

**Saskatchewan Leads Canada, North America and the World  
in the Fight Against Tuberculosis**

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## **Introduction**

Tuberculosis was the leading cause of illness and death at the turn of the last century and sapped the energy and productivity of generations in Canada. Spread by impure milk, common drinking cups, and breathing in germs in overcrowded homes, the “white plague” destroyed many families before it came under control in the 1950s. Saskatchewan was a world leader in the fight against “consumption”, with many firsts in research, treatment and public health policies.

In 1908, 129 deaths from TB were reported in Saskatchewan, contributing to the Canadian death rate of 165 per 100,000 population. Reporting procedures at that time being unreliable, however, it is estimated that many more deaths, perhaps ten times more, were due to TB. In 1937, the death rate in Saskatchewan was 32.9; by 1950 it had fallen to 18.4. Between 1937 and 1962, 10,551 people were admitted to Saskatchewan sanatoria for their first time, and 3,966 of them died of TB. (Wherrett 1964: Tables 4 and 11.)

As Saskatchewan led the way, other provinces awaited the results of our efforts before adopting them, in many cases not so thoroughly. We can be extremely proud of our health heritage over the years, in large part due to the tactics begun here in Saskatchewan to combat tuberculosis.

Allan Blakeney, then Saskatchewan’s health minister, observed in 1964, “The introduction of diagnosis and treatment of tuberculosis at public expense was one of the early and essential steps in developing a program of health services available to all.” (quoted in Houston 1991:84)

There have been many Saskatchewan “firsts” in tuberculosis. Our province has always taken a progressive and aggressive approach to public health.

### *World firsts*

- BCG vaccination of nursing students, 1938
- Development of a portable miniature x-ray system
- First formal mass TB survey at Melville, 1941

### *North American firsts*

- Free treatment for tuberculosis, 1929
- BCG vaccination of First Nations babies, Fort Qu’Appelle 1933
- Moose Jaw first city to x-ray all its residents, 1942

### *Canadian firsts*

- Saskatoon TB milk testing, 1913,
- TB school survey, 1921
- Pooling of municipal levies for TB treatment, 1922-28

- Province-wide radiographic survey, 1941

*Also important*

- Pioneering sophisticated testing of BCG vaccine, 1933, the best in Canada
- U of S innovative research in the 1990s, with important implications for TB and HIV

## **Saskatchewan Tuberculosis Achievements in Context**

In the years before the First World War, immigration and people moving into urban centres put pressure on municipalities to help those who became victims of poverty and disease. A growing social reform movement began to change how disease and public health were viewed, concerned less with moral issues and more with the scientific causes of disease.

TB was the leading cause of illness and death in Canada between 1877 and 1927. In 1908, the death rate was 165 per 100,000 population. By 1926 this had fallen to 84: one death in 13 was caused by TB, slightly higher than the cancer rate. At this time, cattle caused 25 percent of TB deaths among Saskatchewan children. (Seymour 1925:271-284; Brancker et al. 1992:108)

### **1. First Step in the Fight Against TB: Sanitation, Dairy Cows and Impure Milk**

Danger lurked in the street, in the home and in back yards. The fight against the germ which caused TB started early: new municipal by-laws forbade spitting, dipping raw milk out of common tanks, public drinking cups in hotels; streets were wetted down to prevent blowing dust from spreading bacteria, food was to be covered and milk to be sold in sealed bottles. The CPR started an anti-spitting campaign on its lines in 1910 and provided paper cups in its cars. (McCuaig 1999:9-11, Caldwell 1988:56)

In 1907 it was shown that people could get tuberculosis from animals, especially TB spread by children drinking milk of diseased cattle. (CFIA 2002; Wherrett 1977:17) With the rising number of dairy cattle in the province interest in public health grew and in 1909 a **Bureau of Public Health was established** by the Public Health Act. Both Regina and Saskatoon had by-laws before 1909 dealing with cleanliness in the dairy industry and on the farm.

#### *1.1 Pioneering Milk Pasteurization in Saskatchewan*

Commercial pasteurizing of milk (keeping raw milk at a high temperature for a length of time to kill bacteria and then cooling it rapidly) was not practised at this time, even though impure milk was known to cause typhoid fever and other diseases. In 1911, the **Moose Jaw Dairy Company sold Saskatchewan's first commercially produced pasteurized milk and the first butter made from pasteurized cream.** (Church 1985:53)

**Alone among dairies selling fluid milk, the Saskatoon Pure Milk Company** began to pasteurize its milk in 1912. After 58 infants died in April 1913 from consuming impure milk, 12 dairies were closed by the city health department for breaking the milk by-law. In response to the tragedy, **Saskatoon enacted Canada's first pasteurization by-law**, in March of 1914.

