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CHILD HEALTH SERVICES IN IOWA

REPORT OF THE AMERICAN ACADEMY OF PEDIATRICS'
STUDY OF CHILD HEALTH IN IOWA

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STUDY OF CHILD HEALTH SERVICES IN IOWA

Foreword

This report of child health services in Iowa is part of a nation-wide study which has been in progress for three years under the direction of the American Academy of Pediatrics, with the cooperation of the U. S. Children's Bureau and the U. S. Public Health Service. The study was conceived in September 1944, when members of the American Pediatric Society expressed their belief that physicians should assume greater responsibility in planning for the medical care of children. A committee representing the American Academy of Pediatrics, the American Pediatric Society, and the Maternal and Child Health Advisory Committee of the U. S. Children's Bureau, prepared a report, which was unanimously accepted by the members of the Academy at their meeting in November 1944¹, thus committing them to the following objective: "To make available to all mothers and children of the United States all essential preventive, diagnostic and curative medical services of high quality which, used in cooperation with other services for children, will make this country an ideal place for children to grow into responsible citizens."

At the outset it was realized that data needed for planning were incomplete, scattered, and in some fields totally lacking. Hence, the Academy undertook a nation-wide study to determine existing facilities and services for medical and health care of children.

The aim, scope and plan of the study were presented to the Iowa Pediatric Society April 18, 1946, by Ward L. Chadwick, M.D., of Denver, Colo., regional director of the study of child health services. The Iowa Pediatric Society pledged full cooperation and assistance. The same day the House of Delegates of the Iowa State Medical Society voted approval of the study in Iowa.

An advisory committee was set up and met early in May 1946. The purpose and plan of the survey were explained to these representative officers of organizations in the state interested in child care by the state chairman of the Academy of Pediatrics. The following organizations and individuals promised their assistance in making the survey a success:

Walter L. Bierring, M.D., State Commissioner of Public Health
John M. Hayek, M.D., State Board of Health

IOWA STUDY OF CHILD HEALTH SERVICES	
American Academy of Pediatrics	
State Chairman	James E. Dyson, M.D.
Executive Secretary	Perry P. Amick, M.D.
American Academy of Pediatrics Nation-Wide Study of Child Health Services	
Made with the cooperation of the U. S. Children's Bureau and the U. S. Public Health Service	
Committee for the Study	
Warren R. Sisson, M.D.	Chairman
Allan M. Butler, M.D.	Joseph I. Linde, M.D.
Harvey F. Garrison, M.D.	Arthur H. London, Jr., M.D.
Henry F. Hemholz, M.D.	Joseph S. Wall, M.D.
Lee Forrest Hill, M.D.	James L. Wilson, M.D.
John P. Hubbard, M.D.	Director
Advisory Committee	
Joseph S. Wall, M.D.	American Academy of Pediatrics
Martha M. Elliot, M.D.	U. S. Children's Bureau
George St. J. Perrott	U. S. Public Health Service

¹J. Pediat., xxv.: 625-630 (December) 1944.

Robert L. Parker, M.D., President, Iowa State Medical Society
Joseph B. Kennedy, M.D., President, Iowa State Dental Society
Olin E. Hoffman, D.D.S., Executive Secretary, Iowa State Dental Society

Channing G. Smith, M.D., Medical Advisor, State Board of Social Welfare

Paul Hansen, President, Iowa Hospital Association
John V. McCarthy, State Representative, National Foundation for Infantile Paralysis

C. W. Kammeier, Executive Secretary, Iowa Tuberculosis and Health Association

Miss Adeline Hendrix, Executive Secretary, State Association for Registered Nursing

Mr. R. J. Laird, State Adjutant, American Legion

Mrs. M. Myrton Skelly, Executive Secretary, American Legion Auxiliary

Judge F. H. Cooney, Chairman, Child Welfare Division, American Legion

Mrs. Dorothy Phillips, Executive Secretary, Iowa Society for Crippled Children and Adults

Mrs. A. L. Bunce, President-Elect, American Association of University Women

Mrs. Raymond Sayer, President, Extension Department, Iowa Farm Bureau Federation

Mrs. W. R. Hornaday, Co-Chairman, Child Welfare Division, Federation of Women's Clubs

Rev. F. T. Zuch, Director of Catholic Charities

Mrs. L. S. Mumford, President, Iowa Congress of P.-T.A.

Miss Lillian Edmunds, Executive Secretary, Negro Community Centers

Mr. A. H. Blank, State Chairman of the Movie March of Dimes

Miss Marie Neuschaefer, R.N., Director of State Department of Nursing

Mr. George Westby, Director, Lutheran Welfare

Mrs. Thornburg Cowles, Des Moines

Dr. Perry Amick was appointed executive secretary to conduct the study. Office space was furnished by the state office of John V. McCarthy of the National Foundation for Infantile Paralysis. Financial support of the study was shared equally by the Iowa chapters of the National Foundation for Infantile Paralysis and the Maternal and Child Health Division of the State Board of Health.

James E. Dyson, M.D.,
State Chairman

Introduction

This fact-finding study was set up to collect data on facilities and services currently available for the health and medical care of children within the state of Iowa. The sources of this information were (1) physicians and dentists in private practice, (2) voluntary and official community health agencies serving children, and (3) all hospitals admitting children or maternity cases².

Corresponding to these three categories of information, 18 different schedules were prepared by the central staff of the study. Some of the schedules were designed as mail questionnaires. Others, requiring a field visit, were completed through personal visits by the executive secretary, field staff and the pediatricians themselves. At the outset the regional secretary explained the method of conduct-

²In order to produce a report brief enough for practical use in the state, a large mass of data collected in the course of the study has necessarily been referred to only briefly or omitted entirely. Fuller details are available on application to the state chairman of the Academy. The national report of the study has covered broad aspects of the data which cannot be adequately covered for a single state because of small numbers; see *Child Health Services and Pediatric Education*, The Commonwealth Fund, New York, 1949.

ing the study to the members of the Pediatric Society and each one's share in it. This was in accordance with the original policy, which was based on the premise that those who are active in rendering child care should share not only in the future planning but also in the collection of the data required to establish a sound basis for the improvement of child health services. Each member of the Society was therefore asked to fill out his own schedule accurately and completely, to assist in obtaining information from hospitals, to cooperate with the local health officers in collecting the data related to community health services, and to contact general practitioners and specialists in his vicinity in order to assure a maximum response. The participation of the medical profession, particularly those recognized within their own communities as specialists in child care, can be considered largely responsible for the gratifying response to the questionnaires.

