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" Tuberculosis-threatened Children": The Rise and Fall of a Medical Concept in Norway, c.1900–1960

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The relationship between children and tuberculosis became an increasingly important focus of attention during the early twentieth century. Internationally, various aspects of the history of the struggle against children's tuberculosis have been studied by, among others, Linda Bryder and Cynthia Connolly, who have particularly devoted their attention to the construction of the category of "pre-tuberculous children" and its practical consequences in terms of policies of institutions and prevention in Britain, the United States, Germany and France in the interwar years.¹ In this article I discuss the development of a similar concept in Norway, where children's tuberculosis became a significant part of the efforts against the disease especially in the 1920s. I pay particular attention to how an international corpus of knowledge about the relationship between children and tuberculosis that was established in the early 1900s was implemented in the Norwegian anti-tuberculosis work in the first half of the century. In Norway, the category that was created to identify children at risk of tuberculosis was straightforward: the "tuberculosis-threatened child" (" *tuberkulosestruet barn*"). How was this category constructed by medical research, and did it result in similar practices in Norway as elsewhere? Whereas Bryder and Connolly focus mainly on the *establishment* of the category of "pre-tuberculous children" in the early 1900s and the subsequent practice in the 1920s and 1930s in the institutions developed to deal with such children, I shall discuss the wider social, economic and medical developments in Norway that transformed the concept and its related practices from the late 1930s to the 1950s.

Norwegian tuberculosis mortality peaked around 1900 with approximately 6,000 deaths (31 per 10,000 inhabitants) a year. During the 1890s, medical doctors had struggled to raise the state's consciousness about the severity of the problem, and in 1900 the Norwegian parliament passed a national Tuberculosis Act that defined the general structure for a public health campaign against the disease. The Act was primarily based on a strategy of isolation of disease carriers that was derived from an understanding of the disease's bacteriological origin. According to the Act, people deemed potentially dangerous sources of infection, particularly if they lived under conditions that did not permit isolation in their own homes, could be committed to institutional care, by force if necessary. On the basis of this legislation, the state and several voluntary associations, notably the Norwegian Women's Public Health Association (Norske Kvinners Sanitetsforening, NKS, established in 1896) and the Norwegian National Association against Tuberculosis (Den norske Nationalforening mot tuberkulose, established 1910), undertook to combat tuberculosis by building institutions and organizing educational campaigns. The population was to be informed about the infectious character of tuberculosis and the ways of transmitting the disease, and educated to follow a hygienic way of life.² Tuberculosis was to be fought by bringing light, fresh air and cleanliness into people's

homes, and by making them stop spitting. The message was spread through lectures, exhibitions, films, newspaper articles and so on, and medical doctors and other representatives of the civil service, such as teachers and priests, played a key part in this work. The work of medical doctors, who dominated the administration of the National Association, was supported by local voluntary associations, who assisted the pursuit of the “tuberculosis-free home” by employing voluntary district nurses, supporting those stricken by the disease and their families, and not least, funding and running local institutions (nursing homes) which were to be used to isolate sufferers in an advanced stage of the disease.³ The state undertook to finance and run large-scale sanatoriums, which were to provide the opportunity to cure patients in early stages of tuberculosis, and also contributed to the costs of the nursing homes. How was the specific problem of children's tuberculosis dealt with within this general framework?

The Theories of Mass Infection of Children and Latent Tuberculosis

The scientific foundations for the fight against children's tuberculosis were laid internationally in the decades around the end of the nineteenth century. Before this time, it was commonly thought that the childhood years between five and fifteen were a period of moratorium or immunity from tuberculosis.⁴ However, through pathological research conducted by the Norwegian doctor K F Andvord (1895), the German pathologist Emil von Behring (1903), and others, it gradually became clear that many children, who seemingly died of other causes, were actually infected by the tubercle bacillus. It also appeared that childhood infection could become dormant or latent, to be reactivated later and thus cause adult tuberculosis.⁵ This discovery was discussed among doctors, for instance at the Sixth International Congress of the International Anti-Tuberculosis Association in Washington, USA, in 1908, where the Norwegian delegate, Dr Francis Harbitz, gave a lecture on “latent” tuberculosis.⁶ Even though Harbitz pointed out that a latent childhood infection often healed, and that such latent infections could not be proved to be the major cause of adult deaths from tuberculosis, he still emphasized that “considering the frequency of tuberculosis among children, and the evidence of its slow development through years and even decades, infection during childhood must certainly be considered of great significance”.⁷ The new theory rapidly spread internationally, and reformers in many countries were “shocked” into action, as we shall see later.⁸ In Norway, Harbitz's general report from the congress made front-page news in daily papers.⁹

Further investigations into the distribution of the infection among children were undertaken in the following years in Norway and elsewhere, and by the early 1920s it had been convincingly demonstrated that an overwhelming majority of school-aged children, particularly in cities, were infected. For instance, the Norwegian paediatrician Theodor Frølich established in 1912–13 that over 80 per cent of schoolchildren in the town of Kristiania, the capital of Norway, were infected by the time they entered school.¹⁰ Findings such as this led to the establishment of a theory of wide-spread childhood TB infection. Empirically, this theory was founded on mass surveys of the infectious status of children, made possible by the development of simple, safe skin tests based on tuberculin, such as the Pirquet test developed by the Austrian paediatrician Clemens von Pirquet in 1907.¹¹ By applying small doses of tuberculin on the skin and investigating the reaction caused, one could determine if the person in question was infected by tuberculosis. Those reacting positively had at some previous point been infected; those not reacting were uninfected at the time of testing. However, a positive reaction was not synonymous with actual tuberculosis: in a majority of cases, a tuberculous infection did not seem to lead to clinical illness. While many of those infected did rapidly develop clinical tuberculosis, infants being particularly vulnerable in this respect, the majority of the infected did not seem to become ill.¹² Harbitz described this phenomenon in 1923 as a demonstrably present “latent infection, which is overcome without any damage”.¹³ This period of latency could be long, according to the doctors: it could take years before infected children showed any signs of disease, and for the majority of them tuberculosis progressed and was overcome in a non-malign way. It also seemed that those individuals, who, so to speak, were spontaneously cured, developed an increased resistance to later TB infection.¹⁴ The

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infection did, however, maintain its malignant virulence among approximately 10 to 15 per cent of infected children, and progressed to organic disease, often pulmonary tuberculosis. This transition frequently took place when the children were in their teens, particularly as a result of physical weakening, for instance from insufficient or bad nutrition or other acute infections. Such debilitating factors were particularly dangerous during phases of rapid physical growth and development.¹⁵ This second theory of the latency of tuberculosis further asserted that children who had not developed resistance to the disease but who were exposed to infection and lived under adverse conditions (such as poverty, malnourishment and increased exposure to acute infectious disease in their years of growth) were most likely to succumb to tuberculosis. These theories, the discussion of their merits and their eventual consequences for practical work against tuberculosis, were international, as was demonstrated in a survey article on childhood tuberculosis published by Harbitz in 1927. Even though the article ostensibly concentrated on Norway, Harbitz drew widely on Swedish, Danish, Icelandic, Italian, American, and particularly German work on the disease.¹⁶

