmful. However, others were certainly intrusive, and there are some studies that from the vantage point of 50 years later evoke concern.

Some of these included pharmacokinetic studies that required 10 to 30 mL of blood, sometimes obtained by femoral venipuncture, for laboratory de-
terminations in sick as well as “normal control newborn infants and children”; a study that entailed prolonged urinary bladder catheterization of healthy infants; a study involving administration of radioactive iodine to mentally retarded infants; a study involving bone marrow aspirations in 50 healthy children; and studies in which healthy newborn infants were exposed to 10% and 12% oxygen breathing mixtures. An American cardiologist who was on sabbatical leave in Sweden performed extensive cardiac catheterization on 4 healthy newborns to establish neonatal cardiodynamic parameters. Perhaps most disturbing was a study in which viable toxocara larvae were administered to two mentally retarded infants (and also to mice!) to determine the duration of infestation.54 Informed consent and ethical considerations apparently were not considered by the investigators, the referees who reviewed and accepted the papers, or the editorial board that approved publication.

This was not unique to Pediatrics. In 1966, Dr Henry Beecher, a Boston anesthesiologist, described striking examples of “unethical or questionably ethical procedures” that he found in published reports of research involving human subjects. In addition, the articles did not mention informed consent.59 There were no children in the studies that Beecher cited, but almost all of them involved vulnerable or disadvantaged research subjects.

The first federal policy statements on protection of human subjects were issued by the Surgeon General of the US Public Health Service in 1966. These directed that no research or training grant involving human investigation would be awarded unless there was institutional review to ensure the rights and welfare of subjects, the appropriate securing of informed consent, and an determination of the risks and benefits of the investigation. These regulations required a local review committee or institutional review board.50 This was followed by a series of reports and recommendations by The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. In 1977, a report concerning research in children was issued. This specified informed parental consent and the concept of minimal risk or minor increment above minimal risk for acceptable research of no benefit to the child.51

The first clear statement of informed consent in an article published in Pediatrics appeared in a paper by Barrett and associates, who immunized infants with a new combination of tetanus, pertussis, and poliomyelitis antigens.52 Samuel Z. Levine, in an commentary entitled “Research in Premature Infants: Some Perspectives,” cautioned investigators to “weigh conscientiously all procedures with potentially harmful effects before their use.” However, he made no comments about a need to inform the parent.53

In a 1960 study involving the administration of radioactive iodine to newborn infants, Ogborn and associates measured 1'31 uptake in 28 healthy newborns.54 Although informed consent apparently was not obtained, the authors indicate that they had given some consideration to the ethics of their stud-

ies. Although they believed that risk to their newborn subjects was negligible because of a low calculated radiation exposure, they stated, “A calculated risk is taken in performance of any irradiation examination, but the potential benefits may outweigh any hypothetical danger whenever such examination is indicated.” As far as can be determined, the only “potential benefit” of this study was to determine the uptake of 1'31 by the thyroid glands of 28 healthy newborns. The evolution of ethical concepts concerning research in children is well illustrated by a study published in 1981.55 This paper described experiments of postnatal adjustments in renal function that involved intravenous and intraarterial catheters as well as bladder catheterization and infusion of para-amino hippurate to healthy newborns. The authors state that the study had actually been performed 20 years earlier, “before informed consent was required.”

In 1985, a study of the effects of phenothiazines on infantile apnea was published from a group of investigators from Brussels.56 A report of a possible epidemiologic association between SIDS and phenothiazine use had been published 3 years earlier in Pediatrics. The Belgian authors gave phenothiazines to “four healthy infants selected at random” from their clinic and then monitored their respirations and heart rates during sleep. At this time, almost all US articles involving investigational interventions published in Pediatrics specifically indicated parental informed consent and institutional review board approval. Consideration of ethical issues became a standard part of the editorial review process.

Retraction of Published Articles

Two cases of retraction of articles published previously because of serious questions concerning experimental design or data collection or interpretation were identified during the first 50 years of Pediatrics. In 1986, a group of investigators presented studies concerning the safety and efficacy of low-fat diets and bile acid resins in reducing serum cholesterol levels in a large group of children who were heterozygous for hypercholesterolemia.57 If accurate, these findings would provide a rationale for widespread testing of children for this defect as well as vigorous dietary intervention. However, 1 year later, a notice from the editor (that had a bold, black border!) announced that the authors had withdrawn their article. Separate investigations by the University of Cincinnati and the National Institutes of Health had uncovered significant errors as well as deficiencies in data collection and interpretation.58

A 1990 study of the influence of dietary proteins on plasma lipid levels reported that infant formulas with high casein content significantly increased blood cholesterol and lipid content.59 A few months later, Pediatrics published an announcement by the authors that they were withdrawing their previously published article because “problems associated with the treatment group assignments have made interpretation of data impossible.”60
Reinventing the Wheel