The record of physicians' visits was obtained for a single day that was assigned to him in advance; one seventh of the physicians reported for each of the days in the week. Correction was made for the

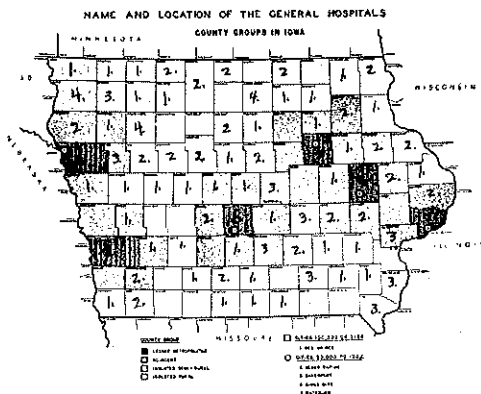


Fig. 1.

season in which the study was conducted. For non-reporting physicians adjustment was made on the basis of a special study in four states; hence, unless otherwise indicated, the figures represent services for all practitioners in the state or specified area. The records for pediatricians covered 28 days. Schedules for community health services and hospitals covered one year.

Because of the absence of any adequate population data for the year of the study, special estimates of child population³ as of July 1, 1945, were made for each county.⁴

³In this report *children*, unless otherwise qualified, refers to persons under 15 years of age, including newborn and premature infants.

⁴Population under 5 years of age was estimated on the basis of the number of births for each of the five calendar years, 1940 through 1944. Survival rates for each year of age were applied to the number of births occurring in each of the years, and adjustment was made for underregistration of births. The number of children aged 5 to 14 years was estimated for each county on the basis of changes in school enrollment. The ratio of elementary public day school enrollment for 1945 to that for 1940 was used to project to 1945 the 1940 census population in the age group 5 to 14 for each county. In both cases the figures were adjusted to total to the estimated population of the entire United States for the specific age group for July 1, 1945.

It is to be emphasized that most of the data obtained, especially those which can be expressed in terms of rates per 1,000 children, are measures of quantity of service rather than quality. Since deficiencies in amount of service are likely to be associated with a lower quality of care, the comparisons in this report tend to underestimate the real disparities.

Comparisons Within Iowa

One of the primary purposes of the study has been to determine the distribution of health and medical services for children in order that existing inequalities in Iowa might be defined in specific

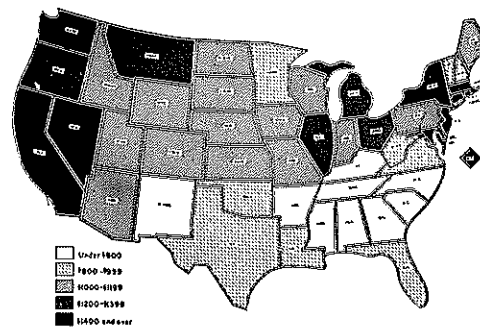


Fig. 2. Per capita effective buying power, by state.

Fig. 2.

terms. Hence counties have been grouped to bring out contrasts between densely populated urban centers and isolated counties. The usual classification of urban and rural is not satisfactory, since people cross county lines to obtain medical care in nearby centers. Counties have therefore been grouped together on the basis of two fundamental characteristics: (1) population density, and (2) proximity to densely populated areas. In this way, separate consideration is given to counties which, although they themselves may be sparsely populated, are nevertheless relatively close to metropolitan counties and the medical facilities available there. Under this classification *metropolitan counties* are those which include the metropolitan districts of cities 50,000 or more in population. Counties which are geographically contiguous to any of the metropolitan counties are classified as *adjacent*. Counties that do not touch any part of a metropolitan county have been termed *isolated* and subdivided into those with an incorporated place of 2,500 or more population (semirural) and those without such a place (rural)⁵.

Chapter I.—THE ECONOMIC AND HEALTH SETTING OF THE CHILD

The financial capacity of Iowa as compared with other states is fair. The income of \$1,060 per person

⁵For a more detailed description of the classification by county group, see Hubbard, J. P.; Pennell, M. Y.; and Britten, R. H.: Health services for the rural child—availability of hospitals, physicians, and dentists in service areas. J.A.M.A., cxxxvii: 387-343 (May 22) 1948. See Fig. 1.

is the twenty-fourth in the United States⁶. Fig. 2 shows that Iowa is one of the near average income states, the United States average being \$1,141.

It is interesting to compare Iowa in per capita income with the highest, lowest and neighboring states.

State	Income
Connecticut (<i>highest</i>)	\$1,579
Illinois	1,356
Wisconsin	1,126
Nebraska	1,067
Iowa	1,060
Missouri	1,026
South Dakota	1,023
Minnesota	977
Mississippi (<i>lowest</i>)	559

Child Population

In Iowa 24.6 per cent of the population are children under 15 years of age. Comparison with the highest, lowest and neighboring states shows the following data for 1940:

New Mexico (<i>highest</i>)	34.5%
South Dakota	27.8
Nebraska	25.2
Wisconsin	24.9
Minnesota	24.7
Iowa	24.6
Missouri	23.4
Illinois	21.6
California (<i>lowest</i>)	19.8

According to the study estimate as of July 1, 1945, there were 646,927 children in Iowa under 15 years of age. Of these, 24 per cent live in the six metropolitan counties, 26 per cent in the 30 adjacent counties, 39 per cent in the 44 isolated semirural counties, and 11 per cent in the 19 isolated rural counties.

Death Rate

The state's death rate during 1940⁷ was the third lowest of all the states, 8.6 per 1,000. This is a good showing, bettered only by South Dakota and Nebraska.

Infant Mortality

The average infant mortality was 33.5 per 1,000 live births in the entire state of Iowa (1941-45). Broken down by sections, the infant mortality per 1,000 live births was:

Metropolitan counties	33.4
Adjacent	32.0
Isolated semirural	34.8
Isolated rural	32.1

In comparison with the highest, lowest and adjoining states, the survey on infant mortality showed per 1,000 live births:

⁶Calculated from estimates of income made by Sales Management for 1944-46: Sales Management LIV (May 15) 1945, and corresponding issues 1946 and 1947.

⁷The rates were adjusted to the age composition of the entire country. Data for 1940 were used since that is the last year for which population data by age are available. National office of Vital Statistics, U. S. Public Health Service. Special Reports, Selected Studies xxiii (June 26) 1945.

Connecticut (<i>lowest</i>)	30.0
Minnesota	31.4
Illinois	32.9
Nebraska	33.0
Wisconsin	33.0
Iowa	33.5
South Dakota	36.2
Missouri	40.1
New Mexico (<i>highest</i>)	95.3

This infant mortality had been reduced in Iowa in 1945 to 30.3 and in 1946 to 29.9 per 1,000 live births.

Although the nonwhite population is not large in numbers, in 1945 the nonwhite infant mortality was 62.9 as compared to 30.1 per 1,000 in the white population. The high nonwhite infant mortality is partly, if not entirely, due to the increased proportion of premature births in the nonwhite population.

Hospital Births

During 1945 88.8 per cent of births occurred in hospitals, which is well above the average of 78.8 per cent for the United States. In Iowa's metropolitan and adjacent counties the per cent born in hospitals was 90.5 and in isolated counties, 86.9. Of the nonwhite children 88.3 per cent were born in hospitals in comparison with 88.8 per cent of the white babies. The percentage of births in hospitals has been increasing from year to year, from 35.6 per cent in 1935 to 88.8 per cent in 1945 and 92.2 per cent in 1946; it can be expected that this trend will continue.