In the early 1920s, these theories were accepted as fact by Norwegian medical doctors: firstly, the majority of adult city dwellers were “carriers of the tubercular infection, acquired in childhood”, as Frølich stated in 1925; secondly, tuberculosis in adults could be traced back to a childhood infection.¹⁷ This had important implications for the practical work against tuberculosis. Firstly, the earlier strategy against tuberculosis based on isolating the carriers of infection seemed somewhat erroneous, and infection among adults (so-called super-infection) receded in significance. According to Frølich in 1921, it was clear that “it is in childhood we must direct our attack against tuberculosis; it is the tuberculosis-infected *child* that first and foremost must be helped, by virtue of the established fact that tuberculosis arises in childhood; it is at this age that it must be prevented, treated and healed”.¹⁸ Secondly, the theory opened a new possibility of combating the disease. Instead of concentrating efforts on preventing infection, the individual's resistance in the long period of latency could be strengthened so as to prevent the development of the disease.¹⁹

Pathological research and tuberculin testing, and the new theoretical understandings based on them, led to the construction of a new category, which was used to conceptualize the relation between children and tuberculosis. Whereas children had previously been designated “healthy” or “sick” with regard to tuberculosis, a third category was now presented: the “pre-tuberculous child”, or the “tuberculosis-threatened child”.²⁰ This category encompassed healthy uninfected children from families with tuberculosis, who were in danger of being infected, and children who were already infected but did not yet show signs of illness—in effect, children with latent tuberculosis. Through the construction of this liminal category doctors were able to identify children who would profit most from efforts to enhance their health. The category legitimated a whole new range of measures against the disease. As Bryder has pointed out, it was “extremely useful” in categorizing the “amorphous mass of sickly undernourished children”, and justified medical intervention to deal with a socially problematic category of people.²¹ As we shall see, the tension between social and medical aspects of the category of “tuberculosis-threatened child”, and practices related to it, was also present in Norway.

The Practice

Internationally, the new understanding of the relationship between children and tuberculosis led to a differentiated response in terms of measures chosen to deal with the issue. New institutions aimed at children perceived to be at risk were created in many countries and in different forms. The German *Waldschule* (the first opened near Berlin in 1904) and the British open-air schools are well known, and similar institutions were built in many countries. The systems had their national peculiarities: the German system allowed children to remain in their homes while receiving therapy to build up their resistance in the *Waldschule*, whereas the open-air schools in the United Kingdom were often residential summer schools, emphasizing the need for fresh air, wholesome and sufficient food, hygiene and rest. The first open-air school there opened in 1907.²² A different route was chosen in France, in the form of the so-called Grancher system, developed by

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Jacques-Joseph Grancher from 1903 and embraced by the later famous doctor Alfred Calmette. This system placed the children of tuberculous mothers in foster families in the—presumably—healthy countryside. Children were to stay indefinitely, and although they could opt to return to their families at the age of thirteen, many were adopted permanently. Calmette and his co-workers also pursued the enhancement of individual resistance to tuberculosis by developing the Bacille Calmette-Guérin (BCG) vaccine, which was used on humans from the early 1920s. In Canada and the United States, the so-called “Preventorium” or rural open-air schools, where weak city-dwelling children were boarded for long periods of time, represented a combination of institutional types; the first was opened in New York City in 1909.²³ In Sweden, yet another system was favoured: permanent homes for children from families with tuberculosis. The first Swedish home for pre-tuberculous children was opened in 1908, and almost forty such homes had been established by 1929.²⁴

The theories of widespread TB infection among children and the long latency of infection before manifestation of actual disease were not translated into practice in Norway until considerably later. The problem of tuberculosis among children was discussed by the National Association in 1911, and the organization's executive committee was instructed to draft a plan for the protection of children against the disease.²⁵ The plan, published in July 1912, emphasized the need to protect children against infection, either by removing the sources of infection from homes, or, when this was not possible, by removing the children from homes where sources of infection were present. The pre-tubercular or tuberculosis-threatened children could be helped, for instance, by summer camps (*feriekolonier*) in the countryside, where weak children could stay for a couple of months in order to strengthen their health, or by establishing more permanent institutions for such children.²⁶ Even though the voluntary organizations involved in anti-tuberculosis work acknowledged in 1915–16 the need to build institutions for tuberculosis-threatened children, and the State Chief Medical Officer for Tuberculosis, Nils Heitmann, emphasized in 1917 that the fight against children's tuberculosis should be a public concern, it did not involve a country-wide campaign until after the First World War.²⁷ In the 1920s, the doctrine of childhood infection was reflected in Heitmann's efforts to change the Tuberculosis Act (1900); as he observed in 1925, when the original Act was passed, there was not the same appreciation of the need to protect children from infection. He also claimed that the use of enforced isolation permitted by the Act was in most specific cases motivated by a wish to protect children against tuberculosis.²⁸

The relative lateness of the Norwegian campaign against children's tuberculosis may be understood if we consider the general framework of anti-tuberculosis work laid down by the Norwegian Tuberculosis Act (1900). This Act—the first of its kind in the world—was primarily based on a strategy of notification and isolation of advanced cases in order to combat infection among adults. This strategy also dominated the work of the Norwegian National Association in the 1910s, led by one of the fathers of the Act, Dr Klaus Hanssen. However, after Harbitz took over the National Association chairmanship in 1918, the previous strategy was supplemented by an increasing emphasis on the need to strengthen individuals' organic resistance against infection.²⁹ During the 1910s, the new theories on the prevalence of childhood infection were extensively tested in several large studies of the tuberculin status of children, and by the early 1920s all doubts about the correctness of the theories seem to have been laid to rest. Although the Tuberculosis Act was not amended during the 1920s, the overall strategy against tuberculosis was expanded in practice to accommodate the new, seemingly validated, theories. Moreover, by this time children's health and welfare had been on the political agenda in Norway for years. New legislation concerning children's welfare (the so-called Castberg Children Acts) was passed in 1915, creating a medico-political context where the new theories of prevalent childhood infection were seen as a powerful incentive to preventive action.³⁰ The international preoccupation with children's health in the aftermath of the First World War, evident in countries like France and Great Britain, undoubtedly also promoted general interest in children's health in Norway.³¹

In the 1920s, the Norwegian campaign against children's tuberculosis became dominated by two main

elements: mass medical examinations of schoolchildren and the establishment of special institutions to take care of those deemed at risk, although other measures such as school meals and summer camps were also used locally. Mass medical examinations were first and foremost advocated by the National Association, which demanded in 1924–25 that mandatory examinations should be carried out throughout the country.³² Pupils were to be examined by a school medical officer at least twice during their school career; every child was to be supplied with a health card, and those found wanting in terms of health were to be scrutinized annually.³³ The main goal was to identify children who were either at risk of infection by the TB bacillus or had already been infected. Among the latter it was particularly important to find the sources of infection, refer them to care and eventually isolate them. The doctors had also to find those who, without being active cases, displayed some signs of infection, with a view to intervention should their condition deteriorate.³⁴ According to Harbitz, pale, anaemic, tired and skinny children were tuberculosis-threatened, “as far as they, by continued exposure to infection and by careless hygienic conditions at home, run a risk of attracting a serious tubercular affection to which they eventually may succumb”.³⁵ Infants in such homes were also to be protected.³⁶ The doctors were to rely on their clinical experience, height and weight scales and knowledge of the family surroundings, in making their judgments. Importantly, tuberculin testing, which would have provided a more objective measurement of infection status, did not become a universal or mandatory part of the school medical examinations until much later (1948). In fact, Hanssen had in 1912 indicated that the result of a Pirquet test should not be the decisive factor in the process of assessing risk, as poor nutrition and diminished vitality in every case made children an easy target for tuberculosis.³⁷ The school medical officers in charge of examining the children thus had considerable freedom of judgement when deciding who was to be selected for institutional care; this permitted judgements based on social considerations, that is, on grounds of poverty. In this respect, the Norwegian situation resembled the British, as discussed by Bryder.³⁸

