Basic Trends of Social Change in South Dakota: V. Public Health Facilities

W. F. Kumlien

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Basic Trends of Social Change in South Dakota

V. Public Health Facilities

W. F. Kumlien

In 1938 only two other states had a lower crude death rate than did South Dakota. There is, however, a general trend toward a somewhat higher death rate, whereas in the United States as a whole the trend is downward. If present trends, especially in the aging of the population, continue the crude death rate for South Dakota may keep on increasing. Its predominance of agriculture, lack of over-crowding, and absence of races which characteristically have high death rates will all tend to keep the death rate somewhat lower than might be true in a more industrialized region.

Department of Rural Sociology

Agricultural Experiment Station of the South Dakota State College of Agriculture and Mechanic Arts, Brookings, South Dakota, and the South Dakota Work Projects Administration Cooperating
Explanatory Note

This is the second of a projected series of 10 bulletins carrying the general title of “Basic Trends of Social Change in South Dakota.” Appropriate subtitles for each field covered will appear as follows:

(1) Population Tendencies (Bulletin No. 327)
(2) Adjustment to Physical Environment
(3) Social Organization
(4) Family Relationships
(5) Public Health Facilities
(6) Education in Transition
(7) Governmental Developments
(8) The Church Situation
(9) Recreation Activities
(10) Social Welfare Service

Because of the large number of significant trends in each field and in order to conserve space, the series will be published largely as graphic summaries.

The timeliness of the study is occasioned particularly by the fact that the recent extended period of drought and depression has made the people of the state increasingly conscious of the need for economic and social planning in the future.

In such planning it is imperative that we carefully scrutinize what has happened in the past. This series, which will be published during a period of several years, is being prepared so that federal, state, county and local planning agencies, as well as individuals, operating in the state may obtain a clearer view of the direction and implications of the more definite trends of social change in each of the fields listed above.
Digest

1. South Dakota had a high average expectation of life in 1930, due largely to the very low crude death rate.* (Page 6)

2. South Dakota’s crude death rate is low compared with other states. Some of the reasons for this low death rate are the lack of overcrowding, an abundance of sunshine and a population in which there has been a small percentage of old people. (See cover page)

3. Maternal* and infant mortality rates* are relatively high in comparison with the crude death rate. (Page 10 & 11)

4. The crude birth rate* is rather low, especially for a rural area. Twenty-nine states have a higher rate. (Page 12)

5. County health units and other cooperative health movements have been extended considerably in South Dakota. However, there still is room for further expansion. (Page 16)

6. There has been an increase in the number of hospitals in South Dakota, but the number of hospital beds has remained approximately the same. Non-profit† and governmental‡ hospitals have been increasing at the expense of proprietary† hospitals. (Page 18)

7. In almost all areas of South Dakota, except for a section west of the Missouri River, hospital service is reasonably accessible. (Page 21)

8. Health personnel, such as physicians and dentists, have been decreasing in recent years. Although the ratio of population to physicians and dentists is high there are probably as many located here as the population can support. (Page 21)

* See page 9 for definitions of these terms.
† See page 18 for definition of these terms.
Basic Trends of Social Change in South Dakota

By W. F. Kumlien

I. Introduction

The Problem. As in other areas, many problems of adjustment to both the physical and social environment exist in South Dakota. One problem in which there is a widespread interest is the health of the people.

Interest in the problem has been precipitated by:

(1) The disparity in different sections of the state and between classes of the population with respect to the death, birth and infant mortality rates.

(2) The same disparity found in health practices, such as hygiene and sanitation, and health facilities and personnel such as hospitals, physicians, dentists, etc.

(3) A widespread interest in finding out where there are inequalities in the standard of living and income. Health conditions are an evidence of these inequalities.

(4) A grave concern on the part of professional health people themselves as evidenced by recent investigations by the American Medical Association dealing with the cost of medical care.

(5) Various other reports and studies and proposed federal legislation for health in the Social Security Act conveys some of the concern felt in different parts of the country for the health situation.

The above naturally raises the question as to how our own state ranks with the rest of the United States in this matter of health.