Chapter II.—TOTAL VOLUME OF CHILD HEALTH SERVICES

Medical Care

Although no yardstick of the amount of care which children need is available at present, it has seemed profitable to examine the amount of care they are now receiving. A composite picture of the total volume of medical care rendered to children on one day has been obtained by adding together the medical care (expressed as visits or hospital days⁸) rendered to children (1) in private practice (office and home), (2) in clinics and conferences⁹, and (3) in hospitals¹⁰. This summation represents the total number of children under medical care on one day and, when related to the child population, gives a useful index of the total volume of medical care.

The primary purpose of a quantitative estimate of this type is to provide a means of making comparisons among states and between areas of differing population, geographic and socio-economic characteristics. The areas in which children receive the greatest amount of care are not necessarily getting enough nor is the quality necessarily high. We have no standard which represents adequacy. These better

⁸Since, for this purpose, equal weight is given to a physician's visit, a clinic visit and a day of hospital care, it may be felt that the importance of hospital care has been underestimated in the figures for total volume.

⁹Outpatient departments, well child conferences, mental hygiene clinics, and community health services for crippled children.

¹⁰Days of care in institutions for the feeble-minded are excluded.

supplied areas, however, do serve as a basis for comparison.

Children under medical care per day per 1,000 in Iowa as compared to the entire United States average, and the highest, lowest and adjoining states:

State	Total	Private Practice*	Hospital	Clinic
U. S. Average	13.8	10.7	2.7	0.4
Nevada (<i>highest</i>)	22.9	16.9	3.8	2.2
Nebraska	16.2	12.9	3.2	0.1
Wisconsin	16.0	12.6	3.1	0.3
Illinois	15.9	12.1	3.2	0.6
Iowa	15.2	12.2	2.9	0.1
Minnesota	13.5	10.0	3.7	0.2
South Dakota	12.3	8.7	3.3	0.3
Missouri	12.2	9.5	2.3	0.4
Mississippi (<i>lowest</i>)	7.7	6.5	1.1	0.1

*Home and office

Because Iowa has paved roads connecting all counties and adjacent metropolitan medical centers, the isolated counties had nearly an equal proportion of children under medical care as did the metropolitan counties:

Metropolitan counties	16.6
Isolated counties	14.6

What part of the total volume of medical care received by Iowa children is for health supervision? Health supervision is made of two elements: visits to child health conferences and visits to physicians' offices.¹¹ Of the total number of children under medical care (exclusive of newborn) more than one-fifth (23 per cent) are under care for health supervision. More detailed descriptions of health supervision are given in following chapters. Nearly all the children under health supervision in Iowa were seen by physicians in their offices.

The number of children, other than newborn, receiving health supervision, exclusive of school health services, on an average day per 1,000 children in Iowa was:

	Well Child Conferences	By Private Practitioners	Total
Whole state	0.029	2.84	2.86
Metropolitan and adjacent counties	0.056	3.16	3.21
Isolated	0.003	2.52	2.52

Dental Care

Out of every 1,000 children 3.6 were under dental care on one day in Iowa. There was a wide difference in the level of such care in the country, ranging from a rate of 7.2 in the state with the highest value to 0.9 in the one with the lowest.

Children under dental care per 1,000 per day^b.

State	Total	Private Practice	Clinics
U. S. Average	3.3	3.2	0.1
Massachusetts (<i>highest</i>)	7.2	6.5	0.7
Illinois	5.3	5.2	0.1
Minnesota	5.1	5.0	0.1
Nebraska	3.9	3.9	0.0 ^b
Iowa	3.6	3.6	0.0 ^b
South Dakota	3.0	3.0	0.0
Missouri	2.9	2.8	0.1
New Mexico (<i>lowest</i>)	0.0	0.0	0.0 ^b

^aWisconsin data incomplete

^bLess than 0.05

¹¹Hospital care, a part of total volume, was excluded from well child care.

In the metropolitan and adjacent counties there were 3.1 seen by general practitioners of dentistry per day per 1,000 and in isolated rural counties 3.4 children.

There were twice as many children visiting pedodontists and orthodontists in metropolitan and adjacent counties; the rates were 0.36 and 0.17 per day per 1,000 children, respectively.

Summary

1. The number of children under the medical care of private practitioners in Iowa is equal to the adjoining states.

2. The rural areas receive nearly as much medical care for their children as do the urban areas.

3. One fifth of the medical care of children was for health supervision.

4. The proportion of children under dental care in Iowa is about average of that of the adjoining states, but only one half of that of the highest state.

5. More children from the rural counties were visiting the dentist than those from metropolitan counties. In Iowa there are 1,616 persons per dentist. Of this number 442 are children under 15 years of age.

Chapter III.—HEALTH SUPERVISION

Within recent years the concept of continuing health supervision for well children has become accepted. Pediatricians receive training regarding normal growth and development, the feeding and care of well children, and the handling of the usual problems of social and emotional adjustment. General practitioners have assumed considerable responsibility in health supervision of children in their own private practice. Also, a fact of equal or perhaps greater importance, mothers themselves have become accustomed to looking to their physicians, whether pediatricians or general practitioners, for guidance in the preservation of their children's health.

The bulk of the child health supervision by private physicians in Iowa is carried out by general practitioners. Of the private physicians' visits for health supervision of children 90.4 per cent were made by general practitioners, 7.3 per cent by pediatricians, and 2.3 per cent by other specialists. Of the general practitioners' visits to children 30 per cent are for health supervision; this proportion for the pediatrician is 42 per cent.

Not all the continuing health supervision of children is given in the offices of private physicians. For a number of years public and private agencies have conducted child health conferences where infants and young children can receive health supervision by a physician at the community health center. In the following discussion this type of service has been combined with the health supervision given by the physician in his private practice. Since children attending well child conferences usually range in age from one month to six years, the

following comparisons are limited to these ages.¹²

The number of these children under health supervision on one day in Iowa is about 6 per 1,000 children under five years of age. The differences in amount of health supervision as between county groups is indicated in the following figures:

	No. of Children per 1,000 under 5 yrs. under Health Supervision in Iowa on 1 Day
Whole state	6.00
Metropolitan counties	6.17
Adjacent	6.88
Isolated semirural	6.22
Isolated rural	2.64

Comparison with other states

	No. of Children per 1,000 under 5 yrs. under Health Supervision on 1 Day.
U. S. Average	5.5
New York (highest)	10.7
Wisconsin	6.8
Illinois	6.7
Iowa	6.0
Nebraska	5.8
Minnesota	5.6
Missouri	4.4
South Dakota	3.4
Mississippi (lowest)	1.9

Other than newborn 23.4 per cent of the medical care of children in Iowa was for health supervision.

Summary

1. The bulk of the child health supervision by private physicians is carried by general practitioners.

2. Thirty per cent of the general practitioners' child visits in private practice and 42 per cent of the pediatricians' visits are for health supervision.

3. The rate of children under five years of age under health supervision (in private practice or clinics) on one day is about average of that in the adjoining states.

4. The amount of health supervision was relatively much less in isolated rural than in metropolitan and adjacent counties.

