

# Styles of Care Provided to Children in the United States: A Comparison by Physician Specialty

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This study was based on findings from a national survey of physicians that was conducted from 1975 to 1977. The data concern face-to-face encounters with children in the ambulatory care setting. Over one half of the practices of pediatricians consisted of infants and preschoolers, whereas well over 50 percent of the child patients of other types of physicians were 10 to 19 years old. The proportion of visits dealing with a problem already under care was consistently greater for specialists other than primary care physicians; the proportion of visits for preventive care was much lower in the practices of these specialists than in primary care practice. These findings suggest that other specialists are functioning in ways different from primary care physicians. As compared with family physicians, pediatricians performed more diagnostic tests for all diagnoses and more immunizations and counseling about growth and development, were more likely to have seen children previously for problems other than the one dealt with in the visit under consideration, and were more likely to report that no specific therapy was required (except for well-child care). However, family physicians did more counseling about family and sex matters than pediatricians, were much more likely to have seen musculoskeletal and skin problems among 10- to 19-year-old patients, and were much more likely to have administered cauterization, cryotherapy, or suturing for skin problems. Family physicians provided more counseling of all types and did more minor surgical procedures than general practitioners. These and other findings show the existence of systematic differences across specialties in the care of children, even for apparently similar problems.

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Several studies suggest that in the country as a whole, the care provided by different types of physicians varies systematically even when there is no reason to suspect differences in the nature of patients' problems. Noren and colleagues<sup>1</sup> showed that internists, as compared with general practi-

tioners, were more likely to see referred patients, refer patients, spend more time with patients, perform laboratory and x-ray studies regardless of the type of problem, obtain more extensive histories and perform general examinations, and provide instruction and health education as a substantial part of their treatment of patients. Fishbane and Starfield<sup>2</sup> compared the encounters of pediatricians and general practitioners and showed that pediatricians saw a greater proportion of younger children, provided more constant care over time, and provided more preventive care. Pediatricians also ordered more laboratory tests but prescribed fewer drugs. Both of these studies were based upon data from the National Ambulatory Care Survey, an ongoing national survey of a probability sample of all physicians in office-based practice in the United States. Response rates in this survey are consistently high (as compared with other similar surveys), so that national estimates are likely to represent the nature of practice in the United States. The amount of data collected in this survey, however, is relatively small, consisting of information on approximately ten characteristics. In particular, the survey lacks detail about types of diagnostic and therapeutic procedures.

In 1979 the Ambulatory Pediatric Association, with support from the Robert Wood Johnson Foundation, undertook an analysis of data that had been collected by the Division of Research in Medical Education at the University of Southern California School of Medicine from a survey of physicians in 24 different specialties during different months in 1976, 1977, and 1978. The details of this survey have been presented elsewhere.<sup>3,4</sup> The survey consisted of several parts, only one of which, the log diary, is the source of data in this paper. Each participating physician completed a log diary for each patient seen in a preassigned three-day period. In the diary were recorded the age and sex of the patient, up to three diagnoses, 20 diagnostic and 20 therapeutic procedures most often used by the physicians in each specialty, and disposition of the patient. Such detail made it possible to examine the nature of care provided to children with particular diagnoses and to determine the extent of differences among physicians of different specialties. Physicians in specialties other than primary care were included in the comparisons because some literature<sup>5</sup> has suggested that these specialists may provide a substantial amount of primary care.

## Methods

This study involved the creation of data files on visits made by children aged 0 to 19 years to physicians in the 24 specialties. For the purposes of this analysis, these 24 specialties were collapsed into four groups: pediatricians, family physicians, general practitioners, and all other physicians. Only physicians who saw children are the subject of this paper; 429 pediatricians, 364 family physicians, 251 general practitioners, and 3,089 other specialists were studied.

Although the original survey included physicians in both institutional and noninstitutional settings, this analysis focuses only on physicians in noninstitutional practice. The analysis is not concerned with the treatment of hospitalized patients, but only with face-to-face ambulatory care visits. Physicians were instructed to record all ambulatory visits; consequently, the data base includes clinic and emergency room visits if the physician saw the patient in those settings as well as visits in offices. Telephone calls are excluded from this analysis.