The intention in removing tuberculosis-threatened children from their homes was to shield them from massive infection. Infected children who did not display signs of illness were to be brought under such hygienic conditions as would hinder progression of the latent infection into active tuberculosis, so giving them a chance to overcome the infection. Manifestly sick children were to be committed to hospitals or other curative institutions.³⁹ The strategy of removing healthy (albeit often already infected) children from their homes was a significant alteration of the earlier strategy which had been based on removing the (adult) sources of infection. The latter had been deemed impractical to carry out thoroughly because of lack of isolation capacity despite massive efforts to establish nursing homes in the 1910s and 1920s. There were simply too many infected adults.⁴⁰ The policy of separating children from their families also had historical precedents. Since 1900, children, particularly from poor working-class families deemed to be at risk of “moral corruption”, could be removed from their homes by Child Welfare Boards, whether their parents agreed or not.⁴¹ Seen in this context, the new strategy of preventing paediatric tuberculosis was firmly grounded in established modes of social intervention in Norway. Frølich emphasized in 1925 that *every* tuberculosis-threatened child should be lodged in a manner which enabled him or her, under the best possible hygienic conditions, to continue school work (adjusted to their health status) until the fully restored child could return to ordinary school. Children who had overcome infection, but displayed signs of debility, should be enabled to maintain and strengthen their newly won resistance through rational nourishment, exposure to open air and sufficiently long vacations.⁴² The work hitherto organized to strengthen children's resistance, such as school meals and summer camps (organized in larger cities and more rudimentarily in the countryside), was not sufficient: specific institutions for tuberculous and tuberculosis-threatened children were needed.

The main type of institution designed to satisfy this need in Norway was the same as in Sweden: homes for tuberculosis-threatened children. The Norwegian institutions partly resembled, partly differed from continental and British models. In contrast to the German *Waldschule*, they were residential, and the children admitted were to stay for as long as possible, according to Harbitz in 1923.⁴³ In practice, this meant stays of between six months and a year, to allow the children sufficient time for recuperation. In

principle, longer stays could be desirable, but were unattainable because of bed shortage and great demand. The homes were also operated all year round. The children were to receive school education, as far as possible in the open air, which was also characteristic of the British, German and American institutions. In addition, the children were to exercise regularly and do gymnastics, work in the fields if possible, and help out with farm stock, wherever these were present. Boys were also to gather firewood and participate as much as possible in out-door work, while the girls were to help with domestic chores. The food was to be simple but ample and nourishing; and finally, the homes should have access to medical attention or at least the possibility of such attention.⁴⁴ In addition, the institutions were to educate the children in good manners, cleanliness, discipline and order. All this was very similar to the British open-air schools, and some Norwegian institutions were indeed described as open-air schools.⁴⁵ The children admitted to such institutions were not to be younger than five or six years old. A special home for the infants of tuberculous mothers was established in Kristiania (Åkebergveiens spedbarnshjem) in 1922. Some of the other children's homes also admitted infants.

The first Norwegian home for tuberculosis-threatened children was opened in Bergen in 1911 by the Norwegian Women's Public Health Association.⁴⁶ However, the principal motive for this institution was provision of care for children whose mothers were committed to institutions or lay dying.⁴⁷ In the 1920s such homes were being established all over the country. Most of them were built and run by voluntary associations, although insurance companies and others also participated. In 1924, seventeen institutions for tuberculosis-threatened children had been established—permanent colonies, open-air schools and children's homes—with approximately 600 places. Six years later the number of homes for tuberculosis-threatened children had risen to twenty-seven, with a total of 892 beds; in 1939, the number of homes was still twenty-seven but now with a total of 956 beds. In addition, there were four open-air schools for tuberculosis-threatened and weak children, with a capacity of 160, and some other children's institutions that also catered for tuberculosis-threatened children.⁴⁸ The institutions were distributed throughout the country, and by 1939 only three of Norway's twenty counties lacked such an institution. A significant part of the funds needed to establish these were provided by the State Lottery, which had been instituted in 1915. Part of the profits from this lottery were allocated to the voluntary associations engaged in tuberculosis work, such as the NKS and the National Association, and the moneys were used to finance the building of the institutions. From 1921, the state covered half of the running costs of these institutions.⁴⁹ Children labelled as tuberculosis-threatened were also admitted into some ordinary children's homes, particularly in northern Norway. The total number of beds in homes for tuberculosis-threatened children, open-air schools and other institutions that admitted children who were tuberculosis-threatened was substantial by 1939: 1,225. By comparison, the nursing homes for tuberculosis patients had in the same year a total of 3,387 beds.⁵⁰

Why were homes chosen as the main type of institution for Norwegian tuberculosis-threatened children, since other alternatives, for instance the French Grancher system, were also well known? There were two main reasons: firstly, the thrust of the movement to establish institutions for pre-tuberculous children started precisely at a time when previous forms of care for children were being revised. The earlier practice of sending children to foster families in the countryside was widely criticized by the 1920s, since the control of foster families was difficult.⁵¹ The overall drive was towards permanent institutions instead of family care; doctors were also, in general, critical of the hygienic standards prevailing in the countryside, and this did not lead them to favour anything resembling the Grancher system.⁵² Secondly, local voluntary associations played a principal role in the campaign against children's tuberculosis, and it must have been easier for them to collect funds, build and staff a single institution, than to establish and subsequently control a foster-family network. Besides, as previously noted, these associations had taken on the chief responsibility for funding and running tuberculosis institutions such as nursing homes since the early 1900s. The establishment of children's institutions represented thus only a broadening of the scope of this voluntary activity. Finally, the Norwegian preference for permanent institutions also followed the apparently successful Swedish example, where permanent social care institutions had been built on a large scale from the beginning of the century.

The whole theory of pervasive childhood tuberculosis with a long latency period, and the programme to combat tuberculosis from this theoretical framework, fit very well with the dominant social hygiene perspective among leading medical doctors in Norway in the 1920s. The Norwegian variety of social hygiene emphasized the primacy of building up individual health instead of just combating disease; peoples' organic resistance to diseases such as tuberculosis was to be strengthened through various social measures. Such measures could, for instance, focus on improving nutrition or housing standards as a way of increasing resistance to infection.⁵³ Under the influence of social hygiene, the strategy of tuberculosis prevention broadened in scope, as interventions to improve living standards, such as housing reform and school meals, could be—and indeed were—in principle defined as tuberculosis countermeasures.

