Survey of Tuberculosis Information Among Madison Adults

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IN APRIL and May 1962, 53 volunteer workers for the Madison Tuberculosis Association distributed questionnaires on tuberculosis, as a personal and public health problem, to adults in the metropolitan Madison, Wis., area. The survey was designed to aid the association in planning public educational programs for the control and eradication of tuberculosis.

Specific objectives were to ascertain the extent of correct information Madison adults possess on tuberculosis, the prevalent fallacies and misunderstandings surrounding the disease, attitudes toward tuberculosis and persons infected with it, and differences in attitudes and information levels of people in different socioeconomic groups. The study was prompted, in part, by the suspicion that publicity about reduced tuberculosis death rates, new treatments for the disease, and the closing of some tuberculosis hospitals had fostered the evolution of some untruths which, if not identified and clarified, could seriously impede the control of tuberculosis.

Public health authorities, thoracic physicians, tuberculosis workers, and survey specialists served on the survey advisory committee. The data were collected and processed through the facilities of the survey research, numerical analysis, and health education laboratories of the University of Wisconsin. The work was financed by the Madison Tuberculosis Association and co-sponsored by the Dane County Medical Society, the Dane County Public Health Department, and the Madison Department of Public Health.

A total of 681 addresses were randomly selected from the 1960 Madison city directory. The random method was used so that every residential address had an equal chance of being visited by a volunteer distributor. Of the 681 selections, 63 were eliminated because they were commercial or erroneous addresses or vacant buildings. From the 618 remaining addresses, the volunteers succeeded in obtaining 520 (84 percent) completed questionnaires.

Characteristics of Sample

Thirteen survey questions were designed to obtain information on characteristics of the population sampled. The method of selecting a respondent at each address helped to avoid an imbalance of males or females, and 40 percent of the 520 questionnaires were completed by males.

The various adult age groups were well represented in the sample; 26 percent were 30 to 39 years of age, 20 percent 40 to 49, 12 percent 50 to 59, and 20 percent were 60 years of age or older. Seventy-seven percent of the people in the sample were married, and 67 percent indicated that they had lived in the Madison area for 10 years or more. Seventy-seven percent of the respondents had a high school or college education, and 70 percent had an annual income of $5,000 or higher.

Findings From Survey

How knowledgeable are Madison adults on the subject of tuberculosis? Percent distribution of answers to 20 of the 70 questions on tuberculosis is given in the table on page 86.

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Prevalence, cause, and spread. Madisonians are not well informed on the prevalence of tuberculosis. Only 14 percent are aware that about 250,000 persons in the United States have the disease in its active, infectious form; another 14 percent think that less than this number have tuberculosis, and 71 percent say that they don't know the number.

Residents of metropolitan Madison are well informed, however, on the cause and spread of tuberculosis. Ninety-three percent know that most people who have the disease were not born with it, 81 percent know that tuberculosis is an infectious disease, 74 percent believe that crowded homes are favorable to the spread of tuberculosis, and 70 percent know that the disease attacks animals as well as human beings.

Almost 9 of every 10 adults correctly cite infection from an active case of tuberculosis or general fatigue and a rundown condition as circumstances for getting tuberculosis. Only 44 percent know that children most frequently acquire the disease from contact with grownups who have it.

Susceptibility and resistance. Ninety-four percent of the respondents correctly think that a "healthy" person can catch tuberculosis. Fourteen percent either don't know or are misinformed about the following statement: If the children of an active tuberculosis patient who is living at home feel well and are growing, you can be sure that they do not have tuberculosis.

Ninety-six percent of Madison adults know that there is no age at which a person is entirely safe from tuberculosis, and 86 percent say that a person is never too old to have the disease. Less than 15 percent realize that there is a definite relationship between age and resistance to tuberculosis and that infants have the least resistance to the disease.