The Purpose. It is the purpose of this study to graphically portray South Dakota’s place in the health picture of the nation as well as to show the differences between different parts of the state in the matter of health conditions, health practices and health facilities.

Scope and Method. This study has attempted to cover the main phases of the health situation in the state, emphasizing public health in particular. Data has been secured for the state and for counties where practicable. Where-

1. Acknowledgements. This study was made possible by the generous cooperation of the State and Federal Works Projects Administration with the South Dakota Agricultural Experiment Station. The official name of the project has been "Basic Trends of Social Change in South Dakota." The original project was designated as WPA Project Number 415-74-3-235. The WPA has financed the larger share of the study by furnishing clerical helpers working under the technical guidance of an analyst, while the general project supervision and the cost of publishing the manuscript has been furnished by the experiment station. The author gratefully acknowledges the faithful assistance rendered by all those working on the study. Particular mention is made of the valuable contribution given by Miss Vera Petheram who was project supervisor and analyst. Other contributions were made by Miss Kathaleen Caron who supervised the early phases of the study. A representative of the South Dakota State Board of Health has reviewed the data included in the bulletin and made many valuable suggestions.
ever possible the state data are compared with data for the United States. Comparisons are also made with data secured for 1926 in an earlier study of health in South Dakota. 

The sources for the data used in this study include records of the South Dakota State Board of Health, Bureau of the Census reports on Vital Statistics, directories of the American Medical Association and directories of certain state organizations.

II. Length of Life

The "mean length of life" or "average expectation of life" is the average number of years lived by all persons born at a given period or by a sufficiently large representative sample of these.

During the past century there has been a decided general increase in the average expectation of life. An increase in life expectancy may be regarded as an indication of progress with respect to health conditions and services. Records on which to base the expectation of life in South Dakota have not been available for enough years to measure the progress. In 1930, however, South Dakota had the highest expectation of life at birth of any state in the Union. South Dakota had the lowest standardized death rate and the next to the lowest crude death rate.

<table>
<thead>
<tr>
<th>Area</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Dakota†</td>
<td>64.38</td>
<td>66.81</td>
</tr>
<tr>
<td>United States</td>
<td>59.31</td>
<td>62.83</td>
</tr>
</tbody>
</table>

* Source: Dublin and Lotka, Length of Life, p. 87.
† The computations for the expectation of life are based on deaths for 1930 only.

South Dakota has the highest expectation of life, but North Dakota and the other North Central States bordering on or near South Dakota also have high expectations of life and low mortality rates. There are several reasons for this high expectation of life. One of the main ones being South Dakota's low mortality rate which is due largely to a favorable age distribution, good sanitary conditions, an uncrowded population and the absence of

4. Ibid, p. 80. "The method of standardization applied in order to eliminate this influence of age distribution and to make the comparison reflect the essential differences in mortality, consists in multiplying the observed death rates specific for each age or age group into the corresponding age contingent in a standard population. The deaths thus calculated for each age or age group, summed up for the entire standard population, and divided by that population, give the standardized death rate."
industry. In 1930 only one state, North Dakota, had fewer males 10 years of age and over who were engaged in mechanical and manufacturing industries. Fig. 1 shows the expectation of life for South Dakota at specific ages for both urban and rural areas with an estimate for the future. This chart indicates that the average expectation of life is improving and that from all indications, will continue to improve for some years in the future. The greatest increase will probably be in urban areas.

![Average Expectation of Life Rising in South Dakota](image)

Fig. 1. At birth under present conditions the average South Dakota child may reasonably expect to live to a little more than 60 years of age. For those born and reared on the farm life expectancy at birth is 69 years as compared with 56 years for the urban dweller. Lengthened life expectancy in recent years is more largely due to the reduction of infant and child mortality than to the reduction of deaths in the older age groups. According to estimates by leading population experts, the expectation of life at birth will continue to rise somewhat in both rural and urban areas, with the greatest probable increase in the latter.