Chapter IV.—PRIVATE PRACTICE

Physicians

Number, Type and Training.—In July, 1946,¹³ there were 1,979 physicians in private practice in Iowa. Of these 1,501 were general practitioners and 478 were pediatricians and other specialists.

Age Groups	General		Total
	Practitioners	Specialists	
Under 35	155	48	203
35 to 44	345	134	479
45 to 54	241	118	359
55 to 64	307	104	411
65 and over	445	74	519
Not reported	8	0	8
Sex			
Male, white	1,452	454	1,916
Male, nonwhite	11	1	12
Female, white	38	13	51
Female, nonwhite	0	0	0

¹²The estimated population under 5 years of age, 240,654, is used in calculating the rates.

¹³It is realized that at the present time (February 1949) the number of physicians in private practice is greater than at the time the study was made, but no estimate of the increase is possible. It is also to be noted that the number of physicians under 45 is greatly increased by the return of these ages from military services.

A total of 955 general practitioners and 338 specialists filled out schedules reporting child visits on a day.

General practitioners were asked to report on their hospital training. The data adjusted to the age distribution of the total number of general practitioners are given below for Iowa compared with the United States:

	Iowa	United States
None or less than one year of hospital training	29.7%	20.7%
One year or more of hospital training:		
None or less than one month in pediatrics	25.4	27.2
One month or more in pediatrics	44.9	52.1

The younger physicians had more training as would be expected. The following data apply to Iowa:

	Under 45 years	45-64 years	65 or more years
None or less than one year of hospital training	7.9%	23.2%	62.7%
One year or more of hospital training:			
None or less than one month in pediatrics	17.7	31.2	27.2
One month or more in pediatrics	74.4	45.6	10.1

At the time of the study there were 327 children per physician in private practice in Iowa. This ratio as compared with other states shows the best was 143 children per physician in New York.

Ratio of Children per Physician in Iowa Compared to the Adjacent States.

Illinois	219
Nebraska	273
Minnesota	312
Missouri	314
Iowa	327
Wisconsin	340
South Dakota	529

The average for the United States was 308. The ratio of the number of children per physician, rather than the total population per physician, has been used to indicate relative accessibility of physicians to children.

The following data shows the availability of physicians in private practice by county groups in Iowa:

No. of Physicians	Total	General		
		Prac-titioners	Pedia-tritions	Other Specialists
Whole State	1,979	1,501	22	456
Metropolitan counties	591	344	15	232
Adjacent	489	416	2	71
Isolated semirural	733	579	5	149
Isolated rural	166	162	0	4
No. of physicians per 1,000 children				
Whole state	3.06	2.32	0.034	0.70
Metropolitan counties	3.75	2.18	0.095	1.47
Adjacent	2.94	2.50	0.012	0.43
Isolated semirural	2.88	2.28	0.020	0.59
Isolated rural	2.42	2.36	0.000	0.06

The number of physicians in each county, classified as to type of practice, is available but not included in this report.

Pediatricians.—There were 22 physicians in Iowa who reported that they limited their practice to children and thus were accordingly classified as pediatricians, giving a ratio of about 30,000 children per pediatrician. Of the 22 pediatricians in Iowa 12 had been certified by the American Board of Pediatrics as of July 1947.

The number of children per pediatrician and number of pediatricians in Iowa, and the lowest, highest and adjacent states are as follows:

State	Children per Pediatrician	No. of Pediatricians
New York (<i>highest</i>)	4,180	677
Illinois	7,570	241
Minnesota	12,250	58
Missouri	12,850	75
Nebraska	16,900	19
Wisconsin	17,300	46
Iowa	29,400	22
South Dakota	34,350	5
Arkansas (<i>lowest</i>)	73,000	8

Other Specialists.—The 456 specialists other than pediatricians were divided into eight groups as follows:

	Total No.	No. Certified by American Specialty Boards
Internal medicine and allied specialties	80	25
Allergy	2	0
Psychiatry and Neurology	17	7
Surgery, except orthopedic	127	18
Orthopedic surgery	17	11
Obstetrics and Gynecology	30	7
Ophthalmology and Otolaryngology	156	58
Radiology and Anesthesiology	27	14

Summary

The general practitioners of medicine and dentistry are available to the child population of the entire state, both rural and urban. As Iowa is a plains state and has no mountain or water barriers to transportation of patients to doctors, the population uses the paved highways to obtain prompt medical service. The formal training of these physicians in child care both for medical service and health supervision was reported as being rather limited in a large proportion. Pediatrics as a specialty is a recent addition to the curriculum of the medical schools. Medical education, another section of this study, conducted on a national basis, has been made by the National Committee of the Academy and is not included in this report. It is desirable to bring child care instruction to the general practitioners throughout the state by an extension service of the State University College of Medicine.

Physicians' Services

In Chapter II, dealing with the total volume of medical care, the counties were necessarily combined into two groups. For comparisons of private practice the four county groups may be considered sep-

arately. The amount of such care received by children living in the isolated rural counties of Iowa is 75 per cent as great as that received in the metropolitan counties of the state, according to the reports of visits per day of the physicians living and practicing in the various county groups.

Physicians' Visits per 1,000 Children on One Day.

	Office, Home & Hospital	Sick Child	Well Child
Whole state	15.93	11.39	4.54
Metropolitan	16.43	11.82	4.62
Adjacent	15.84	10.74	5.10
Isolated semirural	16.70	11.99	4.71
Isolated rural	12.10	9.71	2.39

Proportion of Care Rendered by General Practitioners and Specialists.—Most of the private physicians' care received by children in Iowa is provided by the general practitioner (85 per cent). In the metropolitan counties, however, the proportion falls to 66.5 per cent because of the large amount of service given by pediatricians and other specialists.

Per Cent of Visits by Type of Practitioner

	General Practitioner	Pediatrician	Other Specialists
Whole state	85.1%	4.9%	10.0%
Metropolitan	66.5	13.9	19.6
Adjacent	92.5	0.9	6.6
Semirural	89.5	2.9	7.6
Isolated rural	96.9	0.0	3.1

As most of the pediatricians and other specialists reside in metropolitan counties, the other counties do not have reports of many such visits. The pediatricians and other specialists serve children from other than metropolitan counties.

Number of Visits Per Day.—During the summer months of 1946, covered by the study, 13 per cent of the general practitioners reported between 30 and 40 visits on the day of report.¹⁴

Per Cent of General Practitioners Reporting Specified Number of Visits.

No. of Visits on 1 Day	Persons of All Ages	Children Under 15 Yrs.
None	17%	22%
1-9	18	57
10-19	22	17
20-29	17	3
30-39	13	1
40-49	6	*
50-59	4	0
60 and over	3	0
* less than .05		

When the data have been adjusted for seasons and for nonreporting physicians, general practitioners in Iowa averaged 18.8 per cent a day.

Visits per General Practitioner per Calendar Day in Iowa and Adjacent States.