Tuberculin skin test. The tuberculin skin test is a step in determining (*a*) the people who have been infected with the tubercle bacillus and need a followup X-ray and (*b*) the presence of active tuberculosis. Nine Madison adults of every 10 are aware of at least one purpose of the test; more than 1 of every 3, however, are misinformed or uninformed about the meaning of the tuberculin reaction. Only 63 percent of Madison adults are aware that this reaction does not prove the presence of active tuberculosis. Three-fourths of the population correctly interpret no reaction to the tuberculin test as indicating that the individual probably has not been infected with tuberculosis up to the time of the test. Ten percent are under the impression that no reaction to the test means that a chest X-ray is desirable, 9 percent do not know what it means, and 3 percent believe that it denotes immunity to tuberculosis.

Chest X-rays. Most Madison adults are favorably disposed toward chest X-rays. Only 4 percent have never had one; more than half report having been X-rayed during the year before the survey; and 45 percent indicate that an X-ray had been taken more than a year before they were questioned in the survey. Almost 9 of every 10 adults say they would be willing to have an X-ray immediately if a machine and operator were there.

Most Madison adults (97 percent) know the ways to obtain a chest X-ray. Seventy-two percent would seek a mobile X-ray unit; 17 percent would consult a private physician; and the others are fairly equally divided among calling the tuberculosis association, calling the health department, and going to a hospital.

Eighty-five percent of Madison adults advocate a community requirement for some type of compulsory checkup for freedom from tuberculosis. This group is composed of those who believe annual checkups should be required (48 percent of the sample population), those who feel checkups should be ordered at the discretion of the health officer (25 percent), and those who favor compulsory checkups every 3 to 5 years (12 percent). Only 1 of every 10 persons is opposed to compulsory checkups.

Symptoms of tuberculosis. Approximately 9 of every 10 adult Madisonians are conscious of the fact that an individual can have tuberculosis without feeling sick. They also recognize the inaccuracy of the statement: A person can usually tell which people have tuberculosis by looking at them. Nearly two-thirds of the people know that tuberculosis can attack many parts of the body.

Treatment of patients. Most tuberculosis patients are treated in sanatoriums. The majority of Madison adults are apprised of this fact. Nearly 7 of every 10 indicate that they would prefer to receive care in a sana-

torium if they contracted tuberculosis. Treatment at home is preferred by 20 percent of the adults, and 12 percent are undecided.

High among the factors influencing their decision on where to receive treatment is the advice of a physician. Nine of every 10 people would consider his advice in making their decision. Distance from sanatorium to home would influence only a minority of the population, but the reputation of the sanatorium would be a relevant consideration for 8 of every 10.

Forty-five percent of Madison adults would not let length of treatment determine their preference between home and sanatorium care; 47 percent feel it is an important consideration. More than two-thirds of the adults do not consider the length of their job sick leave one of the deciding factors. Arrangements for care of children, however, would be a problem for half of the residents. Other factors influential in their decisions are better treatment and free care available at the sanatorium, care at a sanatorium prevents spread of the disease to others, and "whatever is convenient for the family."

Only 17 percent of the people know about isoniazid, the most widely used antituberculosis drug. A low 58 percent are apprised of the fact that Wisconsin has a free-care law for tuberculosis patients. About a third of the people do not know the length of stay in a sanatorium for a tuberculosis patient. Another third are correctly informed that the average stay is about 9 to 12 months. The remainder have varying ideas on the subject.

Recovery. Madisonians are well informed about the possibilities of recovery from tuberculosis. Ninety percent are correctly informed that, if a person has tuberculosis, chances are that with early care and drug treatment he will recover completely. Ninety-six percent know that an ex-tuberculosis patient can lead a normal life after adequate treatment. Ninety-seven percent are aware that a former tuberculosis patient needs to consult his physician periodically after he is cured, and 89 percent realize that a person who has recovered from tuberculosis can contract it again.

Two-thirds of the respondents are unaware that practically no occupational restrictions are placed on the ex-tuberculosis patient, possibly because for many years the rehabilitation of the tuberculosis patient included occupational adjustments. As a matter of fact, unless he is a pulmonary cripple, about the only occupational restriction imposed on the ex-tuberculosis patient is that he not follow a vocation in which he is exposed to silica dust and the threat of silicosis.