The data presented (percentages and mean values) are weighted to compensate for the different rates at which different groups of physicians were sampled and differential response rates were obtained, thus restricting the application of certain statistical tests such as chi-square. In all tables the number of encounters on which the data are based is indicated; standard errors or confidence intervals are also shown where significance of the differences may not be obvious. Where the standard errors are not provided, they can be calculated by applying the formula  $\sqrt{\frac{P(-P)}{n}}$  where  $P$  is the proportion (percentage divided by 100) and  $n$  is the sample size. In interpreting the differences, it is important to recognize that all analyses were stratified by the age of the child. The findings presented were consistent across the age groups except where noted; in the vast majority of the cases these included the most frequent and important phenomena in the primary care of children. Therefore, consistency of the findings in five separate age groups is itself an indication that they are unlikely to be due to chance.

Despite the strengths of the analyses, the limitations of the study design should not be overlooked. In the first place, the specialty designations are derived from information in the American

Medical Association (AMA) files and are therefore based upon self-identification. Many general practitioners have become board certified in family practice and many self-reported family physicians have not had family practice residencies or become board certified. A study of the reliability of the data in the larger study indicated that nearly one third of physicians categorized as general practitioners reported that they were family physicians when interviewed in the follow-up.<sup>6</sup> The interpretation of the differences between family physicians and general practitioners should be guarded; it is likely, however, that misclassification would attenuate rather than distort real differences.

A second problem concerns the categorization of pediatricians. The only pediatric subspecialists that are separated in the AMA data are allergists and cardiologists; all others are included with general pediatricians. However, the restriction of the analyses to physicians in noninstitutional practices reduces the impact of this inclusion of pediatric subspecialists with generalists.

A third concern is the relatively low response rates of some of the groups of practitioners. Only one half of the pediatricians asked to participate did so; for family physicians the response was 44 percent, and for general practitioners it was 36 percent. Moreover, these physicians were sampled at different times of the year (October for family physicians, July and September for general practitioners, November and December for pediatricians, and various other times for the other specialists). Although analyses concerning particular conditions should not be greatly influenced by these differences, variations in case mix may be affected. For example, well-child care for school-age children is likely to be more concentrated in the summer months; the proportion of effort devoted to well-child care in the practices of pediatricians may therefore be underestimated in these data, whereas that for family physicians and generalists may be somewhat overestimated.

## Results

Ages of children were categorized as follows: less than 1 year, 1 to 4 years, 5 to 9 years, 10 to 14 years, and 15 to 19 years. For the ages 15 to 19 years the "other" specialist category was divided into internist, obstetrician-gynecologist,

and others.

Pediatricians and other specialists were more likely to practice in urban areas, a greater proportion of pediatricians were women, very few general practitioners were board certified, and general practitioners as a group were older than the other physicians.

Over 50 percent of the practices of the pediatricians consisted of infants and preschoolers. In contrast, well over 50 percent of the child patients of the other types of physicians were 10 to 19 years old as compared with about one in five patients of pediatricians.

On average pediatricians spent more time per face-to-face encounter with children than did family physicians or general practitioners (about 10<sup>1</sup>/<sub>2</sub> minutes vs about 9 minutes and 8<sup>1</sup>/<sub>2</sub> minutes, respectively) but less time overall than other specialists (about 13<sup>1</sup>/<sub>2</sub> minutes). This difference was consistent across all age groups. However, the data concern all encounters regardless of problem under consideration, and differences, particularly between primary care physicians and other specialists, may be a result of different types and complexity of problems.

The proportion of children seen previously for the same problem occasioning the recorded encounter was consistently at least twice as great for other specialists as it was for the primary care physicians, suggesting that about one half of the child visits to other specialists were oriented toward continuing care of specific types rather than more comprehensive care of a mixture of problems.

Specialists were found to provide a different type of care to children than do pediatricians, family physicians, and general practitioners; for example, these other specialists provide considerably less preventive care (at least as regarded by the physicians themselves). Visits by children in all age groups to general practitioners resembled those to pediatricians in that 85 to 90 percent were for preventive or medical reasons. On the other hand, a smaller percentage of visits to family physicians were for preventive care visits than was the case for pediatricians and general practitioners. As the percentage of visits for medical reasons was approximately the same as that for pediatricians and general practitioners, the difference is in the greater proportion of encounters with family physicians that were for minor surgery and combined medical and surgical reasons. In all age groups, the

proportion of patients seen for minor surgery or combined medical and surgical reasons was two to three times greater among family physicians than among pediatricians.