The emergence of the new theories, and the strategy of strengthening individual resistance against infection among children, was international.⁵⁴ By the early 1920s, similar theories and policies had been expressed and adopted in many European states and in North America. In Sweden, the attention of the country's national association against tuberculosis had been directed to the fight against paediatric tuberculosis as early as 1904, while in the United Kingdom the new orientation towards children and tuberculosis was evident from 1912–13.⁵⁵ It seems that the measures against paediatric tuberculosis adopted in Norway in the early 1920s represented a second wave of interest in children and tuberculosis that emerged after the First World War. Other countries taking action in the early 1920s included Finland and Canada.⁵⁶ However, positing a definite date when a country can be said to have adopted and acted on these theories is difficult, for local initiatives were often taken long before policies on a national level were decided upon.

The Fall of the Concept

Although homes for tuberculosis-threatened children were in the ascendant in Norway in the 1920s, the following decades witnessed their decline. Severe economic crisis and a new medical understanding of tuberculosis led to a crisis of legitimacy for the children's institutions, and for the theories on which they were founded. Indeed, the whole category of the tuberculosis-threatened child, so popular in the 1920s, had almost vanished from the tuberculosis discourse by the late 1930s. More generally, broad social hygiene measures in public health came under financial and political pressure owing to the international economic depression of the 1930s.

The established understanding of tuberculosis and the associated measures to combat it came under attack in the late 1920s and particularly in the early 1930s. In the pages of the *Tidsskrift for Den norske lægeforening* (Journal of Norwegian Medical Association), the country's leading medical publication, criticism of the social hygiene measures against tuberculosis, particularly those directed towards children, increased. The challenge came partly from a group of medical doctors who might be called “immunologists”, who pointed out that new scientific research showed that the theory of wide-spread childhood infection was not valid. Amongst others, Dr Johannes Heimbeck documented in a 1928–29 study that many children and adults were in fact not infected by the tubercle bacillus. Although most people would eventually become infected, there nevertheless existed a significant group of the non-infected who could be successfully protected by other means, particularly by vaccination with Calmette's BCG.⁵⁷ Some “immunologists”, such as Professor Olaf Scheel, even maintained that the fight against children's tuberculosis, as it was being conducted at the time, was in fact harmful to society: it resulted only in persons becoming infected in their vulnerable teenage years, with perilous results.⁵⁸ Thus, the established tuberculosis work, described somewhat unfairly by Scheel as “*smittekamp*” (battle against infection), was largely erroneous. He also claimed that the “*smittekamp*” had little to do with the undeniable decline in tuberculosis mortality, which he saw primarily as a result of rising living standards.

A second wave of criticism levelled against the established tuberculosis strategy came from physicians who argued for even stricter isolationist measures against the disease.⁵⁹ The “epidemiologists”, as one might call

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them, argued that the decline in tuberculosis mortality was slower than it could have been because of faulty priorities. They agreed with the “immunologists” that tubercular infection among children was not as widespread as once thought. Anti-tuberculosis measures deriving their *raison d’être* from the belief in pervasive childhood infection, the homes and other institutions for tuberculosis-threatened children, in particular, were therefore scientifically unjustified. Furthermore, they argued that these institutions actually had many inmates who were admitted on social, not medical, grounds; and it was wrong to spend official funds earmarked for tuberculosis control on social measures. The City Medical Officer in Harstad, Sophus W Brochmann, who also sat on the National Association board, argued that, given the reigning harsh economic conditions, not a penny should be spent on social hygiene measures which could not be said scientifically to contribute directly to “true work against tuberculosis”.⁶⁰ In his view, all available funds should instead be devoted to mass screenings, the earliest possible diagnosis of pulmonary tuberculosis, isolation, and active, even aggressive, surgical treatment of the disease—the point being to make afflicted patients incapable of transmitting the bacillus.

However, the National Association and representatives of the medical establishment, such as Chief Medical Officer for Tuberculosis Heitmann, who in 1931 was appointed State Director General of Health, maintained that the established line of tuberculosis work, as it had been carried out since the 1910s, was scientifically correct, and that it had had a positive impact on the mortality rates.⁶¹ During the 1930s, the National Association, nevertheless, started to consider the possibilities of the BCG vaccine, and the organization also conceded to the epidemiologists by establishing diagnostic stations equipped with x-ray facilities to facilitate the earliest possible detection of pulmonary tuberculosis.⁶² By 1935, such stations were established in fifteen counties. Even if the patients at this time had no legal obligation to submit themselves to a diagnostic examination, these facilities were sought after.

The severe economic crisis in the early 1930s contributed also to a shift of political priorities. Already in 1931 there were cuts in state tuberculosis budgets, which reached their lowest point of approximately 2.5 million kroner in 1933–34.⁶³ The reductions in public spending also had consequences for the campaign against children's tuberculosis. In 1934, the state lottery money that had been crucial in establishing institutions for tuberculosis-threatened children was withdrawn to benefit the public purse.⁶⁴ In such straitened times, the plea for concentration of economic resources for tuberculosis work to a limited number of measures hit a nerve among politicians. Brochmann's strictly epidemiological plans were picked up by the Minister of Social Affairs and sent to the State Director General of Health for evaluation.⁶⁵ Yet even though reduced state spending had also led to cutbacks in the National Association's activities, the annual accounts of the organization after 1934 show that social hygiene measures, such as support to institutions for children, were not abandoned. Nevertheless, activities such as the establishment of diagnostic stations were given a higher priority.

In 1935, Director General of Health Heitmann stated that future work against tuberculosis was to be based on the earliest possible diagnosis and continued mass medical examinations of schoolchildren. He also endorsed the use of the BCG vaccine as a part of the preventive measures against the disease.⁶⁶ Significantly, he explicitly differentiated between “the direct work against tuberculosis” and the “great social hygiene issues” such as nutrition, housing and dental health, and did not address the previously so central resistance-building measures against tuberculosis, or tuberculosis-threatened children, at all.⁶⁷ In effect, the attacks on the established tuberculosis work programme and the economic crisis together contributed to a medicalization of the Norwegian anti-tuberculosis programme in the 1930s. Technical measures, such as mass radiographic population surveys and BCG vaccination, were assigned a more central role in the campaign against the disease compared with the 1920s, and medical doctors, particularly tuberculosis and pulmonary specialists, came to play an increasingly important role. Advance in the active, surgical treatment of pulmonary tuberculosis contributed to furthering this medicalization. This process led to a quiet dethronement of the concept of the “tuberculosis-threatened child”: for instance, at the 1939 national council meeting of the National Association, this issue was of secondary importance. The organization's leader,

Halfdan Sundt, did not even mention the homes for tuberculosis-threatened children in his speech on the future work of the organization.⁶⁸ The trend was international: the policies of protection of children against tuberculosis by separating them from their parents were quietly buried towards the end of the 1930s in many countries, as medical doctors concluded that the economic and psychological costs of this separation were too high, compared with the results.⁶⁹