	Child Visits	Total Visits
Illinois	3.8	12.4
Nebraska	5.2	15.2
Missouri	4.5	17.2
Minnesota	5.3	18.4
Iowa	5.8	18.8
Wisconsin	6.6	20.0
South Dakota	7.5	21.8
U. S. Average	4.8	16.4

¹⁴Sundays, holidays and days off were included in making this average.

The average number of pediatricians' visits on one day was 23.3.

Location of Child Visits.—The proportion of office, home and hospital visits is as follows:

	General Practitioner	Pediatrician	Other Specialists
Office	67%	54%	64%
Home	12	9	2
Hospital	21	37	34

For all physicians combined 66 per cent of the children made office visits, 11 per cent were home visits, and 23 per cent were seen in hospitals.

Dentists

Number, Type and Training.—At the time of the study (summer of 1946) there were 1,465 dentists in private practice in Iowa. Eighteen dentists reported that they specialized in orthodontia, none in pedodontia. For the state as a whole there was a ratio of 442 children per dentist. This ratio of number of children per dentist is compared with corresponding figures for the highest, lowest and adjacent states:

New York (<i>highest</i>)	273
Illinois	338
Minnesota	390
Nebraska	417
Iowa	442
Missouri	472
South Dakota	682
South Carolina (<i>lowest</i>)	2,155
U. S. Average*	548

*Exclusive of New Jersey and Wisconsin

The number of dentists per 1,000 children by county groups was:

	General Practitioners and Pedodontists	Orthodontists	Other Specialists
Whole state	2.26	2.19	0.028
Metropolitan	2.79	2.61	0.076
Adjacent	2.05	1.99	0.006
Semirural	2.29	2.25	0.020
Isolated	1.60	1.48	0.000

The availability of dentists as to numbers in general practice, pedodontia, orthodontia and other specialties by county groups was:

	General Practitioners and Pedodontists	Orthodontists	Other Specialists
Whole state	1,465	1,418	18
Metropolitan	440	411	12
Adjacent	341	332	1
Semirural	581	573	5
Isolated	103	102	0

Age, Sex, Race, Training.—Only 10 of the 1,465 dentists in private practice in Iowa in the summer of 1946 were females; 4 were nonwhite.

Of 571 dental general practitioners who reported, 544 had not received any postgraduate training in pedodontics. Eleven had less than one month, and only 16 had one month or more.

Age	General Practitioners	Specialists	Total
Under 35	142	3	145
35 to 44	278	13	291
45 to 54	407	13	420
55 to 64	288	8	296
65 or over	209	9	218
Not reported	94	1	95
	<u>1,418</u>	<u>47</u>	<u>1,465</u>

Office Assistants.—Of 838 dentists who reported the number of their office assistants 548 had one and 96 had two or more. Twenty-seven reported they had dental hygienists in their offices.

Dentists' Services

The rate of visits for dental care on one day has been given in Chapter II in comparison with the other selected states and for two broad county groups. The number of visits per 1,000 children on one day for each of the two county groups is:

Metropolitan and adjacent	3.10
Semirural and isolated	3.35

Nearly all—882 out of 905 reporting—cared for children for services other than extractions or emergency. A group of 704 dentists reported on the number of services for children, giving a ratio of 4.3 fillings to 1 extraction.

One fourth of the dentists reported 10 or more patients on the day of report during the summer of 1946.

Number of visits on one day

	Persons of All Ages	Children Under 15 Years
No Patients	22%	42%
1-4	11	51
5-9	39	6
10-14	21	—
15-19	5	1
20 or more	2	—

When the data had been adjusted for season and projected to 100 per cent coverage, the average number of visits per day was 6.3, of which 1.6 were children.

Only 27 dentists out of 698 reported that they did any preschool or school dental services during the preceding month. (It must be remembered that the study went on during the summer.) The number of hours average three and one-half per week for those participating. Twenty-one reported participating in other dental activities, such as teaching, outpatient clinics, and institutional work, at six and one-half hours per week per participant.

Chapter V.—COMMUNITY HEALTH SERVICES

During the past 25 years a variety of child health services has grown up in local communities. For the purposes of this study a selection was made of the types which either have been accepted or are being increasingly recognized as community responsibilities. This list by no means covers all desirable services but offers a fair measure of community activity for child health.

Although the administering authority is the public agency, the medical care is often rendered by local practicing physicians. Below is shown the amount of time per month spent by general practitioners and pediatricians in school health services, child health conferences, and other medical activities aside from private practice.

Staff engaged in School Health Services
in Public Elementary Schools

County Groups	Health Officers	School Physicians	School Nurses
Metropolitan	2	8	71
Adjacent	1	9	28
Isolated semirural	4	13	46
Isolated rural	0	6	3

All but three of the 36 school physicians are general practitioners. Only one is a pediatrician.

Seventy-five of the 99 counties are without medical service in at least one public elementary school, and 38 counties have neither medical nor nursing services. In the counties without medical service in any public elementary schools live 63.4 per cent of the children age 5 to 14 years. In the counties that lack both medical and nursing service live 23.3 per cent of the children of the same age group.

Well Child Conferences.—The number of well child conferences in one year for infants and preschool was 616. Of these, 72 were for infants only. Fifty-two of these 616 sessions were of an official agency, and 564 were by voluntary agency. A total of 7,132 visits was made by 1,861 infants and preschool children.

*Well Child Conference Patients and Visits Per Year
Per 1,000 Children Under 5 yrs. of Age
in Iowa and Other States.*

	Patients	Visits
Illinois	65	339
Minnesota	43	107
Wisconsin	41	173
Missouri	40	123
Nebraska	23	44
Iowa	8	30
South Dakota	6	9
United States	62	182

Part time paid pediatricians conducted 48 official agency sessions and 42 voluntary sessions; part time general practitioners conducted 153 sessions for voluntary agencies. The average pay per session for both groups was \$5.00. The balance of the sessions were conducted by full time paid physicians and hospital house staffs.

Services given to these infants were small pox vaccinations, whooping cough and diphtheria inoculations (at 90 per cent of the sessions), advice to mothers (at 32 per cent of the sessions), consultant service by a nutritionist (at 83 per cent of the sessions), and public health nursing follow-up in the home (all sessions). There was a total of:

4,115.....	Small pox vaccinations
6,482.....	Diphtheria inoculations
411.....	Whooping cough inoculations

No agency reported the availability of consultant service by a psychologist or psychiatrist.

Dental Clinic Visits During One Year.—Dental clinics were conducted during 7,477 hours, of which 5,472 were by an official agency and 1,975 by a voluntary agency. A total of 10,985 visits were made by 4,746 patients. Of these, 402 were preschool, 3,145 were school children, and 1,199 were not reported separately.

There were 2,160 extractions, 8,639 fillings, 1,434 prophylaxis treatments, and 200 orthodontic visits given the 4,106 patients in clinics reporting type of service. Thus the patients average 3 services, and there were 4 fillings to 1 extraction. The Dental College of the State University at Iowa City does considerable orthodontia and operative work for children.

Mental Hygiene Services for Children During One Year in Iowa.—Mental hygiene services were obtained by 503 children in 1,405 visits. There were 307 days of clinic service, corresponding to 1,197 visits. All the clinics were by voluntary agencies and conducted in metropolitan and adjacent counties. Only 15 per cent of the visits were to clinics with a full time psychiatrist on the staff.