### *Focus of Visits*

The five most common foci of encounters for children under one year of age were well patient, upper respiratory tract, ears, gastrointestinal, and skin; however, the data were similar for children of other ages. Musculoskeletal, eye, ear, and skin problems accounted for over two thirds of visits by children to other specialists; visits with these foci accounted for much lower percentages of child visits to primary care providers. However, musculoskeletal and skin problems were much more prominent in 10- to 14-year-old and 15- to 19-year old patients in the practices of family physicians than in the practices of pediatricians.

### *Condition-Specific Management*

Comparisons of procedures were restricted to those conditions in which there were sufficient numbers of visits to provide stable estimates. Five of the most common foci (well-patient, skin, ear, mouth or throat, upper respiratory tract) and five primary diagnoses (medical examination, upper respiratory tract infection, pneumonia, pharyngitis, otitis media) were chosen.

For some of these conditions, the number of survey encounters in certain age categories was very small, precluding any firm judgments about the workup or therapy of the problem by type of physician. However, the nature of the findings was similar regardless of the condition or age of child. Therefore, the data are presented in detail for only one focus (well patient) and one diagnosis (pharyngitis) in two age groups. The few findings that deviated from those for pharyngitis and the well patients are noted below.

Pediatricians were more likely than the other types of physicians to obtain cultures in the diagnosis of pharyngitis. Pediatricians were also likely to do more diagnostic testing for other conditions, eg, audiometry testing, especially for encounters with a focus on the ear or with a diagnosis of otitis media. Pediatricians were more likely to make additional diagnoses in all age groups, regardless of the focus or diagnosis of the visit.

Pediatricians were more likely to indicate that they provided immunization to 15- to 19-year-old patients (but not for 5- to 9-year-olds) presenting for well-person care and for those aged 10 to 14 years with the diagnosis, medical examination. They reported more counseling about growth and development in all age groups than did other primary care physicians. General practitioners reported lower frequencies of such counseling in all age groups than family physicians except for children aged 5 to 9 years. On the other hand, pediatricians reported less counseling about family and sex matters than family physicians, who also did more such counseling than the general practitioners. Pediatricians, on the other hand, were much more likely to report that they counseled about diet and exercise. Pediatricians were generally more likely than other types of physicians to have seen the patient previously and to refer the patient for medical or surgical reason regardless of the focus or diagnosis. In general, pediatricians were more likely to report that no specific therapy was ordered, except in the case of well-patient visits, in which there were no consistent differences. Although the frequency with which they ordered systemic drugs did not differ consistently across the conditions, pediatricians were less likely to indicate that they prescribed systemic drugs for otitis media and upper respiratory tract infection than other physicians in all age groups.

Comparison of therapies prescribed for encounters with a focus on the skin revealed two other consistent differences. Family physicians (but not general practitioners) were more likely than pediatricians to have administered cauterization or cryotherapy or to have done suturing.

### **Discussion**

The findings corroborate those of other studies that show the existence of differences across specialties in the care of children, even concerning the management of similar problems. Like these other reports, this one fails to suggest reasons. Rogers<sup>7</sup> hypothesized that dissimilarities might result from differences in the way pediatricians and generalists distribute themselves geographically or from differences in the socioeconomic status of patients in practices of different types of physicians. In the larger study from which the data in this paper were

taken, pediatricians were much more likely to be located in the Northeast and in areas where the population exceeded one million; in contrast, general practitioners and family physicians were more likely than pediatricians to be in the north central or southern regions of the country and in areas with populations under 50,000.<sup>8</sup> In this study, which included only physicians who provide care to children, the urban predilection of pediatricians is also evident. Socioeconomic factors might explain at least some of the differences in the practice patterns, as other studies<sup>9-11</sup> indicate that children in families with lower incomes are more likely to receive their regular care from generalists than are children in families with higher incomes. As no data on socioeconomic characteristics of patients were collected in this study, it is not possible to determine whether practice patterns vary according to the social class of the population served.