Purview of Pediatrics over 50 years reveals instances of repetition of the same kind of studies with essentially the same results. In most cases, the later articles do not cite earlier ones. This is illustrated by a series of articles concerning chest roentgenograms of healthy children. In 1961, Nickey assessed the results of >1000 routine chest roentgenograms that had been performed on healthy infants “as part of their well child care.” Fewer than 0.1% of these x-rays showed significant abnormalities. The author concluded, “Chest x-rays should not be considered as part of well child care and should not be considered to be a replacement for careful history, skin testing and physical examination.”61 Twelve years later, Brill and associates reported results of 1000 chest radiograms that were performed as part of a general screening protocol in the absence of specific medical indications. Although they found 0.6% of the studies had abnormalities, most of these were minor skeletal abnormalities: “No medical or surgical interventions or treatments were indicated as a result of their detection.”62 Only 1 decade later, Wood and Hoekelman reviewed a large series of chest roentgenograms performed routinely before elective surgery. There was a very low incidence of abnormalities, almost all of which had no clinical significance.63

In the early eras of Pediatrics, literature reviews were difficult. Ten-year and 20-year indices of the contents of Pediatrics were published in 1958 and 1968, which greatly facilitated review of published articles. No indices have been assembled since 1968, perhaps because of the availability of the Index Medicus after 1970.

White Unfilled Space WUS Fillers

Because of print spacing, there are often large blank areas at the end of articles, sometimes of half a page or more. (Jerry Lucey refers to these as white unfilled spaces, or WUS.) Editors, as does nature, abhor a vacuum, and beginning in the May era, these spaces have been used for a variety of items, including abstracts of articles published in other journals, announcements of AAP meetings, scheduling of Board examinations, errata, and so on.

A more interesting use of the WUS fillers was introduced during the Smith era by Dr Thomas E. Cone Jr. Dr Cone was assistant editor and editor for books and an avid pediatric historian. He was particularly interested in early European and American medical and lay writings and had an extensive collection of pre-Civil War readers and primers. During the Smith era and well into the two Lucey eras, he contributed more than 600 extracts from articles and books about children, societal perceptions of children, children’s diseases, and their medical care. His delightful and often insightful extracts were signed “Submitted by T.E.C. Jr.” The last TEC Jr WUS appeared in 1994.

During both Lucey eras, a large number of WUS fillers were “Submitted by Student.” “Student” is an omnivorous reader whose contributions are taken from newspapers, published books, and journal articles. These provide insights into pediatric, social, economic, and medical issues and often were controversial or ironic. He particularly comments on experimental design and statistics.

Editorial board members are encouraged to make WUS contributions. A number these were submitted by Drs R. J. McKay and Robert Haggerty. The editor also contributed, and continues to contribute, many WUS that are signed, “Noted by JFL.” During the second Lucey era, some WUS were inserted in the middle of the advertising sections, often filling an entire page. This probably was done as a reassurance to advertisers that readers would be less likely to skip the advertising pages.

Photography

Patient confidentiality does not appear to be a concern in the early years of the Journal. Photographs, many of which showed full faces, were included in articles, especially in case reports and reviews. On a few occasions the eyes of a patient were masked to ensure anonymity, but these rather exceptional instances were apparently the result of the author’s sensitivity rather than of Journal policy. Eye or face covers were used more frequently for photographs of adults or when there was an entire body photograph that included the genitalia!

In the two Lucey eras, fewer photographs of patients were published, and they usually included eye covers, unless the purpose of the photograph was to illustrate a specific facial diagnostic feature or syndromic face. It was not until 1972 that the instructions for manuscript preparation directed authors to obtain written permission from parents before publishing photographs of their children.

The first color photograph, a photomicrograph of a cytoplasmic giant inclusion in measles, appeared in 1959.64 Color photographs have appeared relatively infrequently, perhaps because the authors have to pay the cost of publication. In the early 1990s, there were a series of articles describing the morphology of the hymen, both normal and that associated with sexual abuse. These included a number of color photographs of female infants’ genitalia (seven full pages of color photographs in one article alone!).65–67

EPILOGUE

Critically reviewing the content of 100 volumes of Pediatrics, each of which has approximately 1000 pages, has been a daunting, but interesting, personal experience. The 50 years of Pediatrics encompass my entire professional career; the thousands of authors include personal idols, professional role models, colleagues, and friends. I have written 22 papers that appeared in Pediatrics, including one study that, from today’s standards, I wish I had never done . . . In addition, I have been an “Unknown Reviewer” for more than 30 years; thus, I have had long, personal investment in Pediatrics.

The whole panorama of American pediatrics in the second half of the 20th Century has been played out on the pages of Pediatrics. Pediatricians and the AAP can be proud of how far we have come in our mis-
sion to serve and heal the children of the United States and of the world.

REFERENCES

The Ever-changing Content of *Pediatrics* Over Fifty Years
Howard A. Pearson
*Pediatrics* 1998;102;168

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