During the Second World War, Norwegian collaborators with the German forces of occupation took control of the country's public health administration. The most ardent critic of the established tuberculosis work in the 1930s, Sophus W Brochmann, was appointed as State Tuberculosis Inspector by the Quisling government in November 1940. Brochmann seized the opportunity to enforce strict epidemiological measures against the disease. The Tuberculosis Act of 1900 was amended in 1942; in the same year, a new Act making mass radiological surveys mandatory was passed. Brochmann also tried to make the National Association change its course from the broad, social hygiene perspective to stricter epidemiological efforts, albeit with no great success. He further focused on the homes for tuberculosis-threatened children, ordering a survey of how many of the children housed in them actually were "tuberculosis-threatened"; the results indicated that nearly half (45 per cent) of these children were admitted on social, not medical, grounds. From 1941, the homes were required to report all admissions to the central public medical authorities and to identify which children were tuberculosis-threatened and the medical reasons for such evaluation. Crucially, Brochmann medicalized the category of tuberculosis-threatened children by insisting that every child considered for admittance to a home for tuberculosis-threatened children was to be tuberculin-tested. Further, he decided that:

Every negative child may be admitted as tuberculosis-threatened for vaccination with BCG for two to three months. Stays beyond this are regarded as socially justified... . Positive children are regarded as tuberculosis-threatened for the first two to three years after infection, and of course longer if there are clear signs that the infection has not been eradicated ... If the infection is older than two to three years, and the S.R. [sedimentation rate] is normal and radiological findings are negative, a bad general health status alone cannot justify the child's being regarded as tuberculosis-threatened.⁷⁰

By such means, Brochmann hoped to shatter the long-established category of the tuberculosis-threatened child; to be pale, anaemic, tired and thin was no longer enough to qualify for this status as it had been in the 1920s. At least in theory, objective medical standards now decided whether or not a debilitated child was to be regarded as tuberculosis-threatened.

The policy of short-term admittance of tuberculin-negative children for vaccination was originally devised by the Swedish doctor Arvid Wallgren, best known as the innovator of the intradermal method of BCG vaccination. Wallgren also developed a new use for homes for tuberculosis-threatened children in Gothenburg in 1928: infants born of tuberculous mothers were immediately isolated after birth for vaccination; once their tuberculin status had become positive, they were returned to their mothers.⁷¹ This isolation could be carried out, for instance, in the homes for tuberculosis-threatened children. That the children were returned home immediately after a positive tuberculin test was a significant change of policy: earlier, infants were removed from their tuberculous parents for a period of two years.⁷²

From 1941, only those children accepted by Brochmann as tuberculosis-threatened were entitled to public support from the state tuberculosis budget.⁷³ However, Brochmann did not make the institutions expel children admitted on non-medical, that is, social grounds—this would surely have made the Quisling regime even more unpopular than it already was among health professionals and voluntary organizations. He also maintained that the homes could still receive public monies for children admitted on social grounds from a different budget category.⁷⁴ In reality, however, these funds were reserved for a select group of children's

homes in northern Norway and were not used to support other homes for tuberculosis-threatened children during the war.⁷⁵ Still, judging from the reports on children admitted by 1 January 1944, many homes continued to harbour children accepted on social grounds.⁷⁶ Despite the efforts to medicalize the homes for tuberculosis-threatened children, the practice of using them partly as a tool in the fight against tuberculosis, partly as a means of social intervention, continued throughout the war.

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The public health officials who were reinstated after the fall of the National Socialist regime in May 1945 continued the epidemiological policy against tuberculosis introduced during the war. State Director General of Health Karl Evang and his tuberculosis inspector, Otto Galtung Hansen, also embraced BCG vaccination, which was made mandatory in 1947. Some of the homes for tuberculosis-threatened children were destroyed during the war; some were closed, but twenty-four such homes with approximately 900 beds remained in 1947. Since many of them still admitted children on the grounds of poor health, they were re-labelled in 1948 as “homes for tuberculosis-threatened and debilitated children”, that is, children having a “fragile constitution, poor health and living under such bad social conditions that they are disposed to succumb to tuberculosis or other diseases”.⁷⁷

However, the health authorities maintained that the homes for tuberculosis-threatened children should not be ordinary social institutions, but rather places where children could be admitted for a limited period of time for the purpose of convalescence, vaccination or protection from infection at home. In 1947, a new investigation of the character of the patients in sixteen homes for tuberculosis-threatened children receiving state funds was undertaken. The results were worrying for advocates of the new policies. Fifteen of these homes had in all 404 children, but only a quarter (101) could be classified as tuberculosis-threatened. In other words, most of these homes were quite similar to ordinary children's homes in terms of inmates and the length of their stay. For instance, thirty-five of the 404 children had lived in an institution for the tuberculosis-threatened for more than ten years, 94 for over five years. On this information, the Health Directorate concluded in 1948 that the homes for tuberculosis-threatened children “could not in any way be said to be effectively used in the fight against tuberculosis”. New regulations were issued.⁷⁸ From 1948 the homes were to admit only: children with actual tuberculosis and convalescents for up to three years' stay; tuberculin-negative children from tubercular environments for the purpose of BCG vaccination, with a maximum six months' stay; and tuberculin-positive children from tuberculous environments for surveillance for up to a year. The homes were to admit particularly children in the second category, because Evang and his colleagues wished to use these institutions actively in the ongoing campaign for mass BCG vaccination. The policy of isolating children, infants included, for vaccination in these homes for a short period of time represented an expansion of the work done since 1922 in the Åkeberg home for infants of tuberculous mothers. Here, babies born to women with tuberculosis, particularly pulmonary tuberculosis, were isolated to give the infant enough time to develop resistance to infection after vaccination. The mothers were also cared for, sometimes by referral to a sanatorium. After two months infant and mother could be reunited, if the mother was “perfectly in order”.⁷⁹

The state health authorities also wanted to restrict financial support to children classified in medical terms as tuberculosis-threatened, meaning that children admitted for social reasons to the homes for tuberculosis-threatened would not be paid for out of the public purse.⁸⁰ This was criticized as far too strict by the supervising medical officer for children's homes in Bergen, Dr Inger Haldorsen. She maintained that it was impossible to follow the new state policy of discarding social reasons as grounds for keeping a child in an institution for tuberculosis-threatened children after the medical indications allowed their discharge.⁸¹ Nevertheless, state allocations to other than strictly tuberculosis-threatened children in these institutions ceased, and this presented a problem for the existing institutions, as the tuberculosis-threatened children (in

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strict medical terms) were fewer than before.⁸²

The new policy of compulsory mass BCG vaccination embarked upon from 1948 thus led to a new lease of life for the medically defined homes for tuberculosis-threatened children. However, it was a short revival, since the general decline of tuberculosis morbidity and mortality gradually made the category of tuberculosis-threatened child redundant in the 1950s. After the war, childhood infection fell to a very low level compared with the early 1920s, and the mass vaccination campaign set in motion in 1948 further reduced the risk of infection among children and young people. The lower overall prevalence of infection again radically reduced the risk of children contracting the disease. The number of new cases of tuberculosis sank rapidly after the war: from 127 per 100,000 inhabitants in 1946 to 64 per 100,000 in 1953, and further to 27 per 100,000 in 1960.⁸³ Seen in a longer perspective, the fall was great in the age group 0–14 years: from 65 per 100,000 in 1927–30 to 11 per 100,000 in 1946–50, to 5 per 100,000 in 1956–60. The absolute number of cases for this age group fell from an average of 531 per annum in 1927–30 to 42 in 1956–60.⁸⁴ This trend was also reflected in the decline in the number of institutions. By the end of 1950, twelve homes and two open-air schools for tuberculosis-threatened children remained with 520 beds in all; in 1955, five homes with 238 beds. By 1960 only two such homes with 98 beds were still in existence.⁸⁵