#### *1.2 Ottawa Helps Farmers Fight TB in Cattle*

Responding to farmers' demands, in May 1914 the federal government introduced a new

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approach to the control of TB in cattle. A free dairy cattle testing program was offered for larger Canadian centres. Because of its progressive dairy policies, Saskatoon in 1915 was the **first city in Canada** to be allowed to take advantage of the program. (Church 1985:47)

By the end of March 1918, four urban centres in Canada, **three of them in Saskatchewan**, were testing dairy cows for TB. The province's municipal dairy testing program began in 1925. Ottawa also encouraged the culling of infected herds. By 1927 the Last Mountain TB Restricted Area was certified, the first in the province.

## 2. The Sanatorium Movement

The sanatorium grew to become an icon in the fight against TB, a visible symbol of a new fact: that getting TB was not necessarily a death sentence. The "san" transformed the hospital from fear-ridden shame to "an extension of everyday life" (Caldwell 1988:50) and lasted until antibiotics arrived in the 1950s.

### 2.1 *Folk Remedy: The Outdoor Life*

The sanatorium movement began in Europe with the open air treatment programs of Herman Brehmer in the 1870s. In the US, Dr Edward Trudeau began North America's san era in 1882 with his Adirondack Cottage Sanitarium at Saranac Lake, NY. Trudeau's san became the model for all. (Wherrett 1997:17; McCuaig 1999:47-48)

The "san" was not a hospital, but a village community of people learning to live a new way of life. The fresh air idea so central to the movement grew out of the view of outdoor life as an antidote to the moral, spiritual, and physical ills of urban crowding. This idea is embodied in the new word for the san: "sanatorium" vs. "sanitarium". The word sanitarium came from the Latin for healthy place, while the new name, sanatorium, came from the Latin for "to heal", giving the idea of a healing institution. (Caldwell 1988:70-74)

"The sanatorium occupied a unique place in the tuberculosis program in North America and Western Europe, and nowhere was it as well developed as in Canada and the Netherlands - countries that were eminently successful in the control of the disease. At one stage in the program it was thought that enough sanatoria could be developed in Canada to treat every case of tuberculosis. This actually happened in Saskatchewan, Manitoba, and Alberta, but in other provinces it was not until the drug era that there was a sufficient number of treatment beds." (Wherrett 1977:39)

### 2.2 *Dr Seymour and the Saskatchewan Anti-Tuberculosis League*

In 1917 Saskatchewan's first san opened. Dr M. M. Seymour, provincial commissioner of health, had been directly influenced by Trudeau's sanatorium where his son was treated. In 1911, Seymour spearheaded the formation of the **Saskatchewan Anti-Tuberculosis League (SATL)** and the building of a **sanatorium at Fort Qu'Appelle**. (Houston 1998) It opened in 1917, providing 60 beds for ex-servicemen. Later, the IODE added a children's pavilion with school room. In 1927, a "preventorium" opened for newborns of tubercular mothers being treated at Fort San. ("History of Echo Valley Centre" n.d.: 2-3)

#### 2.2.1 *Dr Robert George Ferguson*

Fort San's most famous medical superintendent, **Dr R.G. Ferguson**, was a remarkable man, known for his humanity, personal integrity, professionalism and unfailing support for local

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medical people and patients. His pioneering research kept Saskatchewan at the forefront of TB in Canada. First Nations people suffering from tuberculosis in this province had equal access to the sanatoria from the beginning under the medical direction of Dr Ferguson. This was not the case in Manitoba, where not until 1946 were aboriginals allowed san treatment. (Houston interview 2001,04:3:17; 1991:92; Larmour 1986:5-6)

A san subculture developed based on common experience of disease, isolation, strict rules, and a sense of personal mortality. In this stressful atmosphere, flirtations and friendships became mixed up with fresh air and lung collapse, and gossip and black humour were often antidotes. (McCuaig 1999:254) Sans were almost self-sufficient. Eventually they had their own farms, self-contained pasteurizing equipment, radio broadcasts, and newsletters. For a description of life at the sans, see Champ 2001 and various issues of The Valley Echo.