### III. Vital Statistics

The vital statistics included in this section as having a direct bearing upon health are death and birth rates. Crude, maternal and infant death rates are probably a fairly good index of general health conditions for any given area. Since South Dakota is now included in both the death and birth registration areas its statistics can be compared more accurately with those of other states than was true previous to 1930. (Fig. 2.) One of the main points which these vital statistics indicate is that the crude death rate is low in comparison with other states although there seems to be a slight upward trend. (Cover page) This may be due to several reasons. The population of South Dakota is largely agricultural and until recent years had only a small
percentage of old persons. There is also an absence of races with characteristically high mortality rates. The lack of overcrowding has overcome many of the dangers resulting from the lack of facilities for sanitation and medical care. It appears that a lack of health facilities plus a lack of money with which to take advantage of such facilities as exist is one of the main health problems of the state. If this could be remedied it is possible that the death rate might decline further or at least not become much higher.

Under present conditions this increase in the death rate is almost inevitable since the population is aging. Today the principal causes of death in the state are not contagious or epidemic diseases but rather those for which at present very little has been discovered in the way of a cure. (Fig. 3) The death rate in South Dakota has declined quite appreciably in the younger age groups and the infant mortality rate, although still higher than in many states, is lower than for the nation as a whole. This decline has been due largely to control of gastrointestinal and respiratory diseases. At the same time maternal mortality rates show no definite trend but have fluctuated for a number of years. (Figs. 4, 5, 6, and 7) The birth rate has decreased almost a third during the past twenty years. Almost half of the other states of the union now have higher birth rates than South Dakota. While both birth and death rates have declined the drop in births has been much greater than in deaths. Consequently, the rate of natural increase has declined. (Figs. 8 and 9)

Fig. 2. The uniform method of reporting vital statistics provided by the United States birth and death registration areas makes possible valid comparisons between the several states. The two principal requirements for admission to the registration areas are: (1) birth and death omissions must be estimated to be less than 10 percent; and (2) a uniform reporting system must be adopted.
Basic Trends of Social Change in South Dakota

Definition of Terms

The **crude death rate** is the number of deaths per 1,000 population.
The **maternal death rate** is the number of deaths from childbirth per 1,000 live births.
The **infant mortality rate** is the number of deaths under one year of age (exclusive of stillbirths) per 1,000 live births.
The **crude birth rate** is the number of births per 1,000 population.

**Fig. 3.** Although the same trend in the death rate from various diseases is shown in South Dakota and the United States, South Dakota's rate is generally lower. Heart disease and cancer are the most important causes of death in both South Dakota and the United States and in both areas they are increasing. Cerebral hemorrhage, the third most important cause, is also increasing. The death rates from nephritis have remained about the same, the rate from pneumonia and influenza has fluctuated widely, while tuberculosis and diarrhea and enteritis have been declining. This increase in the death rates from heart disease, cancer and cerebral hemorrhage in South Dakota may result partly from the decline in contagious and epidemic diseases and partly from the aging of the population in the state.
Fig. 4. Due to improved and more universally available health facilities during the past 16 years, deaths of children between birth and 10 years of age have dropped from first to third place among the various age groups. At the same time the population of the state has been aging, and the proportion of the total persons dying who were 70 years of age and over has increased.

Fig 5. Although the maternal mortality rate in South Dakota is slightly lower than the United States average it does not reflect the downward trend of the national figure. Throughout the past 16 years the mortality rate in South Dakota has fluctuated from 3.7 to 5.6 deaths per 1,000 live births without revealing a definite upward or downward trend.
Fig. 6. A child born in South Dakota has a better chance to live out his first year of life than he would have in over half of the other states of the Union. The decline in the infant death rate during recent years has been largely achieved through the control of respiratory and gastrointestinal diseases.

Fig. 7. The infant mortality rate from all causes has been declining quite rapidly during recent years. The most important cause of infant deaths continues to be natal and prenatal causes, such as premature birth, congenital malformations, injury at birth, and syphilis.
Fig. 8. The crude birth rate in South Dakota has decreased almost a third during the past 20 years. The 1938 figure was 17.1 births per 1,000 of the population as compared with 25.7 for 1921. Although the birth rate continues to remain considerably higher than the death rate, the rate of natural increase, the difference between births and deaths, is gradually lessening.

