

## Smallpox vaccination in the Transbaikal region (from the 18th century to the beginning of the 20th century)

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The article presents the results of research on smallpox vaccination in the Transbaikal region. It explores the history of smallpox vaccination from the moment of its introduction by advocate doctors to the start of organized public programs throughout the region. In the 18th to early 20th century, Transbaikal had a high death rate from smallpox. As a result, vaccination of the population of Transbaikal was an urgent public health issue. From 1770, vaccinations began to be carried out in the West Transbaikal town of Barguzin (in the present-day Republic of Buryatia). However, the vaccinations were not conducted in a systematic way and were only carried out by advocate doctors. In East Transbaikal, smallpox vaccinations were first carried out in the town of Nerchinsk (in the present-day Chita region) in 1809–1811. The author proposes that 1811 be considered the beginning of planned public programs for mass smallpox vaccinations throughout the territory of Transbaikal. The indigenous Buryat population was, in general, happy to be vaccinated against smallpox, but there were never enough vaccination specialists or vaccines. Due to their way of life, the residents of Old Believer villages resisted mass smallpox vaccination for a long time, so the mortality rate among them was higher than among the indigenous population. Gradually, thanks to systematic government programs and the efforts of medical personnel in the Transbaikal area, residents came to an understanding of the need for vaccinations against the deadly disease. Vaccinations were actively conducted by vaccination scholars from among the peasants and indigenous people who were paid and received benefits for this. On the basis of archival materials, the situation with children's vaccination against smallpox in Transbaikal is provided for different years. The main problems that prevented smallpox vaccination in this region of Russia are given (a lack of specialists, insufficient quantity of vaccine, the difficulty of transporting it to the region and the negative attitude of the residents of the Old Believer villages towards vaccinations, and others reasons). Children and adults, including convicts, were vaccinated. The Transbaikal region was not able to organize the production of materials for smallpox vaccines. Deliveries of detrital products to Transbaikal were carried out from Saint Petersburg, Orel, Krasnoyarsk, and Tomsk.

**Keywords:** *smallpox, vaccination, detrital products, Old Believers, Verkhneudinsk, Nerchinsk*

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During the pre-revolutionary period, smallpox vaccination was one of the public health development priorities for the Transbaikal region, as smallpox epidemics had led to a great loss of life. P.A. Solovtsov: “The chronicles are silent on the degree of devastation, but word-of-mouth accounts lead us to believe that due to the nature of living conditions for the homeless in the harsh climate, and compared to later losses, smallpox’s appearance in Siberia in the early 17th century

cut down not  $\frac{1}{10}$ ,  $\frac{1}{7}$  or  $\frac{1}{5}$  of the population, as it did in Europe before the introduction of artificial inoculation, but some  $\frac{1}{3}$ , and some  $\frac{1}{2}$  and even  $\frac{3}{4}$ . All native groups declined in population size, and some even died out, if not at that very time, then upon subsequent recurrences of the disease. Here we find the explanation of why the native population of Siberia in our later censuses does not display the same results as when the region was acquired” [1, p. 106]. The indigenous people of Transbaikal differentiated between infectious and non-infectious diseases, and understood that they were powerless against epidemics, and so took all possible measures to prevent them or

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minimize their effects. They closely monitored any manifestations that could be associated with the beginning of an epidemic, and if an epidemic was a possibility, they undertook emergency measures, including the isolation of patients (to the extent of leaving the contaminated areas, where the ill would remain with a supply of water and food). They retreated to “the most dense forests, so that the demon’s pox could not find them” [2, p. 14]. Only through rational self-interest in relation to sick relatives did many Buryats “not die from pox” [2, p. 14]. According to S.S. Shashkov, “in the second half of the 18th century, smallpox devastated much of Transbaikal, appearing here periodically every 10 years or so, and killing a lot of the Buryat and Tungus people” [3, p. 622]. Neither the governor’s report nor the city council’s report was produced without an account of the status of smallpox vaccinations. Vaccination was carried out for the first time in West Transbaikal (the present-day Republic of Buryatia) in 1770, in Barguzin, by doctor Ivan Grishin. Doctor I.F. Ressleyn was first to carry out vaccinations in the city of Verkhneudinsk (present-day Ulan-Ude) at the end of the 18th century. Note that at the time vaccinations were not carried out in a systemic manner and were administered by physician-enthusiasts who used an inoculation method in which an active immunization against smallpox was produced by administering to healthy people the content of smallpox vesicles from sick people. In 1772, the Irkutsk smallpox house was opened, as a result of a presentation on the high death rate from smallpox epidemics by the Irkutsk governor Adam Ivanovich Bril, who held the post from 1767 to 1776 [4, p. 192]. Children were carefully prepared for smallpox inoculation (bowel cleansing was performed, they were dewormed, and a favorable hygienic environment was created) and their general condition was carefully observed for several weeks after the vaccination. In 1776, 6,450 Buryat children were vaccinated in the Irkutsk smallpox house, 28 of whom died [5, p. 398]. For that era, it was a great success. At first, not all Buryats allowed their children to be vaccinated against smallpox. Time was needed for the measure’s positive results to be convincing.