### 3. The Great War Pushed Forward TB Treatment in Saskatchewan

The First World War had a very great influence on how tuberculosis treatment developed in Canada and Saskatchewan. As soldiers and recruits were screened to see who was fit for service, the public became more aware of TB. Many soldiers were sent to sanatoria for isolation and treatment at federal expense. Federal money enlarged and newly equipped the san and treatment was expanded to deal with other respiratory and health problems. Techniques of constant medical supervision and rehabilitation were developed. Modern x-ray and lab facilities and technicians, occupational therapists and vocational workshops, dieticians and medical specialists were all put in place. (McCuaig 1999:37-39, 40-41, 50-53,102, 301-302 *fn* 18; Larmour 1986:6)

#### 3.1 *Post-War Changes in Public Health Concepts*

During the war, the san developed from an isolated community into a hospital. Fund raising and educational programs ensured the sans were in the public eye and because of the example set by **veteran care expectations grew that all citizens should have the same free access to tuberculosis treatment.**

##### 3.1.1 *Saskatchewan Supports its Poor*

Nevertheless, by 1918 almost 98% of Canadians with TB were still treated at home. Most rural victims went to the san only after they were extremely ill because they had to prove their indigence, or poverty, to their municipality before it would pay to support them. This was difficult and humiliating. An important judgment was made in the **Saskatchewan Supreme Court**, which stated that a person was indigent when **unable to provide for himself what he needed**. Charitable organizations such as the Red Cross, the IODE and the Every Woman's Fund of Saskatchewan also gave support. (McCuaig 1999:47-48; Wherrett 1977:43-44)]

##### 3.1.2 *The Public Wants More Health Services*

The treatment of tuberculous soldiers at the sans had shown that the government could provide these services and the public began to expect it. **This was a new expectation:** by 1920, TB and public health were regarded as necessary parts of post-war reconstruction. (McCuaig 1999:54-55)

As health care was a provincial responsibility, the government turned over the sans to the provinces after the war. Continuing federal money for equipment and facilities ironically helped strengthen Saskatchewan's authority in health matters and helped to push the province into **developing public health initiatives on its own** and becoming involved in the anti-TB campaign. Preventive measures were promoted as ways of controlling the spread of TB and reducing the costs of cure. This concept was another result of the war. The rights of the

community began to be seen as more important than the rights of the individual: public health vs. private health. Where has she been? Who has he been in contact with? Who is she infecting?<sup>6</sup>  
(McCuaig 1999:57-60)

### 3.2 *Science Comes to the San*

The folk cure origins of the san movement began to mix with and evolve into the new, germ-oriented approach to health care after the war. This was a time of **specialized treatments for TB** and partnership between physicians, TB specialists and lay people. For a long time patent remedies had been available: “Burdock’s Blood Bitters”, “Piso’s Cure for Consumption”, “Dr Wood’s Norway Pine Syrup” and others were advertised in the 1890s. Creosote, calcium, mercury and gold were tried; garlic, onions and radishes were popular folk remedies which probably did help; scientists tried to test some of these. (but the guinea pigs refused to eat onions.) (Wherrett 1977:13; Caldwell 1988:258) Now, **treatment aimed at curing TB scientifically**. Education was an essential. Several new therapies were promoted at the sans in Saskatchewan, as elsewhere.

#### 3.2.1 *Bed Rest and Collapse Therapy*

Rest became law at the san. It was believed that **complete rest** was essential to the recovery from TB and patients were kept in bed, sometimes even put into body casts to prevent movement. An extension of this idea was that patients should be prevented from using a lung, so it could rest and be able to heal.

To ensure rest, **collapse therapy or pneumothorax** (“pneumo”) was done surgically. Air or gas injected between lung and chest wall squeezed the lung flat. Lung collapse therapy was not a cure-all but often stopped painful symptoms, reduced fever and decreased the amount of phlegm or sputum which had to be coughed up. From the late thirties to the early fifties about one third of patients with lung TB in Canada had some form of collapse therapy. (McCuaig 1999:43-44, 71; Brancker et al. 1992:110; Grzybowski and Allen 1999)

#### 3.2.2 *Thoracoplasty*

Later, thoracoplasty, or removal of several ribs to **collapse the lung permanently** was done when pneumo was ineffective. In 1929, seven patients at the Saskatoon san had thoracoplasty. (Larmour 1986:19) “...thoracoplasty was so traumatic, not to say brutal, that it had to be done in two or more stages, prolonging the trauma.” (Caldwell 1988:255)