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The establishment, development and demise of the Norwegian institutions for tuberculosis-threatened children highlight the importance of acknowledging the interconnectedness of shifting forms of medical knowledge, and the political, economic and social contexts within which this knowledge is produced and implemented. The Norwegian fight against children's tuberculosis occurred in the context of the international development of precautions against paediatric tuberculosis in the first decades of the twentieth century, corresponding with the picture presented by Bryder and Connolly. Spurred on by new methods of tuberculin testing, the discovery of massive childhood infection by the tubercle bacillus, and the post-First World War societies' general preoccupation with children's health, the fight against childhood tuberculosis was made into a national campaign in Norway in the 1920s. Just as there was an international consensus on the theoretical base for this campaign, so there was consensus on the chosen method of action: the principal effort was directed towards strengthening children's resistance to infection. However, the specific solutions chosen to achieve this goal differed from country to country. In Norway, the main solutions were the mass medical examination of schoolchildren and the building of institutions for tuberculosis-threatened children. The choice of these means can be understood in the context of national historical precedents in combating disease by institutionalization, and also the fact that there was a tradition of removing children defined as at risk from their parents. This path dependency also led to a rather late implementation of the campaign against children's tuberculosis in Norway compared with other countries: the main thrust of institution building was in the 1920s; the medical examinations for tuberculosis-threatened children were set in motion in the same decade. This belatedness may be understood in the context of the strong inclination towards isolation measures against tuberculosis in Norway, the first country in the world to pass a Tuberculosis Act making it mandatory to report the disease and making the compulsory isolation of advanced cases legal. It was not until after the First World War that this strategy was supplemented with more wide-ranging social hygienic measures, of which the campaign against children's tuberculosis is a good example.

The Norwegian case emphasizes not only the necessity of analysing the international context of national health policies, but also the strong impact of national path dependency on the implementation of boundary-transgressing knowledge. The medicalization of the Norwegian campaign against children's tuberculosis from the 1930s may serve as an example of how shifting economic and political circumstances challenged previously established policies and traditions in the prevention of disease. The Norwegian example also suggests more broadly that previously established national health policy traditions, and shifting economic and political circumstances in the inter- and post-war decades, influenced the nature of national disease control

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policies in Europe, and that such factors may have continued to influence developments in policy after the Second World War.

Footnotes

¹ L Bryder, ‘“Wonderlands of buttercup, clover and daisies”: tuberculosis and the open-air school movement in Britain, 1907–39’, in R Cooter (ed.), *In the name of the child: health and welfare, 1880–1940*, London, Routledge, 1992, pp. 72–95; C Connolly, ‘Pale, poor and “pretubercular” children: a history of pediatric antituberculosis efforts in France, Germany, and the United States, 1899–1929’, *Nursing Inquiry*, 2004, **11** (3): 138–47. See also D Hughes, ‘Just a breath of fresh air in an industrial landscape? The Preston Open Air School in 1926: a school medical service insight’, *Soc. Hist. Med.*, 2004, **17** (3): 443–61.

² I Blom, ‘Don't spit on the floor: changing a social norm in early twentieth-century Norway’, in H Sandvik, K Telste, G Thorvaldsen (eds), *Pathways of the past: essays in honour of Sølvi Sogner on her 70th anniversary 15 March 2002*, Oslo, Novus, 2002, pp. 231–42; idem, ‘Opplysningskampanjer i kampen mot tuberkulose frem til ca. 1940’, *Tidsskrift for Den norske lægeforening*, 2002, **122** (1): 73–5.

³ On the development of voluntary district nursing and the growth of public health nurses, see I Elstad and T Hamran, *Sykdom. Nord-Norge før 1940*, Bergen, Fagbokforlaget, 2006.

⁴ Connolly, op. cit., note 1 above, p. 139.

⁵ See, for instance, K F Andvord, ‘Tuberkulosens forekomst i Norge’, *Norsk Magazin for Lægevidenskapen*, 1895, **56**: 1027–49; F Harbitz, ‘Om tuberkulosen i ungdomsaarene og dens sammenhæng med en infektion i barnealderen’, *Norsk Magazin for Lægevidenskapen*, 1927, **88**: 892–913.

⁶ F Harbitz, ‘Concerning latent tuberculosis’, *Transactions of the Sixth International Congress on Tuberculosis, Washington, September 28 to October 5, 1908*, Philadelphia, William F Fell, 1908, vol. 1, part 1, pp. 112–16. R W Philip also emphasized that tuberculosis among infants, young children and schoolchildren was “vastly more frequent than is usually supposed”; see R W Philip, ‘The antituberculosis program: coordination of preventive measures’, *A series of public lectures, specially prepared for the Sixth International Congress on Tuberculosis*, Philadelphia, William F Fell, 1908, pp. 248–69, on pp. 252–3.

⁷ Harbitz, op. cit., note 6 above, pp. 115–16.

⁸ See K McCuaig, *The weariness, the fever, and the fret: the campaign against tuberculosis in Canada 1900–1950*, Montreal, McGill-Queens University Press, 1999, p. 42, on the “shocked” reformers in Canada; for Finland, see A S Härö, *Vuosisata tuberkuloosiyötä Suomessa. Suomen tuberkuloosin vastustamisyhdistyksen historia*, Helsinki, Suomen tuberkuloosin vastustamisyhdistys, 1992, pp. 72–74; In the UK, R W Philip notably discussed this problem in 1912; cf. Bryder, op. cit., note 1 above, p. 73. See also Connolly, op. cit., note 1 above, p. 142.

⁹ *Morgenbladet*, 8 Nov. 1908.

¹⁰ O Alsvik, ‘Friskere, sterkere, større, renere”. Om Carl Schiøtz og helsearbeidet for norske skolebarn’, MA thesis (*hovedfagsoppgave*), University of Oslo, 1991, pp. 72–4.

¹¹ The Pirquet test was quickly utilised in Norway, albeit on a small scale. For an overview of Pirquet tests conducted by doctors in the National Association's service, see K Hanssen, ‘Tuberkulosen i barnealderen, dens motarbeidelse og dens behandling’, *Meddelelser fra Den norske nationalforening mot tuberkulose*, 1912, **3** (9): 1–10, p. 2.