It is also possible that pediatricians (as compared with generalists) see patients who are more ill, as reflected in the longer duration of visits (even when controlled for age) and greater referral rates for specific problems. However, the only evidence to suggest that this might be the case is the greater proportion of children with additional diagnoses in the practices of pediatricians and the higher scheduled return visits by children in the younger age groups. These findings, however, could reflect dissimilarities in style rather than differences in the needs of the patient, as there are also differences in the diagnosis and management of well (as distinguished from ill) children. Also, to the extent that children of lower social status (who have greater morbidity than other children)<sup>12</sup> are more likely to be seen by generalists, children in pediatric practice would be expected to be less ill. Although it is possible that a greater proportion of children seen by pediatricians are referred to them for more specialized child care by other types of physicians, it is unlikely that such referral would account for the differences, as only 1.5 percent of all visits to pediatricians occur by referral.<sup>13</sup>

Analysis of differences in practice patterns between pediatricians and family physicians has particular relevance in current discussions about the adequacy of physician resources for child health care. Budetti et al<sup>14</sup> suggested that there are several characteristics of family practice favoring an expansion of its child health-care role. Among these is the growing tendency for family physicians to receive obstetric as well as pediatric training.

As the youngest age groups within the pediatric population are traditionally served by pediatricians, it is interesting that family physicians see proportionately fewer infants and children from birth through 9 years of age than do pediatricians but more patients in this age group than do general practitioners. Analyses by Rosenblatt et al<sup>15</sup> indicate that there is a direct relationship between age of generalists and average age of patients in their practice; that is, the older the physician, the older the patients in the practice. To the extent that the population of young family physicians will be increasing relative to older general practitioners, an increasing proportion of children can be expected to be found in the practices of family-oriented generalists.

Family physicians also tend to be in an intermediate position (relative to pediatricians and general practitioners) with regard to several other important characteristics examined in this study, including many of the condition-specific modes of diagnosis and therapy. However, family physicians are similar to general practitioners as contrasted with pediatricians in the amount of time spent with patients; in addition, family physicians are distinctive in (1) the relatively high proportion (compared with pediatricians and general practitioners) of patients they treat with minor surgical procedures (eg, cauterization, cryotherapy, suturing), (2) the greater proportion of visits in all age groups that are specifically for minor surgery or a combined medical and surgical reason, and (3) their counseling on matters related to family and sex. To the extent that the distinction between general practitioners and family physicians is attributable to age and training, the practices of generalists should become more like that of pediatricians, except for the notable differences in minor surgery.

There is evidence, however, for the importance of factors other than individual background or training; this evidence is found in other analyses of the same data set as the one used in this study. Greenwald et al<sup>16</sup> employed a multivariate analysis when comparing encounters of patients of all ages with several conditions. Although there were differences among specialists similar to those found in this study, the most striking differences resulted from regional distinctions. These differences did not arise simply because some regions were more urbanized than others or contained different distributions of specialists. To the extent that physi-

cians tend to remain in regions where they were trained, differences among the specialists' training programs are likely to merely exacerbate rather than cause existing regional differences.

The unanswered question is the extent to which these existing differences signify differences in costs of care and in quality, particularly with regard to its impact on child health, function, and well-being. Dutton showed that the way in which care is organized has a significant impact on the nature of the care provided<sup>11</sup> and on the health status of children.<sup>17</sup> A review of the literature by Palmer and Reilly<sup>18</sup> indicates that the organizational setting of practice plays a greater role in determining the quality of care than do individual characteristics of the physician. In studies of the quality of care for particular conditions, the frequency with which the condition is seen by individual physicians is a significant predictor of the quality of care for that condition.<sup>18</sup>

The impact of factors other than the training of the physician on practice patterns may explain the diverse findings of studies comparing the quality of care delivered by pediatricians and generalists.<sup>19-23</sup> There is little doubt, however, of the existence of differences in the nature of the practices. Among the most important are the differences in focus on the very young child (as compared with children aged 10 years and older), differences in the involvement of the physician in minor surgical care (accidents and injuries constitute much of the health care needs of children), and differences in the involvement of the physician in issues other than those directly related to organic medical problems. These differences have implications for the deployment of physicians and for their organization and reimbursement. They deserve attention by those who are involved in the training of the respective specialists.

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