#### 3.2.3 *Heliotherapy*

Treatment by exposure to sunlight was not a cure, but was used as extra therapy, as a natural germicide against the TB germ. Quartz lamps were used in winter. First used in Saskatchewan at Fort San in 1919, by 1926 half the patients treated by the SATL received some form of light therapy, for TB of the bones and joints, the larynx, ear and abdomen. Children suffered most from these forms of TB. In Saskatchewan non-lung TB cases rose drastically from 1920 to 1925. (CTAAR 1925:138; 1926:148; 1927:129; SATL 1949:8-9)

## 4. Saskatchewan’s Famous Pioneering Community Surveys

### 4.1 *The Eight-Community School Survey of 1921- Canada’s First!*

In July 1921, the Saskatchewan Anti-Tuberculosis Commission (SATC) was set up to study TB in several surveys organized by Dr Ferguson. The results of the 1921 school survey, **Canada’s first**, showed for the first time how much TB was “out there”. Nearly one percent of the children

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had active TB, about half had been exposed to it, more than 90% of the First Nations children tested in residential schools were also positive, and 34% of dairy cows were positive. (CTAB 1924:7) The commission's pioneering 1922 report listed many urgent needs including hospital and san isolation for all "spreaders" of TB and a complete survey of the First Nations population by the federal government. (Houston 1991:59-66, Wherrett 1977:187)

Because he designed both the commission research and the report, Dr Ferguson was able to put his vision for the fight against TB in Saskatchewan into effect. The government **quickly implemented the first 12 SATC recommendations**. (CTAAR 1922:110-114; Houston 1991:67-68; Davison 1924:32) **Following Saskatchewan's lead**, the Canadian Tuberculosis Association provided money to the other provinces for similar surveys.

#### *4.1 North America's First Comprehensive Community School Health Survey*

The dangers of impure milk to children prompted Dr Ferguson to do the **first comprehensive health survey of all school children in any North American community** in September 1924. The purpose of the Weyburn Survey was to discover how many children had TB and other afflictions. About 500 children had three x-ray s each, "a thoroughness which was most unusual for that era." (Houston 1991:67) Almost one percent had active TB needing treatment. Forty percent tested tuberculin-positive.

The surveys prompted such public support that the government paid off the SATL's bank deficit, raised the daily *per capita* grant from 50 cents to one dollar, which covered about one third of the cost of treatment, and voted \$520,000 for another sanatorium at Saskatoon. (McCuaig 1999:139, Davison 1924:32)

##### *4.1.1 The Saskatoon San, 1925 - 1978*

The compact 175-bed Saskatoon Sanatorium was typical of post-war sans in that it was constructed close to city and professional services. It opened in April 1925 and took in transfers from St Paul's and City hospitals and patients from Fort San who lived in the north. Dr Boughton, medical superintendent, conducted experimental tuberculin and x-ray surveys with his car and a trailer. He, a nurse and two x-ray technicians examined 12,000 individuals in one three-week survey, leading to the **development of the photofluoroscopic survey** for early TB detection. (Houston 1991:69-70) The Saskatoon San closed in June 1978.

##### *4.1.2 The Prince Albert San, 1930 - 1961*

Dr Robert Kirkby was the medical superintendent at the new ultra-modern 27- bed san at Prince Albert, which opened in 1930. Some patients were transferred from Fort San; others came from Saskatoon, Moose Jaw and Regina hospitals. First Nations patients were an important component here. (Houston 1991:71) Dr Kirkby sent medical teams into the north, looking for new cases and doing follow-up work on known cases in homes and at hospitals. Clinics were set up, essential to containing the spread of tuberculosis among the First Nations people of the north.

##### *4.1.3 Indian Health Units*

The Fort Qu'Appelle Indian Health Unit was established at Fort Qu'Appelle in 1936 by the Department of National Health and Welfare. A North Battleford unit was acquired from the Department of National Defence at the end of the Second World War. (Houston 1991:92; Wherrett 1977:41-43)

## **5. Saskatchewan's Push for Free TB Treatment, North America's First**

### 5.1 *Canada's First Municipal Tax Pool for TB Treatment Costs, 1922-28*

Free TB treatment had been recommended by the SATC in 1922 and had remained Dr Ferguson's most important goal. While in 1920 the federal government was paying for veterans in the san, who outnumbered the civilians three to one, by 1924 the civilians outnumbered the soldiers by six to one: almost five-sixths of the cost had to be paid by the person, the province, or the municipality. (CTAAR 1925:134) A very few people might be able to pay for a year in the san; others could not afford any treatment at all or take time off from work.