- ¹² A Brinchmann, 'Om spedbarnstuberkulose', *Tidsskrift for Den norske lægeforening*, 1925, **45**: 192–8, on p. 195.
- ¹³ F Harbitz, 'Om tuberkulose i barnealderen og dens bekjæmpelse', *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1923, **13** (60): 113–21, on p. 113.
- ¹⁴ Harbitz, op. cit., note 13 above, p. 115; See also K A Andvord, 'Pubertetsaarenes betydning for tuberkulosens opstaaen og utvikling', *Tidsskrift for Den norske lægeforening*, 1924, **44** (11): 501–8; T Frølich, 'Skolelægers opgaver i kampen mot tuberkulosen', *Tidsskrift for Den norske lægeforening*, 1925, **45**: 423–8, on p. 423.
- ¹⁵ Andvord, op. cit., note 14 above, pp. 501–2; Frølich, op. cit., note 14 above, p. 424.
- ¹⁶ Harbitz, op. cit., note 5 above.
- ¹⁷ Frølich, op. cit., note 14 above, p. 423.
- ¹⁸ T Frølich, 'Tuberkulosearbeidet i skolebarnsalderen', *Tidsskrift for Den norske lægeforening*, 1921, **41**: 1033–39, on p. 1036 (translated by Teemu Ryymin): "... det er i barnealderen vi maa rette vort angrep mot tuberkulosen; det er det tuberkuloseinficerte barn, som først og fremst maa hjælpes i kraft av den gamle kjendsgjerning, at tuberkulosen opstaar i barnealderen; i denne alder maa den forebygges, behandles og helbredes." Emphasis in original.
- ¹⁹ N Heitmann, 'Tuberkulosearbeidet', *Tidsskrift for Den norske lægeforening*, 1925, **45**: 375–81, on p. 378.
- ²⁰ Bryder, op. cit., note 1 above, pp. 74–5; Connolly, op. cit., note 1 above, p. 139.
- ²¹ Bryder, op. cit., note 1 above, p. 75.
- ²² Ibid., p. 83; Hughes, op. cit., note 1 above, p. 450.
- ²³ Connolly, op. cit., note 1 above, pp. 304–6; McCuaig, op. cit., note 8 above, pp. 162–165; T Dormandy, *The white death: a history of tuberculosis*, London, Hambledon and London, 2001, pp. 303–7.
- ²⁴ B Buhre and G Neander, *Svenska Nationalföreningen mot tuberkulos 1904–1929: En återblick*, Stockholm, Nationalföreningen, 1929, pp. 43–5, map "Dispensärer och barnhem 1.3. 1929". In Finland plans were made in 1924 to establish such homes, see Härö, op. cit., note 8 above, pp. 75–6, 135–9.
- ²⁵ 'Plan for Nationalforeningens virksomhet for aarene 1911–1913', *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1911, **2** (5): 9–16, on p. 9.
- ²⁶ Hanssen, op. cit., note 11 above; cf. Harbitz, op. cit., note 5 above, pp. 900–6.
- ²⁷ Heitmann in parliamentary documents (Norway): St.prp. nr. 1 (1917), Hovedpost VII, kap. 10, pp. 37–8.
- ²⁸ Heitmann, op. cit., note 19 above, p. 376; 'Om tuberkulosen og tuberkulosearbeidet i Norge', *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1926, **16** (74): 10–1, on p. 19.
- ²⁹ Alsvik, op. cit., note 10 above, pp. 203–5.
- ³⁰ A Andresen, *Hender små. Bortsetting av barn i Norge 1900–1950*, Bergen, Fagbokforlaget, 2006, p. 36.
- ³¹ Cf. J F Hutchinson, 'Promoting child health in the 1920s: international politics and the limits of humanitarianism', in E Rodríguez-Ocaña (ed.), *The politics of the healthy life: an international perspective*,

³² Alsvik, op. cit., note 10 above, p. 187; ‘Raadsmøtets forhandlinger’, *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1924, **14** (66): 100–101, on p. 100; ‘Beretning om Nationalforeningens virksomhet i 1924’, *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1925, **15** (68): 1–5, pp. 2–3.

³³ Alsvik, op. cit., note 10 above, pp. 207–9. The Department of Church Affairs requested school boards to implement these surveys in April 1925, cf. Hegna, ‘Om skolebarnundersøkelsene i Glemmen’, *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1929, **19** (92): 8–12, p. 8.

³⁴ Frølich, op. cit., note 18 above, p. 1034; Frølich, op. cit., note 14 above, pp. 424–5.

³⁵ Harbitz, op. cit., note 13 above, p. 116 (translated by Teemu Ryymin): “De er tuberkulosestruede forsaavidt de ved fortsat utsættelse for smitte og ved daarlig hygienisk stel i hjemmet risikerer at faa en alvorlig tuberkuløs affektion, hvorav de tilslut kan bukke under.”

³⁶ Ibid.; Brinchmann, op. cit., note 12 above, p. 198.

³⁷ Hanssen, op. cit., note 11 above, p. 8.

³⁸ Bryder, op. cit., note 1 above, p. 75.

³⁹ ‘Hjem for “tuberkulosestruede barn”, tuberkulosehjem–pleiehjem’, *Tidsskrift for Den norske lægeforening*, 1924, **44**: 1122–24, p. 1123; Heitmann, op. cit., note 19 above, p. 378.

⁴⁰ See, for instance, Heitmann, op. cit., note 27 above, p. 37; Heitmann, op. cit., note 19 above, pp. 376–7.

⁴¹ Andresen, op. cit., note 30 above, p. 28–9.

⁴² Frølich, op. cit., note 14 above, pp. 427–8.

⁴³ Harbitz, op. cit., note 13 above, p. 118.

⁴⁴ Ibid., p. 118.

⁴⁵ S Tillich, ‘Friluftsskolens betydning for kampen mot tuberkulose’, *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1925, **15** (71): 94–9, p. 96.

⁴⁶ I Blom, *Feberens ville rose. Tre omsorgssystemer i tuberkulosearbeidet 1900–1960*, Bergen, Fagbokforlaget, 1998, pp. 70–1, 103–5.

⁴⁷ ‘Aarsberetninger’, *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1912, **2** (8): 81–5, pp. 84–5.

⁴⁸ ‘Hjem for tuberkulosestruede barn, tuberkulosehjem–pleiehjem’, *Tidsskrift for Den norske lægeforening*, 1924, **44**, pp. 1123–1124; NOS IX.2. *Sunnhetstilstanden og medisinalforholdene 1930*, Oslo, Det Statistiske Centralbyrå, 1933, p. 7; NOS X.21. *Sunnhetstilstanden og medisinalforholdene 1939*, Oslo, Det Statistiske Centralbyrå, 1941, pp. 8, 9.

⁴⁹ Blom, op. cit., note 46 above, p. 107; *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1924, **14** (66): 109; Heitmann, op. cit., note 19 above, p. 378.

⁵⁰ ‘Aarsberetninger’, op. cit., note 47 above, p. 5; ‘Barnehjem og friluftsskoler for tuberkulosestruede barn’, *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1939, **29** (154): 77–80.

⁵¹ Andresen, op. cit., note 30 above, pp. 135–52.

⁵² Cf. Hanssen, op. cit., note 11 above, p. 4.

⁵³ Alsvik, op. cit., note 10 above, pp. 2–3.

⁵⁴ Cf. Connolly, op. cit., note 1 above, pp. 143–4.

⁵⁵ Buhre and Neander, op. cit., note 24 above, pp. 13–14, 16, 21–2; Bryder, op. cit., note 1 above, p. 73.

⁵⁶ On Finland, see Härö, op. cit., note 8 above, p. 74; for Canada, see McCuaig, op. cit., note 8 above, pp. 42–3, and particularly, pp. 157–78.

⁵⁷ J Heimbeck, ‘Tuberkuloseinfektion og tuberkulosevaksination’, *Tidsskrift for Den norske lægeforening*, 1928, **48**: 945–61.