Services for Physically Handicapped Children During One Year.—In one year 69 sessions were held by official agencies; none by voluntary agencies. A total of 1,620 visits were made by 1,568 patients. These clinics were staffed by a pediatrician, nurses, and physiotherapist or social workers, employed full or part time.

Smouse Opportunity School, in Des Moines, is a part of the public school system. There are 155 enrolled, of which 44 are crippled, 19 postpoliomyelitis, 9 spastic, and 16 miscellaneous. There are 44 cardiac, crippled from rheumatic fever. Eleven are totally deaf, 6 hard of hearing, and 16 in sight-saving classes. These children receive physiotherapy, special diets and rest periods, besides their class work.

Public Health Nursing services have long been considered an essential element of a community health program. However, during the study year, 57 counties reported no public health nursing services.

Public health authorities usually consider that for a successful and adequate program there should be one nurse per 2,000 population or about one nurse to 500 children. The child population per full time nurse in Iowa by county group is given below:

Services for Children Provided by Official and Voluntary Public Health Nursing Agencies During One Year by County Groups in Iowa.

	No. of Full Time Nurses	Nurses Per 1,000 Children	No. of Home Visits Per 1,000 Children
Total	135	0.209	77.7
Metropolitan	67	0.425	170.9
Adjacent	13	0.078	40.1
Semirural	50	0.197	60.9
Isolated rural	5	0.073	17.3

Public Health Nursing Service in Iowa As Compared to Adjacent States.

	Full Time Public Health Nurses per 1,000 Children	Child Home Nursing Visits per 1,000 Children
Wisconsin	0.50	317
Illinois	0.38	363
Minnesota	0.38	119
Missouri	0.26	99
Iowa	0.21	78
Nebraska	0.18	98
South Dakota	0.15	61
U. S. Average	0.40	210

Chapter VI.—HOSPITAL¹⁵ FACILITIES AND SERVICES

General Hospitals

The general hospital, at its best, serves not only as a place where the sick may be given inpatient care but also as a health center for the entire community with outpatient services, public health clinics, health education, and training for physicians and nurses. It has become a complicated and expensive instrument, but, without access to a good general hospital, no community is adequately equipped to fight against ill health.

Facilities and Services for Children (Other than Newborn)

There are 147 general¹⁶ hospitals in Iowa caring for children that are reporting in this survey; 31 of these have pediatric units.¹⁷ Sixty-one of the hospitals are 5 to 24 beds, and 59 are between 25 and 100 beds in size. Only 4 have as many as 250 beds. For county distribution of hospitals see Fig. 1.

The general hospitals included in this study have 8,415 total beds, or 13 per 1,000 children. In these hospitals 847 beds are set aside for the exclusive use of children, 10 per cent of all beds in the state, or 1.3 per 1,000 children.

In the following table, these data are compared with the adjacent states:

	Hospital Beds per 1,000 Children	
	Total	Pediatric Beds
Minnesota	17.0	1.11
Illinois	16.1	1.74
South Dakota	15.1	1.69
Wisconsin	14.5	1.28
Nebraska	14.5	.86
Missouri	13.8	1.21
Iowa	13.0	1.31
U. S. Average	12.8	1.20

Admissions of children to general hospitals in Iowa totalled 41,888 during the year of study, giving an annual rate of 65 per 1,000 children. The rates by county group in Iowa were 82 in metropolitan and adjacent counties and 47 in isolated counties.

The majority of the admissions of children were to hospitals with 100 or more beds, and 26 per cent to those with 25 to 99 beds. Only 8 per cent were to hospitals having less than 25 beds.

Newborn Care

In the 147 general hospitals in Iowa reporting in the study, there was a total of 8,415 beds, 2,038 bassinets and 200 incubators—not reported for 16 hospitals.¹⁸ There were 45,923 births in these hospitals during the year of the study (1946); 92.2 per cent of all live births occurred in the hospital that same year. The average hospital stay was 8.2 days.

Characteristics of Hospitals Caring for Children

Quality of medical or hospital care is difficult to measure. An effort was made in the study, however, to obtain answers to certain objective questions

¹⁵In this report the term *hospitals* is limited to those caring for children, including the newborn. No institution is included having less than 5 beds for regular inpatient care. Federally owned hospitals (except those operated by the Bureau of Indian Affairs) are excluded.

¹⁶For the purpose of this report, *general* is taken to include maternity and pediatric. Of the 147 hospitals 3 were the former. A few did not admit children but did take maternity cases.

¹⁷Hospitals (of 25 beds or more) which have 5 or more beds permanently set aside for the care of children.

which provide a few indications of the quality of care provided in hospitals. The items include space, organization of the pediatric service, medical staff, nursing, special services, and certain accepted pediatric practices. These characteristics are related to the amount of services provided in the hospitals having them.

The proportion of children admitted to hospitals with specified characteristics is shown below, in comparison with the corresponding proportions for others states:

Per Cent of Child Admissions to Hospitals* with Specified Characteristics

	Iowa	Highest	8 Selected States	
			Average	Lowest
Separate pediatric unit ..	74.7	91	73	51
Graduate nurse on duty at all times in pediatric unit	54.2	71	61	41
Any house staff	43.2	90	56	8
Clinical laboratory	87.8	97	89	72
Selected clinical laboratory services available ..	79.4	96	77	50
Trained dietitian on staff ..	79.1	94	83	35
Separate ward for infants other than newborn ...	62.6	79	52	18
Average percentage	68.7	88	70	39

*Hospitals with 25 or more beds.

There were 70 registered hospitals of 25 or more beds in Iowa or 81 per cent of the total hospitals. There were 16 hospitals not registered by the American Medical Association. The registered hospitals cared for 36,084 children in the year, while the others admitted 2,433 children.

Newborn: Percentage of Hospitalized Births Occurring in Hospitals with Specified Characteristics.*

	Iowa	Highest	8 Selected States	
			Average	Lowest
Any house staff	26.6%	90%	58%	4%
Graduate nurse on duty at all times in newborn nursery	94.6	98	91	77
Room used exclusively for preparation of formulae	56.4	94	78	29
Nursery for full term sick or suspect newborn, separate from well	23.9	66	37	0

*Hospitals with 25 or more beds.

Although there are only a small number (8 per cent) of child admissions, a considerable percentage (14 per cent) of births occur in hospitals having fewer than 25 beds. The deficiency of facilities in such hospitals in comparison with larger ones, as indicated in the following table, points to one of the problems in the provision of adequate hospital facilities.

Per Cent of Hospitals with Specified Characteristics.