Fig. 9. There was a sharp decline in the birth rate in practically every state in the Union between 1924 and 1938. In certain states, however, data were not available for 1924 since these states were not, at that time, in the birth registration area. Only two states, Montana and Mississippi, for which there were data for both years showed an increased birth rate. The higher birth rates were found in the southeastern and the western states, particularly Utah, Arizona and New Mexico.
IV. Public Health Facilities

In this section is a discussion of all those health facilities which are used by the general public. These include not only those facilities provided by government support, but also private facilities such as privately owned hospitals, physicians with private practices, dentists, etc. There is a definite trend toward more cooperative health movements such as hospitals owned by non-profit associations, health services in colleges, county health units and county nurses, but the basis of the system of health facilities in South Dakota still is the private individual and organization. In the following charts an effort is made to show the distribution and growth of the various health facilities in South Dakota, which are available for the use of all persons in the state.

State Department of Health. The State Department of Health is the official central health organization of the state. As such it is the agency which gives general supervision and attempts to unify all health facilities and health movements. Through its various departments it controls and directs maternal and child health work, public health nursing, control of epidemics and venereal diseases, and sanitary engineering with all the problems of town and school sanitation. (Fig. 10)

Directly under the supervision of and partly paid for by the State Department of Health are the full-time county health units and the public health nurses. (Figs. 11, 13 and 14) The full time county health unit consists of at least a doctor and a nurse and are supported, except in demonstration areas, by a combination of local-county funds and state-federal funds. The local-county funds may be from two sources, either tax funds allocated by the county commissioners or funds from such private agencies as the Red Cross and the Christmas Seal Sale Committee. This local-county money is generally matched dollar for dollar with state-federal funds, which are federal funds matched dollar for dollar with money appropriated by the state legislature. In demonstration areas the unit of service is supported with unmatched federal funds. The program of the county health unit consists of prenatal and infant care; preschool and school services; control of communicable diseases; emergency and educational bedside nursing; health education; and sanitation (water supply and sewage disposal). The entire program is largely preventive except in the case of a county where there is no physician in which case the county health officer must carry on curative work.

A particularly successful example of a county health unit is found in Harding county. This county is in the extreme northwest corner of the state. There are no railroads in the county. Buffalo, the county seat, is 50 miles south of Bowman, North Dakota, which is on the Chicago Milwaukee, St. Paul and Pacific Railroad, and is 75 miles north of Belle Fourche which is on the Chicago Northwestern Railroad. These are the nearest railroad points and the nearest places where medical aid or hospitalization could be obtained. The public health unit was started in July, 1937, with a small office, a doctor, nurse and office girl. It has been successful since its beginning.

By the end of the first month the demands were so great that a house in town was rented and converted into a six-bed hospital. Since the establishment
of the health unit there has been a constant increase in the number of individuals who have applied for advice and treatment. Nearly every expectant mother calls at regular intervals for prenatal advice and after the birth of the baby records are kept of its development. Regular examinations are given and instructions on the care of infants furnished to all mothers who apply. It is the opinion of the county auditor of Harding county from whom this information was obtained, that 90 percent of the residents of the county would oppose any attempt to close the health unit.

Public health nurses are employed by the State Health Department in cooperation with the local set-up and are largely supported by the State Board of Health. The emphasis of the local program is determined by consultation with a local advisory committee.

**ORGANIZATION OF STATE BOARD OF HEALTH**

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Fig. 10. The governor appoints a State Board of Health which consists of five members one of whom is designated as superintendent and administers and supervises the various departments. In addition to these divisions within the State Department of Health, there are certain other health facilities which are supervised by the state department or work in cooperation with it. Directly under the supervision of the State Department of Health and partly paid for by the state department in some instances are the county health units which may be either full time county boards of health or part time county health officers. Local health services such as hospitals, doctors, dentists and nurses also cooperate with the state department. In addition, certain extra governmental health agencies and service clubs do much to promote good health in the state.
Fig. 11. South Dakota county health units have been increasing, but even in 1938 they were found in only 11 counties of the state. There has been no increase since that time. There are, however, many counties in the state that do not cooperate in a full time county health unit which have maternal and child health nurses.