Prevention and control. The danger of untreated active tuberculosis cases and public responsibility for the protection of community health are important considerations for most Madison residents. Eight of every 10 agree that residents with active tuberculosis who refuse adequate, available treatment should be legally quarantined. When faced with a personal problem regarding active tuberculosis, for example, learning that a co-worker has an active case of the disease, most Madisonian adults would take some meaningful preventive action. Forty-six percent would have a check-up, and 40 percent would report the situation to their employers. Only 1 in every 100 would ignore the situation.

Nearly three-fourths of Madison adults say that "much progress" has been made in overcoming tuberculosis. Almost a third do not know that pasteurization of milk is a major tool in controlling tuberculosis, and only 17 percent are aware of the BCG vaccine.

Sources of information. Newspapers and magazines rank high as sources of information on tuberculosis. Television, radio, and pamphlets are not far behind. Films are not often mentioned by the respondents.

Attitude toward tuberculosis. Nine of 10 Madisonians say they would not be afraid of being near a person who has had tuberculosis but is now well and under medical supervision. When asked if they would prefer that other people didn't find out about someone in their family getting tuberculosis, 79 percent reply with an unequivocal "No."

Attitude toward Christmas seals. Sixty-eight percent of Madison folks think that the program of mailing Christmas seals to them each year, with a request for a financial contribution to the tuberculosis association, is a good idea. On the other hand, about a fourth of the people are undecided about Christmas seals. Forty-two percent believe that the Christmas seal money is being spent efficiently

in combating tuberculosis, and only 6 percent are negative in their appraisal. More than 50 percent say, "I don't know."

Brief Analysis

Fifty of the 83 items in the questionnaire can be said to have a correct answer or a favorable response. For some of these questions, less than 10 percent of Madisonians respond correctly or favorably. At the other extreme, for some questions, 90 percent or more of the population give a correct or favorable response. Here is the distribution:

Number of questions	*Percent correct or favorable response*
10	1–20
2	21–40
4	41–60
12	61–80
22	21–100

Better than 80 percent of Madisonians gave correct or favorable responses to almost half of these 50 questions on tuberculosis.

Groups to be reached. Over and over again evidence points to the need for focusing educational efforts toward certain socioeconomic groups. Those particularly identified in this study are: (*a*) the people 70 years old or over, (*b*) families in the lower income brackets, and (*c*) persons with less than college education. On a majority of the questions, these groups scored significantly lower than their counterparts.

Gains and losses. The data collected by the volunteers reveal some important clues for a tuberculosis education program. They tell us that some misunderstandings about tuberculosis are being clarified. A vast majority of the adult respondents are aware that tuberculosis is not inherited, few people want to maintain secrecy about a case of tuberculosis in their own families, and only a small number are fearful of acquiring tuberculosis from an ex-patient. Although the old concepts are fading among Madisonians, others are becoming more prevalent:

1. There are those who think that tuberculosis is practically wiped out, and very few have correct information about the actual number of active cases of tuberculosis in the United States or the number of new cases that are reported each year.

Percent distribution of Madison adults' answers to 20 of 70 questions on tuberculosis

Question	Yes	No	Undecided or don't know	No response
Do you know that 250,000 people in the United States have tuberculosis in its active, infectious form	14	14	71	1
Do you think that most people who have tuberculosis were born with it	3	93	3	1
Can healthy people catch tuberculosis	94	1	4	1
Do you know that children most frequently acquire tuberculosis from contact with grownups who have the disease	44	24	31	1
Do you know that infants have the least resistance to tuberculosis	13	49	36	2
Is there any age at which a person is safe from tuberculosis	----	96	4	----
Can a person have tuberculosis without feeling sick	86	3	10	1
Does a red, raised spot in the tuberculin skin test prove you have active tuberculosis	14	63	23	----
If a machine and operator were here, would you agree to having a chest X-ray now	87	8	4	1
Do you know that tuberculosis can attack many parts of the body, such as the lungs, brain, stomach, bones, and kidneys	63	20	17	----
Is it possible to get free treatment for tuberculosis in Wisconsin	58	2	39	1
Would you prefer sanatorium rather than home treatment if you had tuberculosis	68	20	12	----
Is there a vaccination for tuberculosis	17	68	14	1
If there were tuberculosis bacteria in milk, would pasteurization kill the bacteria	69	6	24	1
Do you think the community should require all people to have periodic checkups for freedom from tuberculosis	85	9	------	6
Do you think that people with active tuberculosis who refuse available adequate treatment should be quarantined	80	6	13	1
If a close friend of yours developed tuberculosis, would you need a checkup?	85	8	7	----
If someone in your family were to get tuberculosis, would you prefer that other people did not find out about it	7	79	13	1
Do you think Christmas seals are a good idea	68	8	23	1
Do you think Christmas seal money is spent efficiently in combating tuberculosis	42	6	51	1