	Fewer than	25 Beds
	25 beds	and more
Registered by A.M.A.	52.5%	81.4%
Clinical laboratory in hospital	11.9	71.4
Separate nursery for newborn only ..	95.1	100.
Graduate nurse on duty at all times in newborn nursery	35.0	91.7
X-Ray service in hospital	71.7	

¹⁸While 147 general hospitals reporting in the survey indicated 2,038 bassinets for newborn care and 200 incubators, it might give a false assurance of security. The separate nursery, separate adjunct facilities, and trained or instructed personnel (professional and nonprofessional) should be a part of the service offered in the care of the newborn. The State Division of Hospital Services has found many bassinets, particularly in crowded small hospitals, filled with newborn babies placed in corridors, closets, labor rooms, kitchens, and mothers' rooms, in hospitals with no restriction on visitors and in almost any place in the building, many of the places appearing to be most undesirable as far as the protection of the baby from infection and from contact with the public are concerned. Many of the small hospitals, particularly those under 25 beds, do not have an acceptable separate newborn nursery or adhere to recommended nursing standards for care of the newborn.

Summary of Selected Data Related to Care of Newborn in 147 Individual Hospitals of 5 or more Beds Reported in Iowa.

No.* of:	
Beds	8,415
Bassinetts	2,038
Incubators	200
Births in 1946	45,923
Prematures	1,488

*71 hospitals reporting. Data not tabulated for hospitals with 5 to 24 beds.

Number of Hospitals with:

Hand-washing facilities in nursery	67	out of 76*
Milk mixture sterilized for newborn	78	" " 82*
Room exclusively for formula preparation	39	" " 83*
Nursery for sick or suspect separate		
from well	16	" " 145
Separate nursery for prematures	11	" " 146
Graduate nurse on duty at all times		
in premature nursery	9	" " 11

*Data not tabulated for hospitals with 5 to 24 beds.

Amount of Floor Area Per Bassinet in Newborn Nursery

	No. of Hospitals
Less than 15 Sq. Ft.	65
15 to 24 Sq. Ft.	34
25 or more Sq. Ft.	13

In 1946 there were 147 general hospitals in Iowa. Twenty-six were government owned; 63 were non-government, nonprofit; and 58 were privately owned. There was a total of 8,415 beds, of which 847 were for children, and 41,888 children were admitted in 1946.

<i>Characteristics of the 147 Hospitals</i>	No. reported
Pediatric unit	31
Communicable disease unit of 10 or more beds	3
Admitted poliomyelitis cases for care	10
Separate wards for infants (other than newborn)	25
House staff	12
Separate pediatric house staff	2
Graduate nurse on duty at all times in pediatric unit ..	24
Clinical laboratory in hospital	67
Qualified dietitian on staff	41
Blood or plasma bank in hospital or accessible	76
Rh-negative blood readily available	28
Oxygen tents in hospital for use with children	61
Isolation and/or cubicle separation procedure followed for new admissions	29

Facilities for the Care of Acute Poliomyelitis

During the last few years considerable attention has been focused on the problem of hospital facilities for the diagnosis and treatment of acute poliomyelitis. Of the 80 general hospitals with 25 or more beds reporting on the item, only 10 treated children with acute poliomyelitis, and 57 admitted suspected cases for diagnosis only.

Outpatient Services for Children

Of the state's 147 general hospitals caring for children 12 operate outpatient departments—5 in metropolitan, 3 in adjacent, and 4 in isolated counties—with a total of 10,711 outpatient visits by children during the study year.

The number of separate pediatric clinics furnishing specialist service to children is as follows:

	No. of Clinics
Allergy	0
Cardiology	3
Mental Hygiene	0
Luetic	2
Neurology	2
Surgery	1
Eye	1
Ear, Nose and Throat	1
Orthopedic	1
Dentistry	1

This number does not indicate the extent of this special service for children, since adult specialty clinics also see children.

PROGRESS SINCE THE SURVEY

An extensive survey such as this has been of great value in the stimulation it gave to all physicians, dentists, hospitals, nurses, and child-caring agencies of the state by an appraisal of child care. Everyone who filled out a questionnaire realized that there was much to be desired in improving the care of children.

Since this survey in 1946, considerable progress has been made in facilities for child health services in Iowa. Physicians, dentists and nurses have returned from the military services and are now practicing in the state, giving a better proportion of professional personnel to the population. There are now 50 pediatricians in Iowa, 14 of whom are certified by the American Board of Pediatrics. In 1946 there were 1,979 physicians practicing in Iowa. In 1948 2,629 physicians were reported by Dr. Virgil Hancher, president of the State University of Iowa, with only 4.4 per cent not in active practice. Although the figures may not be entirely comparable, this looks like an increase of 534 physicians during the past two years.

There are now 27 orthodontists and three pedodontists in practice, and a number of other dentists are giving more time to children's work. Thirty-one dentists attended the seminars in pedodontia given last year at the State University, and these courses will be repeated this year.

The work done at the Des Moines Health Center by dentists was:

				Examinations	
		Fillings	Extractions	Treatments	Only
1946					
Preschool age	23	9	40	4	
Ages 5 to 16	1,727	640	182	55	
1947					
Preschool age	56	72	20		
Ages 5 to 16	2,066	678	354		
1948					
Preschool age	43	6	15	7	
Ages 5 to 16	2,245	777	454	82	

Records of the Parent-Teachers Association in 1948 show that out of 116,704 dental cards issued to school pupils 59,659 were returned, indicating all dental work completed last year.

In May 1948 the house of delegates of the Iowa State Dental Society approved a state-wide program of sodium fluoride treatment for the teeth of all first grade pupils. With the cooperation of dentists and the State Division of Dental Hygiene, this program is in operation in Hancock, Marion, Mahaska, Lucas, Decatur, Wayne and Ringgold Counties. Over 2,000 children will receive treatment in the private dental office by their family dentist this year. The program will be extended to other counties.

Over 700 indigent eleventh and twelfth grade students have received the following services in the past year: x-rays, prophylaxis, extractions, amalgam and synthetic porcelain fillings.

A demonstration program is in effect in Marion and Mahaska Counties, which provides similar services for indigent first and second grade pupils.

Hospital building is going on throughout the state. The Blank Memorial Hospital for children in Des Moines built an addition in 1947 and now is a 112 bed children's hospital. It has increased its contagious section to 24 beds and has added a milk formula preparation kitchen, chemical laboratories, physical therapy, school room, and an outpatient section of 10 rooms. Pediatric training is being given to nurses, interns, and seven two year residents in all hospital services, outpatient, infant and preschool clinics and child guidance.

Premature centers are being planned in several areas of the state, with ambulance and nurse service available at all times. Such a center will be opened in the Blank Memorial Hospital in Des Moines with a full time pediatric director and nurses in charge who are specially trained in premature care.

There are 29 schools of nursing in Iowa approved by the Board of Nurse Examiners.¹⁹ These schools of nursing are in the larger hospitals of over 75 daily patient census. Six require clinical affiliation in pediatric nursing outside of the school of nursing. On Dec. 31, 1948, there were employed in Iowa 240 public health nurses in the various types of service. This gives a proportion of 1 nurse to 10,800 population, only 25 per cent of the need to meet a desirable proportion of 1 to 2,500 population. Thirty-five counties in the state had no public health nursing service of any kind.