Under the Rural Municipal Act of 1920 each RM contributed \$100 a year to the san and in 1921, this money was put into **a pool to pay for treatment of poor patients**. In 1925, the urban municipalities formed their own pool. Only with these contributions could the League function. TB was in the public eye. By 1928, health units were being established in rural areas; more cases of TB were being found; and service clubs supported the anti-TB cause through the Christmas Seal campaign. ("History of Echo Valley Centre" n.d.: 2-3)

### 5.2 *North America's First Free TB Treatment Program, 1929*

The concept of **completely free treatment** was introduced in 1925 at the **SARM** annual meeting. By March 1928 the resolution, moved by the RM of Weyburn, passed unanimously. Later, the Saskatchewan Urban Municipal Association (**SUMA**) and the **United Farmers** passed similar resolutions. (Dawson and Evans 1980:32)

SARM's and SUMA's influence did the trick: effective 1 January 1929, the **Saskatchewan Act Respecting Sanatoria and Hospitals for the Treatment of Tuberculosis to extend free diagnosis and treatment to all Saskatchewan residents** was passed by the Gardiner Liberal government. (CTAAR 1929:121.; Middleton 1933:509-510)

## 6. **Despite the Depression, Saskatchewan Stays the Course: Canada Follows**

The Depression hit right on the heels of this achievement. Rural tax collections broke down almost entirely because of the destitution of the population. After the 1939 harvest, however, the municipalities were able to catch up on their levies. "The very fact that the league did *not* collapse, ... that the municipalities paid the amount they owed as soon as their economic situation improved, and that the province staved off bankruptcy with a series of loans **demonstrated just how deeply the belief that free treatment was a government responsibility had become ingrained in the Saskatchewan public's mind**. Now, even in the hardest times - and perhaps because of them - treatment was a right, not a privilege. And it was only a short step from demanding health care for tuberculous citizens to demanding health care for all." (McCuaig 1999:147, my emphasis) Other provinces slowly began to extend free treatment to their residents.

The **free policy of 1929** doubled the number of people being diagnosed from 1929 to 1931; about the same percentage as before had active TB. Many more cases were caught in their early stages, an important step in prevention. Ferguson declared, "the end result will be more cures and a shorter period of disability, lessened spread of the disease, a lower death rate, and eventually fewer cases." (CTAAR1930:105) Patients were living longer. Canada watched.

## 7. **Dr Ferguson's Surveys of First Nations Communities**

TB ravaged First Nations people in Saskatchewan as early as 1884. Death rates ten times higher than among whites were due to drastic changes in lifestyle, poverty and overcrowding.

### 7.1 *Dr Ferguson's First Nations School Surveys*

Dr Ferguson's surveys of Indian schools and the reserves of the Qu'Appelle Valley in the mid 1920s, showed that up to 90% of First Nations children and adults were infected with TB. (Wherrett 1977:109; Houston 1991:94-95) The result of Dr Ferguson's surveys was a new SATL-National Research Council project at the Qu'Appelle Indian Health Unit in 1928. School children were tested. With diagnosis, isolation and treatment, the TB death rate fell to half that of Saskatchewan aboriginals by 1931.

Despite Saskatchewan's First Nations TB record being the best in Canada in 1937, active TB was at the 50 % level. From 1933 into the 1940s, aerial access to remote northern communities allowed TB specialists to survey First Nations schools. Many new cases of active TB were found. Ferguson continued to agitate for more support: "The Dominion government has not as yet seen fit to support the anti-tuberculosis work in Canada by providing leadership through an adequate programme for the prevention of this disease among its own wards." (CTAAR 1937:80, 81)

### 7.2 *The BCG Vaccine*

The BCG vaccine (*bacille Calmette-Guérin*) was introduced in France in 1924. In Canada, **the only attempt at well-controlled trials was made in Saskatchewan**, between 1933 and 1945. (McCuaig 1999:85; Grzybowski and Allen 1999)