Fig. 12. Full time county health units in the United States increased from slightly over 100 in 1919 to 1100 in 1937. This is practically one-third of the entire number of counties.
Fig. 13. Almost two thirds of the counties in the state have U. S. Public Health Service units, public health nurses, or a maternal and child health unit.

Fig. 14. Child health conferences, or conferences between the mother and physician after examination of the child, and prenatal clinics, which examine and instruct expectant mothers, are intended mainly for persons with medical supervision, largely in rural areas.
Fig 15. This chart shows the location of full time county health units in the United States. It will be noticed that in eight states every county has a health unit; eight states have no health units of any kind. The largest number of county health units are found in the southeastern part of the country.
Hospitals. It is rather difficult to determine just how adequate the hospital service is in South Dakota. Forty-five of the counties have hospitals within their borders, the largest proportion of them being owned either by a non-profit association (non-profit hospitals) or the city, county, state or federal government (governmental). (Fig. 16.) The remainder are owned by individuals (proprietary). Only two counties, Faulk and Harding, have as yet established county hospitals. The American Hospital Association has set up as its standard of adequacy one hospital bed for every 250 persons. On the basis of this standard only 20 counties have adequate hospital service. Fourteen of the remaining counties have one hospital bed per 250-499 persons; five have one bed per 500-999 persons; six have only one bed for each 1,000 persons or more. Twenty counties are without any hospital facilities, whatever. (Fig. 18.)

South Dakota, on the other hand, has a relatively low occupancy rate for those hospital beds which it does have. Only two states have a lower rate. (Fig. 19.) This low rate of occupancy may be an indication of an oversupply of hospitals under present economic conditions or of a lack of education to the idea of medical care in a hospital.


Fig. 16. Non-profit and governmental (county, city and Indian) hospitals have increased at the expense of proprietary hospitals during the past 12 years. South Dakota now has 17 more hospitals than it had in 1926.
Although 20 counties are without hospitals there is only one entire county and fractional parts of 12 other counties in which the residents are more than 50 miles from the nearest hospital. These counties are Bennett, Corson, Ziebach, Dewey, Haakon, Jackson, Washabaugh, Washington, Shannon, Todd, Mellette, Meade and Perkins. No part of the area east of the Missouri River is as much as 50 miles from the nearest hospital. (Fig. 20.) There are hospitals in Dewey, Shannon and Todd counties, but these are Indian hospitals and are not open to the general public. The Indian population in these areas are adequately served, however.

Since most of the hospitals within the state have a rather low occupancy rate, it would seem practicable to institute ambulance service within a 50 mile radius of established hospitals rather than to establish many additional ones. If such a plan were inaugurated, some of the more inadequate existing hospitals could well be discontinued. Money saved by the elimination of poorer hospitals could well be invested in buying better equipment for the remaining hospitals.

Fig. 17. South Dakota had between two and three hospital beds per 1,000 population in 1938. This puts the state in a middle group in relation to the other states of the Union. The states having the fewest hospital beds are in the southeastern section of the nation. The states having the largest number are in the northern industrial section and in the western half of the country. The states which have more than five beds for each 1,000 population are Montana, Colorado, New Mexico, and Arizona. In the latter three states this may be due to the number of hospitals for tuberculosis and other respiratory diseases.
Fig. 18. Although 45 South Dakota counties now have hospitals within their borders, only 20 comply with the American Hospital Association adequacy standard of one hospital bed for every 250 persons.

Fig. 19. During 1938 two states, Mississippi and Oklahoma, had a smaller percentage of occupied hospital beds than did South Dakota. A total of 54.9 percent of South Dakota's hospital beds were occupied as compared with 68.9 percent for the nation as a whole. The rate of occupancy varied from 72.9 percent in California to 53.6 percent in Mississippi.
Fig. 20. Although nearly one-third of the counties in South Dakota do not have hospitals within their borders, there are only 13 counties in which some residents are over 50 miles from the nearest hospital.