The Iowa Society for Crippled Children has established a day school in Des Moines, where 15 pupils can have the services of a physiotherapist, a speech therapist and a school teacher. Consultation clinics are held once a month, available to any of the estimated 2,500 spastic children of the state.

The National Foundation for Infantile Paralysis has an active chairman in every county of the state and two state administrators. This organization has been remarkably efficient in furnishing hospitalization, medical and orthopedic care, and nurses for the children and adults who have had infantile paralysis.

During the year 1948 there were 23 field clinics held by the State Services for Crippled Children throughout the state of Iowa. Included in clinic areas were 73 counties. A total of 1,692 children were examined at field clinics throughout the year. The field clinic staff has been enlarged. At present it consists of orthopedists, pediatricists, psychologists from the Division of Child Welfare, a representative from the Department of Vocational Rehabilitation, a representative from the Department of Special Education, a nutritionist from the State Department of Health, medical social workers, field nurses, secretaries, a speech correctionist, and additional volunteer help from the local community.

These crippled children field clinics are sponsored by the county medical societies and are held in conjunction with an educational program given by members of the State University Staff at a regular scientific meeting of the county medical society.

Special weekly clinics are held in the University

of Iowa Medical School; namely, cardiac, diabetic, and cerebral palsy clinics.

The recent action of the State Legislature (April 12, 1949), making an effort to increase the enrollment in the State University of Iowa College of Medicine from 90 to 120 per year, will greatly help the medical care of our children in the future.

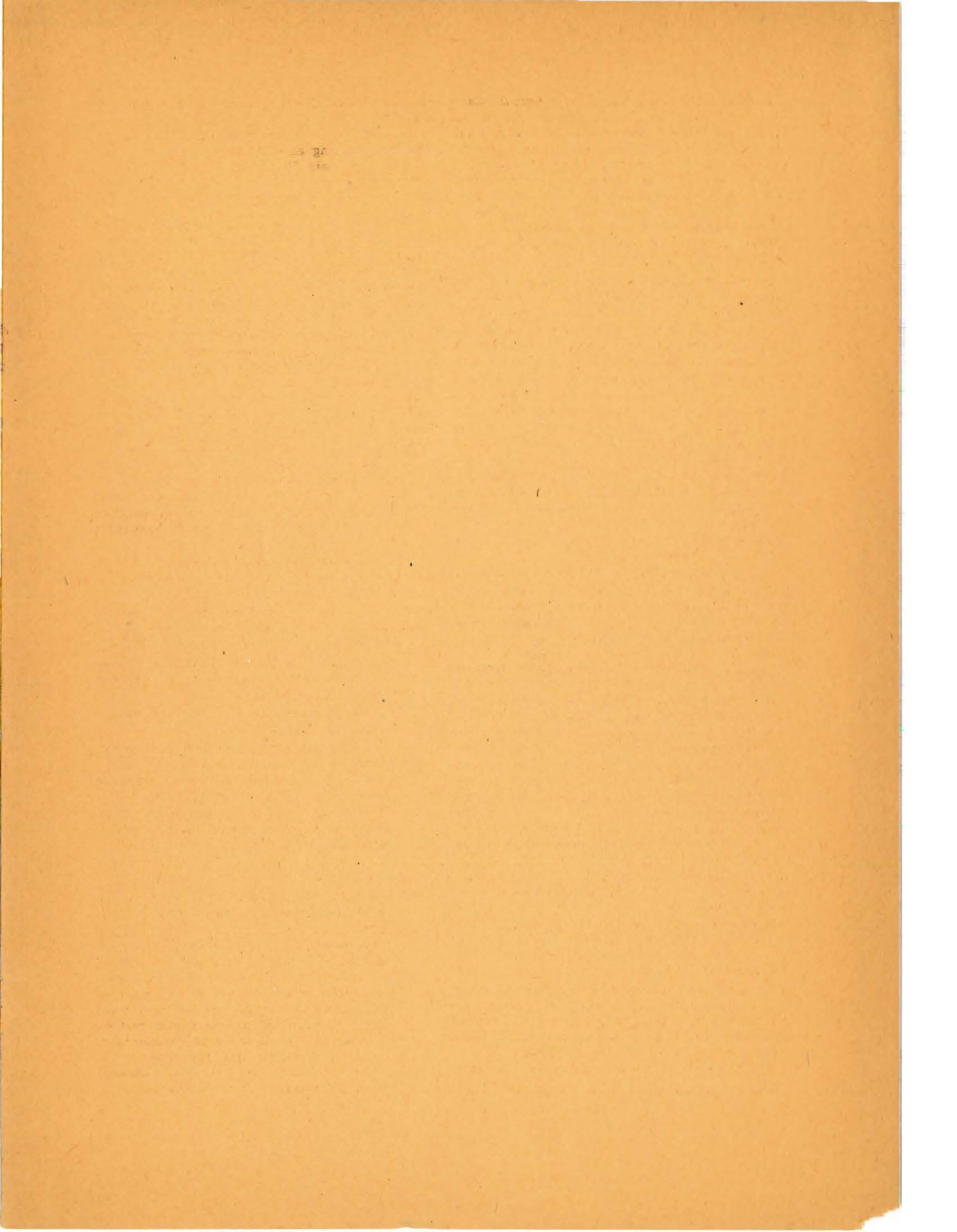
CONCLUSIONS AND RECOMMENDATIONS

The advantages of a survey such as this one carried out by the American Academy of Pediatrics are many. Comparisons can be made between regions of the country, between states, and between counties, in a variety of child health services and facilities. It is recognized that each state has its own needs peculiar to its geographic location, its economy, and the desire of its citizens. Nevertheless, much is to be gained by being able to see at a glance what other communities are doing.

It would be unfortunate, indeed, if the survey herein reported were to be filed away as just another survey. The following recommendations are therefore made:

1. That a continuing committee be appointed by the Iowa Pediatric Society, charged with the responsibility of studying the report in all its details with a view to making specific recommendations for the improvement of child health services in Iowa.
2. That this committee contact other leaders in child health in Iowa for the purpose of organizing a State Child Health Council.
3. That the Maternal and Child Health Committee of the Iowa State Medical Society be asked to review the report and make recommendations.
4. That pending action by these groups, immediate steps be taken in those areas shown by the study to reveal the greatest needs.
 - (a) More adequate coverage of the state by county health units.
 - (b) Initiation of programs to have all newborn nurseries observe accepted standards, as outlined by the Academy of Pediatrics committee on "Care of the Premature and Newborn."
 - (c) Establishment (with the cooperation of the Maternal and Child Health Division of the State Department of Health) of demonstration and teaching centers for the care of premature infants.
 - (d) Increased activity in postgraduate education of all physicians and nurses caring for children.
 - (e) Application by county hospitals in rural areas to medical centers training pediatric fellows for the services of a trained pediatrician. Medical services to children could be improved by rotating pediatric interns and fellows out into rural hospitals from the medical centers. This would give them needed experience in private practice and also bring newer methods and techniques of child care and treatment to the physicians of these rural areas.

¹⁹Report of the Iowa Board of Nurse Examiners (June) 1948.



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