#### 7.2.1 *BCG Vaccination of First Nations Babies in Sophisticated Tests, 1933*

The terrible ravages of TB among First Nations people prompted Dr Ferguson to set up a **BCG vaccination program for newborns** in the Fort Qu'Appelle Indian Health Unit. His trials were more scientifically rigorous than those in France and Quebec. The results were amazing and **helped cement Saskatchewan's role as a leader** in anti-tuberculosis work: five years after the trials, First Nations **infant deaths from TB fell by 20%**. Also, the **BCG vaccine was now demonstrated to be safe**, a factor in the World Health Organization's later decision to run BCG programs in other parts of the world. (Houston 1991:99-102; Feldberg 1995:164 )

#### 7.2.2 *The World's First BCG Vaccination of Nursing Students, 1938*

Isolating cases to prevent TB spread became the major focus in the 1930s. By 1936, the rate of infection was falling more quickly than the death rate. With fewer people being infected, fewer were exposed to TB and gained natural immunity. Even so, TB was still the leading killer of people 15 to 45. It was critical to find and supervise TB contacts to keep it from spreading.

Patients unknowingly carrying TB were infecting hospitals and san workers . A Saskatchewan study from 1930 to 1933 found, to the specialists' horror, that the number of nurses in training in general hospitals "breaking down" with TB was twelve times greater than the general population. (McCuaig 1999:60-62; Ferguson 1938:204) It was decided that nurses should be x-rayed annually and trained in avoiding infection. All tuberculin-negative **student nurses and sanatorium and mental hospital workers in Saskatchewan were vaccinated with BCG, the first such program in the world.** (Houston 1991:98-101; Feldberg 1995:200-207)

## 8. **Mass Surveys in Saskatchewan**

As fewer people became exposed to TB, fewer developed resistance. Paradoxically, as the number of cases declined, it became more and more important to root out unsuspected cases who might infect others. The focus turned to **identifying cases among apparently well people.**

### 8.1 *Travelling Clinics*

As the number of TB cases fell by the late 1930s, travelling clinics, in use since 1929, waned and doctors tested their own patients, with tuberculin provided free by the province. The tuberculin test eliminated the cost of x-raying uninfected people. (StarPhoenix 1937,1940)

### 8.2 *Mass X-ray Surveys: Saskatchewan Leads the World*

Saskatchewan received international attention for its **pioneering policy of x-raying whole communities** to find unsuspected early TB cases and get them under control before they spread. Whole communities and service groups mobilized to carry out these projects. By 1943, Dr Ferguson's dream was to x-ray the entire population of Canada within ten years! It was expensive: in Saskatchewan a full size 14" x 17' chest film cost about 90¢, not including processing. Christmas Seal fund raisers were unable to keep up. (Houston 1919:103-104)

#### 8.2.1 *World's First Miniature X-ray System Critical for Mass Surveys*

The talented radiographer brothers, Robert and James Connell, pioneered experiments in the use of portable x-ray setups during the File Hills and First Nations school surveys during the early 1920s. Bob Connell experimented and developed a complete mini-system which **cost much less**, allowed **faster testing**, gave **good results**, and was **easily portable**. It was this system which made the mass surveys possible. (Houston 1991:103-105; Anderson and Noton interviews 2002)

#### 8.2.2 *The Melville and Moose Jaw Surveys, 1941-1942*

The **first formal Canadian mass survey for TB was conducted at Melville**, in which 75 % of residents were surveyed using Connell's equipment. Soon after, **Moose Jaw became the first city in North America to x-ray all of its residents**. (Houston 1991:106) First Nations schools were tested and follow-up on earlier cases done. The first surveys found more than one new active case per 1000 tested, but this rate fell to about 0.6 by the end of 1945. By 1947, 70 mm film was used for detail. The value of these surveys in preventing the spread of TB by finding unsuspected cases cannot be overstated.

Even during wartime, with the ever increasing Christmas Seal funds, "there is no city or municipality, small or large," Ferguson felt, "that cannot raise voluntarily the cost of such a survey." (Ferguson 1944:111) Radio stations, newspapers, women's organizations and service clubs participated wholeheartedly. University students were drafted as assistants in 1945 and surveyed rural areas.