Professional Health Personnel. The professional health personnel in South Dakota consists mainly of physicians, dentists, pharmacists and nurses. In this section we have attempted to show the distribution of only the first three of the four groups. (Figs. 21, 22 and 23.) The distribution pattern of all three of these groups corresponds rather closely to the degree of population density of the state. This is a logical distribution since the demand for any of these services is much less in a sparsely settled area. The number of persons per physician is rather high and has increased since 1926.

There are now 1,372 persons per doctor in South Dakota as compared with 1,095 in 1926. In nine urbanized counties there is a doctor for every 500-999 people; in 40 counties there are 1,000-1,999 persons per doctor; in 19 counties one doctor serves 2,000-4,999 people. In 1926 there were 18 counties having one doctor for every 500-999 persons. Due to variable local factors, it would be difficult to set a standard physician-population ratio but it appears evident that counties having 2,000 or more persons per doctor are inadequately served. (Fig. 24.)

The number of doctors per county varies from 62 in Minnehaha to one in the west river counties of Harding, Washabaugh, Bennett, Washington, and

5. Includes only practicing doctors of medicine. It does not include physicians who are retired or out of practice.
6. The United States average was 784 persons for each physician in 1934.
Stanley. It will be noted that not only does Minnehaha county have the most physicians of any county in the state but it also has one of the highest physician to population ratios.

Since 1935 there has been a decline in the number of physicians in practically all counties of the state. This decline appears to be a recent trend inasmuch as in the period between 1920 and 1930 the number of doctors increased in over two-thirds of the counties.

![Physicians in South Dakota](image)

Fig. 21. In 1938, there were 505 physicians in South Dakota. This number has decreased somewhat since the beginning of the depression. The location of physicians paralleled rather closely the density of population in the state.

The dentists of the state are concentrated in the larger towns and cities, although there are a number in the smaller towns. Probably the primary reason for this is that the need for dental care as a rule is not of an emergency nature, and people will wait until they go to a larger town to see a dentist.

Pharmacists are more widely distributed, however, since their services would be required more often than would those of a dentist. In most instances the physicians have their medicines compounded by a pharmacist, which makes it imperative that there be a registered pharmacist available at not too great a distance.
Fig. 22. There were fewer dentists, even in the more thickly settled parts of the state than there were physicians.

Fig. 23. Pharmacists were more prevalent even in the west-river area, only three counties not having pharmacists within their borders.
Fig. 24. The number of persons per physician has increased over 25 percent since 1926. In 1938 there was one doctor per 1,372 persons as compared with 1,095 persons per doctor in 1926.

Health Associations. By health associations are meant those groups which have made some group arrangement in order to secure health service on a cooperative basis. The largest group of such cooperative contracts are the student health services.

In 1926 student health service cooperatively contracted for was available in only two colleges within the state. By 1938, however, student health service was available in all seven state supported schools and in seven of the nine denominational schools. Other health service contracts in South Dakota include those at each of the state charitable and correctional institutions, nine federal Indian hospitals, three industrial health units, and four special hospitals. (Fig. 25.)

The most widespread effort to secure medical aid or hospitalization on such a cooperative plan was the Farmers Medical Aid Corporation, assisted by the Farm Security Administration. (See Fig. 26.)

Under this plan a payment of a $2 per month fee entitled standard loan clients, emergency loan borrowers and grant clients of the Farm Security Administration to receive emergency medical and dental attention without additional cost. Maternity cases were regarded in the category of emergency cases. Medical service rendered to eligible Farm Security Administration clients included treatment, medicine, and hospitalization when necessary.
The Medical Aid feature of the Farm Security Administration was initiated in October, 1937, with 12,000 farm families participating. Under the original program additional loans were granted to the Farm Security Administration clients for paying medical bills which they had incurred.

A substitute program was launched in February, 1938, membership being limited to those on grant rolls. Under this program families had the choice of (1) paying a fee of $1 per month, the FSA assuming financial responsibility for all emergency medical aid received or (2) borrowing additional money from the FSA to cover actual costs of medical service. Approximately 20,000 families participated in this program with about 75 percent receiving some form of medical assistance.