2. The fact that the largest number (not rate) of new cases are among the middle-aged is not known to many people.

3. Although it is generally known that no age is safe from tuberculosis, few people realize that a relation exists between age and one's resistance to tuberculosis infection.

4. Not many know that the greatest number of tuberculosis patients come from the poorer walks of life.

5. Some folks have incorrect information about how children acquire tuberculosis.

6. Many people are aware of the purposes of the tuberculin test, but some do not know the meaning of a positive or negative tuberculin reaction.

7. Few people can identify isoniazid as a useful antituberculosis drug.

8. Correct information is lacking about the length of hospitalization for the modern treatment of tuberculosis.

9. Some people still are under the impression that the ex-tuberculosis patient is quite restricted in the type of work he can do safely.

10. Few people are aware of the BCG vaccine.

This study also gives evidence that without frequent reminders, people do forget and young people grow up without acquiring certain facts. In the survey Madison adults had relatively low scores in knowledge on free care for tuberculosis patients, tuberculosis in animals, influence of pasteurization on tuberculosis bacteria in milk, and ability of tuberculosis bacteria to attack organs other than the lungs. These facts were emphasized in education on tuberculosis in the 1930's and 1940's but are less prominently mentioned in recent years. To some extent they represent loss of educational ground.

Conclusions

Studies like the Madison survey can be of great value in planning a more effective health education program. Maximum benefit from this type of study can only be derived after careful scrutiny and thorough analysis of the findings.

To the casual observer it might appear that the residents of Madison are fairly well informed about tuberculosis. On the basis of their replies to many of the questions, tuberculosis workers in that city might be tempted to relax. However, careful examination of the survey results shows that the public is not completely and accurately informed.

It is safe to predict that unless the education program is continuous and effective, new misunderstandings and fallacies will develop, complacency will set in, and progress toward the prevention and eradication of tuberculosis will be impeded.

Conference Calendar

February 4–5, 1965: Midwestern States Symposium on Noise in Industry, Cincinnati. Mrs. Adelaide Badgley, Secretary, Institute of Industrial Health, Kettering Laboratory, Eden and Bethesda Avenues, Cincinnati, Ohio, 45219.

February 23–24, 1965: Institute on Coordinated Home Care, Montefiore Hospital, Pittsburgh, Pa. Kay Laughrige, educational director, Training and Information Center for Home Care and Related Community Services for the Chronically Ill.

March 4–6, 1965: Symposium on Fundamental Cancer Research, M. D. Anderson Hospital and Tumor Institute, University of Texas, Houston. Dr. Darrell N. Ward, Head, Department of Biochemistry, University of Texas M. D. Anderson Hospital and Tumor Institute, Houston 25, Tex.

March 26–27, 1965: American Medical Association Council on Rural Health, Americana Hotel, Miami Beach, Fla.

April 5–8, 1965: Industrial Medical Association and American Association of Industrial Nurses, Americana Hotel, Miami Beach. Information: American Industrial Health Conference, 55 East Washington Street, Chicago, Ill., 60602.

April 14–16, 1965: Southern Water Resources and Pollution Control Conference, Chapel Hill. Professor Charles M. Weiss, Box 899, Chapel Hill, N.C.

July 10–17, 1965: International Conference on Health and Health Education, International Union for Health Education, Madrid, Spain. American National Council for Health Education of the Public, Inc., 800 Second Avenue, New York, N.Y., 10017.

Announcements for publication should be forwarded to Public Health Reports 6 months in advance of meeting.