#### 8.2.3 *The Province-Wide Radiographic Surveys*

By 1947, Saskatchewan had completed the miniature x-ray survey of the whole province: 74.1 % of the non-First Nations population. During the second overall survey, completed in 1959, there was an enthusiastic spirit of community competition. Saskatoon set several records. In a 1948 mass survey there, 95.5% of the population, 41,082 of a possible 43,016, were x-rayed. The three survey vans put through 4,489 persons in a single day. One van processed an average of 3.76 people per minute. (Saskatchewan Lung Association n.d.; CTAAR 1947:68; 1950:91; 1949:86; SATL 1961:50-52; StarPhoenix 1953))

#### 8.2.4 *Saskatchewan Again Focuses on High-Risk Groups*

As the mass surveys became less worthwhile with falling death rates, those at high-risk were again looked at, but with modern methods and precise selection of groups. In 1950, "the pioneering Saskatchewan Anti-Tuberculosis League again changed its emphasis, now carrying

out an **intensive drive to eradicate the disease by tuberculin testing and x-raying only in highly infected areas,**” with special emphasis on hospital admissions and First Nations as susceptible groups and on follow-up of treated cases. (McCuaig, 1999:190)

#### 8.2.5 *Saskatchewan’s Goals Achieved: The End of the Mass Surveys*

By the time the fifth round of photofluoroscopic surveys was completed in 1962, many fewer new active cases were found. As TB was came under control in the mid-1960s, it was recommended that mass surveys be eliminated. (U of S 1967) San beds were gradually converted to other uses, and by 1970 photofluoroscopy was no longer performed.

### 9. The Era of Anti-Tuberculosis Drugs, 1950 to the Present

#### 9.1 *Streptomycin*

In July 1958, federal health grants allowed **free distribution** of the expensive antibiotic, streptomycin. As much as Saskatchewan’s (and the world’s) death rate had dropped in 1947 (from 26.1 to 21.5 per 100,000), in the first year of streptomycin use, it fell to 18.5, including First Nations. Problems of resistance soon arose and it was found that when combined with other drugs, resistance was reduced and the antibiotics were nearly 100 % effective.

#### 9.2 *Education and Training in the Early Drug Therapy Era*

Life at the sans continued in the 1950s. Drugs could now fight the disease effectively; surgery could remove damaged tissue; and the sans could provide the healthy outdoor life and optimism. The sans, even as late as the close of the 1940s and into the 1950s were not thought to be in danger of closing: surgery would still be necessary, in concert with chemotherapy. (Caldwell 1977:266)

Education was very important at this time. Nurses, doctors and lab technicians were trained in tuberculosis at hospitals and sans. (Houston 1991; StarPhoenix 1952) In 1964, tuberculosis was still killing more North Americans than all other infectious diseases combined but soon after, combination drug therapy succeeded in stopping it in its tracks. Many people remained in sans and hospitals into the 1970s, too damaged by the disease to manage on their own.

#### 9.3 *The Fight Continues in the 1990s and Beyond*

Tuberculosis, thought by many to be beaten by science, is still not completely understood and is returning to threaten us again, particularly among First Nations people on the prairies. Saskatchewan’s aboriginal patients accounted for 87 percent of all TB cases in Canada in 1999. Why are these rates so high? Some see it as a natural cycle. Whereas eastern First Nations were exposed to TB by Europeans some 300 years ago, the aboriginal people of the prairies were exposed about 100 years ago when the CPR was built and the reserve system was established. A TB epidemic typically lasts from 200 to 500 years. This means that TB may still be running its course on the Prairies and in the North compared with the rest of Canada. (Foster 2002)

Anti-tuberculosis drugs, such as the new rifampin, are still used in combination, a technique becoming more and more important with resistance increasing in the 2000s. Victims no longer need to be isolated in sanatoria and to rest, but must take their drugs without interruption for six months or longer, and this continues to be difficult to ensure. (Houston 1991:136; Grzybowski 1967:24-27)

Unfortunately, the elimination of TB in the future requires more funding; co-ordinated official and voluntary action on a global scale; that patients take their medication; and the improvement of living standards around the world. (Jeanes 1998) Multi-drug resistance (MDR) is a serious problem today, as infectious disease experts try to deal with the ravages of HIV, AIDS, hepatitis, pneumonia and tuberculosis, all complicated by our “borderless society”.

Despite the fact that, in general terms, Saskatchewan is no longer a leader in TB, innovative studies at the University of Saskatchewan demonstrate that Saskatchewan is still fighting tuberculosis. Experiments with low doses of BCG shows great promise as a TB, and possibly AIDS, preventative. These studies strongly suggest there are two types of tuberculosis, reflecting two types of failure by the immune system. (Bretscher 2001; U of S 2000; StarPhoenix 1997)

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