A second substitute program began in November, 1938. The number of families participating in this program, by counties, varied from 1,008 in Brown to less than 250 in Minnehaha, Lincoln, Union, Clay, Yankton, Moody, Deuel, Lake, Buffalo, Hughes, Dewey, Stanley, Jones, Mellette, Todd, Bennett, Washabaugh, Jackson, Washington, Shannon, Custer, Lawrence, Butte, and Armstrong counties. This was discontinued July 1, 1939, and up to the present time a new plan has not been approved.

Fig. 25. Health service contracts in South Dakota have increased over 60 percent during the past 12 years. The largest share of this increase has been due to the establishment of health service centers at state and denominational colleges.
V. Summary, Implications and Conclusions

Below are the more significant trends in the health situation. In each case the trend is followed by its respective social implications:

1. Average length of life relatively high.
   a. Each individual should have the right to live out a complete life span consisting of infancy, childhood, adolescence, maturity and old age.
   b. A rise in the average length of life merely means that an increasing number of people are living out their complete life span.
   c. A short average length of life implies great human waste.
   d. A high average length of life implies a good adjustment to both physical and social environment.
   e. A high average length of life requires fewer children to maintain a stationary population.
   f. Races or nations with a short average length of life give evidence of ignorance of even elementary health principles.
   g. States with a high proportion of rural non-industrial population are more likely to have a high average length of life.
   h. States with mature populations will have a higher death rate, but may also have a higher average length of life.
2. Death rate still low but is slowly rising.

a. Until recent years the percentage of aged in the population has been low. As the population has matured, however, the proportion of aged has risen and as a consequence the death rate has also risen. This is a natural trend and is not a cause for alarm. Countries with mature populations like England, Sweden, etc., have a death rate of about 14 or 15 per 1,000 population.

b. Infant mortality is rapidly improving. Since the deaths of infants make up a large proportion of the total deaths this helps to keep the death rate down.

c. The causes of early deaths are gradually being conquered. The diseases which now take the largest number of lives are those which are more common among older persons. Unless some of these causes of death can be eliminated the death rate must rise.

d. In order to keep the death rate as low as possible people should be trained toward positive or preventive health. Much of this training can be taken care of in school where people can be educated to take early care of physical defects, to learn the value of nutrition, outdoor sports, relaxation, regular vaccinations and health examinations.

e. A high death rate is closely correlated with a heavy social welfare cost.

f. Probably the best method of continuing our low death rate and high average length of life is by adding more full-time county health units, where the children particularly are given health education and examinations for physical defects.

3. Birth rates declining sharply

a. The nation-wide decline in birth rate unconsciously represents an adjustment to a number of health phases.

(1) The low death rate.

(2) The rise in the standard of living.

(3) The rise in the average length of life.

(4) A changing attitude toward the mother’s health evidenced through spacing of children.

(5) Infant mortality has decreased because more attention is given to babies when there are fewer of them.

4. Public health service expanding

a. Public health service was first introduced into South Dakota with the establishment of the State Board of Health. Since then it has spread into county and municipal health units, into colleges, both state and private, into state charitable institutions, and lastly into large industrial plants.

b. Public health service involves three parties: (1) the patient; (2) professional health personnel; and (3) the public.

c. When public health service is
once established as a social pattern, the idea grows very rapidly.
d. Public health services have brought about a reduction of health costs.
e. When large groups of people are brought together, the health hazard is necessarily high. It is, therefore, logical that such groups should be the first to ask for public health protection.
f. The next step in health organization should probably be to introduce more full-time county health units. This is probably the most practical way to guarantee health service in purely rural counties.
g. The Medical Aid Corporation among farmers held great possibilities for improving rural life. If the new program had been approved it would have provided medical care at approximately $33 per year per family. This is only about half of the average amount spent by 435 families for one year in seven counties of South Dakota.\footnote{W. F. Kumlien, \textit{op. cit}, p. 47.}

5. Infant mortality decreasing rapidly

a. A decrease in infant mortality presupposes prenatal and child hygiene education on the part of the mothers.
b. It also presupposes good hospital care for all obstetrical cases.
c. Good health of infants is an important investment that would pay high dividends in the future.
d. Baby-saving avoids unnecessary waste and pain on the part of the mothers. A high infant mortality rate is unnecessary and is costly in money and human energy.
e. Low infant and maternal mortality rates are two of the most important tests that we can apply to a high civilization.