⁵⁸ O Scheel, ‘Årsakene til tuberkulosens tilbakegang’, *Tidsskrift for Den norske lægeforening*, 1933, **53**: 165–81.

⁵⁹ See, for instance, H Ouren, ‘Er det farlig ikke å være “smittet” av tuberkulose?’, *Tidsskrift for Den norske lægeforening*, 1929, **49**: 94–9; *idem*, ‘Tuberkulosepolitikk’, *Tidsskrift for Den norske lægeforening*, 1930, **50**: 480–6; B Foss, ‘Tuberkulose og fiskerne’, *Tidsskrift for Den norske lægeforening*, 1930, **50**: 1212–17; R Engebretsen, ‘A propos tuberkulose og fiskere’, *Tidsskrift for Den norske lægeforening*, 1930, **50**: 1416–17; S Lunde, ‘Hjem for tuberkulosestruede barn’; *Tidsskrift for Den norske lægeforening*, 1931, **51**: 168–74.

⁶⁰ S W Brochmann, ‘Bør der foretas forandringer i vårt tuberkulosearbeide?’, *Tidsskrift for Den norske lægeforening*, 1931, **51**: 1061–71; *idem*, ‘Tuberkulosearbeidet’, *Tidsskrift for Den norske lægeforening*, 1933, **53**: 24–43; *idem*, ‘En tiårsplan for tuberkulosens utryddelse i Norge’, *Tidsskrift for Den norske lægeforening*, 1934, **54**: 585–97.

⁶¹ T Frølich, ‘Nationalforeningens arbeidsoppgaver i nutid og nærmeste fremtid’, *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1931, **21** (109): 148–56; N Heitmann, ‘Tuberkulosedødelighetens nedgang i siste 5-årsperiode 1926–30’, *Tidsskrift for Den norske lægeforening*, 1933, **53**: 78–81.

⁶² ‘Nationalforeningens organisasjon og arbeidsmåte’, *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1932, **22** (112): 57–69; T Frølich, ‘En ti års plan for tuberkulosens utryddelse i Norge’, *Tidsskrift for Den norske lægeforening*, 1934, **54**: 693–5, p. 694–5; for National Association diagnostic stations, see ‘Tuberkulosen blandt fiskerne undersøkes, og arbeidet mot den optas av Nationalforeningen mot tuberkulosen’, *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1931, **21** (106): 65–73, pp. 66–73; ‘Nationalforeningen utvider sin diagnosestasjonsvirksomhet blandt fiskerne til å omfatte praktisk talt hele kysten’, *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1934, **24**: 1–6.

⁶³ Parliamentary documents (Norway): St.prp.nr. 1 (1933), kap. 482–5, 2471 (Tuberkulosevesenet).

⁶⁴ B Øverland, ‘Kampen mot tuberkulosen’, in E Storsteen (ed.), *Social håndbok for Norge*, Oslo, Norsk forening for sosialt arbeide, 1937, pp. 140–51, p. 149.

⁶⁵ S W Brochmann, ‘Tiårsplanen’, *Tidsskrift for Den norske lægeforening*, 1934, **54**: 1196–205, p. 1205.

⁶⁶ N Heitmann, ‘En oversikt over tuberkulosearbeidet i vårt land og de fremtidige retningslinjer og ønskemål for dette arbeide’, *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1935, **25** (133): 142–57.

⁶⁷ *Ibid.*, pp. 156–7.

⁶⁸ H Sundt, 'Åpningsforedrag i Mosjøen', *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1939, **29** (156): 113–17, pp. 115–17.

⁶⁹ Dormandy, op. cit., note 23 above, p. 307; McCuaig, op. cit., note 8 above, pp. 175–8; Andresen, op. cit., note 30 above, pp. 181–7.

⁷⁰ S W Brochmann, 'Til hjem for tuberkulose-truede barn', *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1941, **31** (165): 74–5, p. 75 (translated by Teemu Ryymin): "Alle negative barn kan legges inn som tuberkulose-truet til vaksinasjon med BCG i 2–3 måneder. Opphold utover det anses som sosialt betinget.... Positive barn anses for tuberkulose-truet de 2–3 første år etter infeksjonen, og selvsagt lenger hvis det er objektive tegn på en ikke overstått infeksjon... Ligger infeksjonen lenger tilbake i tiden enn 2–3 år, og S.R. er normal og røntgen negativ, kan ikke alene en dårlig almentilstand gjøre at barnet anses for tuberkulose-truet."

⁷¹ K Birkhaug, 'Obligatorisk BCG-vaksinasjon i kampen mot tuberkulosen', *Meddelelser fra Den norske nationalforening mot tuberkulosen*, 1941, **31** (166): 91–104, p. 99.

⁷² Buhre and Neander, op. cit., note 24 above, pp. 45–6.

⁷³ National Archives, Oslo (hereafter NA), S-1285, Sos.dep., helsedir., H3, D 145, Letter from the Department of the Interior to the State Tuberculosis Bureau, jnr. 659/1941 B and other documents concerning the homes for the tuberculosis-threatened children. Unfortunately the war-time archives of the State Tuberculosis Bureau are incomplete.

⁷⁴ Brochmann, op. cit., note 70 above, p. 74.

⁷⁵ See parliamentary documents (Norway), State budgets, kap. 426. Barnevern m.m., for 1941–42, 1942–43, 1943–44 and 1944–45.

⁷⁶ NA, S-1285, Sos.dep, helsedir., H3, D 145, reports on status over tuberculosis-threatened children pr. 1 Jan. 1944.

⁷⁷ G Wiesener, *Barnevernet i Norge. En oversikt*, Oslo, 1948, p. 77.

⁷⁸ 'Hjem for tuberkulose-truede barn, og statens bevilgninger til delvise friplasser i slike hjem', *Meddelelsesblad for Helsedirektoratet*, 1948, **1**: 17–20, p. 19.

⁷⁹ A Tuxen, 'Tuberkulose og graviditet', *Tidsskrift for Den norske lægeforening*, 1948, **55**: 570–2, p. 571; *idem*, 'Tuberkulose og svangerskap', *Tidsskrift for Den norske lægeforening*, 1949, **56**: 135.

⁸⁰ Wiesener, op. cit., note 77 above, p. 20.

⁸¹ I Haldorsen, 'Hjem for tuberkulose-truede barn', *Tidsskrift for Den norske lægeforening*, 1949, **56**: 192.

⁸² 'Landsstyremøte', *Nasjonalforeningen mot tuberkulosen for folkehelsen*, 1948, **38** (207): 97–100, pp. 98–9.

⁸³ NOS XII.291, *Historical Statistics 1978*, Oslo, Central Bureau of Statistics of Norway, 1978, p. 59, table 26.

⁸⁴ *Ibid.*, p. 59, table 27.

⁸⁵ NOS XI.114, *Sunnhetstilstanden og medisinalforholdene 1950*, Oslo, Statistisk Sentralbyrå, 1952, p. 14, table 8; NOS XII.91, *Sunnhetstilstanden og medisinalforholdene 1960*, Oslo, Statistisk Sentralbyrå, 1962, p. 15, table 7 and note 2.

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