6. Hospital service is now accessible in most parts of the state.

a. The accessibility of hospital service has had much to do with the decrease in infant and maternal mortality rate. A large proportion of obstetrical cases are now being cared for at hospitals.
b. As new, well equipped hospitals are very expensive and as those already in the state have a low occupancy rate, it may be more practicable to stress ambulance service covering a 50 mile radius before building more hospitals. Improvements in cars and roads are developing at a rapid rate and are increasingly used.
c. Existing hospitals could afford to improve their facilities and equipment if they were assured of more patronage.

7. The number of professional health personnel are decreasing.

a. The decrease in health personnel is due largely to the adverse economic conditions during the drouth and depression period.
b. The improvements in transportation make it possible for country patients to drive farther to consult professional health personnel.
c. Due to a shrinkage of economic
resources more persons per physician are needed to insure an adequate income for the latter.
d. There has probably been an oversupply of doctors and dentists in the state in the past.
e. The best quality of health personnel can be attracted only if they can be reasonably assured of a good living. Doctors and dentists who receive low incomes cannot afford to take further training and keep up-to-date.

8. Health service contracts with groups are increasing.
a. This is quite logical as groups have better purchasing power than individual families, and doctors can afford to give less costly service if the business arrangements are already made and they have a practice assured.
b. All items in the family standard of living are having to go through a “pruning” process during these depression times. The number of necessities keep increasing while the actual cash income has been reduced.
c. The usual practice of country patients coming to town to consult physicians makes it possible for the latter to serve a larger number of people.
d. When one area is temporarily depressed doctors like other service agencies will naturally gravitate towards more prosperous areas.

9. Non-profit and government hospitals increasing in proportion to total.
a. Private individuals and corporations are finding the expenses of operating a hospital too great to operate as a profitable enterprise.
b. It is quite evident that in the future more and more of the hospitals will be taken over by a non-profit association or the county, city, state or federal government. Both physicians and the general public are finding this more advantageous.
c. County and municipally-owned hospitals are meeting a great felt need. This makes possible the establishment of a hospital which probably would be too expensive for individual doctors to handle. The county health group may be the only way to guarantee health service in purely rural counties.
Conclusions

1. There seems to be a slow but sure trend towards public health facilities replacing those operating under private auspices. This has been accelerated to some extent by the drought and depression period where many people have required some public assistance in obtaining medical services.

2. South Dakota has a high average length of life. This is due largely to our low death rate, which in turn is based upon a number of other factors such as our decreasing infant mortality rate, the favorable age distribution of our population, the non-industrialization of the state, and the lack of overcrowded conditions.

3. The functions of the State Board of Health are becoming of increasing importance. County nurses, county health units, supervision of sanitation and water supplies, control of epidemics, and various child health services are all becoming increasingly important.

4. When looked at from the state as a whole, our main hospital problem is not to add to the number, but to improve the quality and completeness of service rendered by those already in existence and to educate more people to the idea of hospitalization.

5. The trend towards a decrease in professional health personnel in the state need not be considered alarming. Improved transportation and the tendency for country patients to call at the doctor's office rather than calling him to their home, has made it possible to serve a larger number of patients.

6. There are many groups of various kinds in the state that will doubtless organize themselves into health associations in the near future. The mainspring of such a movement will be partly reducing health costs and partly an expression of greater interest in public health matters.
How South Dakota Ranks Among the States in Health Characteristics

1. Length of Life
   1st in average expectation of life, 1930.9

2. Vital Statistics
   3rd in crude death rate, 1938.
   13th in maternal mortality rate, 1937.
   18th in infant mortality rate, 1938.
   19th in crude birth rate, 1938.

3. Public Health Facilities
   8th in percentage of counties having full-time health units, 1938.
   20th in number of hospital beds per 1,000 population, 1938.9
   3rd in percentage of hospital beds occupied, 1938.
   17th in total number of general hospitals, 1938.
   11th in number of students enrolled in nursing, 1938.
   7th in number of persons per physician, 1931.9

9. Counted from highest rate; all others from lowest rate.