Governor Bril, like Empress Catherine the Great, provided an example to the local

population by publicly vaccinating his children against smallpox. Realizing that vaccination was vital, even the Buryat taishi leaders agreed to it.<sup>1</sup> From 1805, vaccinations in the Russian Empire gained legal force [6]. All the civil authorities’ medical officers, midwives and even military doctors were required to conduct smallpox vaccinations, which were carried out free of charge. From 1804 to 1815, 1,899, 260 children were vaccinated in Russia [7, p. 1]. In 1808, the Russian government adopted a resolution on mass vaccinations for the indigenous Buryat population [5, p. 398]. In the same year, in order to prepare suitable experts, 19 “smart and capable people” were selected from the residents of the Khorinsky administrative entity (now the Republic of Buryatia) and sent to Russian medical schools. During their studies, they received full state support. Having acquired the necessary knowledge, the medics returned home and began to vaccinate their compatriots. “Pox vaccinating students,” as they were then called, were freed from various duties and state assignments; they were provided with transport to work as well – riding horses and carts. According to archival documents, routine smallpox vaccination began in West Transbaikal at the beginning of the 19th century. Based on the Decree of His Imperial Majesty Autocrat All-Russia Alexander I to the Irkutsk provincial government of August 18 and 21, 1811, a resolution on preventative vaccinations against cowpox was adopted.<sup>2</sup> On October 1, 1811, the Verkhneudinsk mayor Reshetnikov was informed of the need to carry out vaccination against smallpox.<sup>3</sup> In East Transbaikal, smallpox vaccinations were carried out in Nerchinsk in 1809–1811, by general staff medic Grib [8, p. 366]. From our point of view, 1811 should be considered the starting date for government-organized efforts against smallpox throughout the territory of Transbaikal (including the western and eastern parts). To ensure this, firstly on October 11th, 1811, a list was compiled of unvaccinated Verkhneudinsk residents.<sup>4</sup> The Irkutsk province medical council

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<sup>1</sup> Taisha – a leader.

<sup>2</sup> State Archive of the Republic of Buryatia (SARB). F. 11. Op. 16. D. 22. P. 1.

<sup>3</sup> SARB F. 11. Op. 16. D. 22. P. 20.

<sup>4</sup> SARB F. 1. Op. 16. D. 22. P. 38.

issued medic Clarín Shilling instructions to prepare pox vaccinating students in the villages of Verkhneudinsk County by March 30, 1812. This indicates that vaccination was becoming more widespread in the countryside.<sup>5</sup> By July 1, 1812, in Verkhneudinsk, 141 children were vaccinated against smallpox. It was effective in the case of 73 children, and in eight cases it was not.<sup>6</sup> The naturalist Johann Gottlieb Georgi, who traveled around Buryat-Mongolia in the 19th century, gave an account of how the Buryats were vaccinated: “Without any difficulties, as is the case in Paris, the Buryats’ confidence in vaccination is surprising. They come to Irkutsk with infants and older children from more than 300 kilometers away, and present themselves to the doctors without hesitation” [9]. In the Irkutsk smallpox house, 494 children were vaccinated, 30 of whom were Russian and the rest were Buryat. Several Buryats were resident at the smallpox house to care for the children and learn the art of smallpox vaccination. The idea of training ethnic personnel for this purpose was widespread at the time, since people who speak the same language understand each other better. Eight Selenge ethnic representatives who were Buddhists – lamas from the Gusino Lake and Songol datsans – were sent to study. It is likely that this decision was made due to the lamas possessing a certain medical training and the indigenous peoples’ great confidence in the datsans’ ministers.

Special smallpox committees were set up on the ground [7, p. 41]. According to the city smallpox commission, which continuously monitored vaccination in the city of Verkhneudinsk from July 1, 1831 to January 1, 1832, 123 people were vaccinated.<sup>7</sup> In January 1832, 78 children were vaccinated against smallpox in Verkhneudinsk, and in February 85 children were vaccinated.<sup>8</sup> In October 1832, 104 children aged 2 to 15 years old were vaccinated against smallpox.<sup>9</sup> In December of the same year, 112 children were vaccinated.<sup>10</sup> The Verkhneudinsky District Smallpox Committee was functioning at the

time. On May 24, 1836, it reported to Irkutsk province committee on its progress towards universal compulsory smallpox vaccinations for children. For example, in 1851 in Troikosavsk (present-day Kyakhta in the Republic of Buryatia), 257 infants were vaccinated against smallpox.<sup>11</sup> There was a desire to vaccinate as many children as possible in order to prevent outbreaks. Thus, the Ministry of Internal Affairs (MIA), in circular letter No. 26 dated February 8, 1861, notified the medical unit inspector for the Transbaikal region of a “high incidence of smallpox among the children of prisoner groups coming to Tobolsk, leading to great mortality. It is essential that all children in prisoners’ groups, who do not have the clear markings of vaccination or smallpox, be vaccinated at the aforementioned departure grounds, and the results be reported to the Ministry of Internal Affairs minister twice a year.”<sup>12</sup> Also, the medical unit inspector’s control was strengthened with regard to the vaccination of children in the Transbaikal region. The inspector filed monthly reports to the Transbaikal regional board on the vaccination of indigenous children and those people who had recently arrived<sup>13</sup> (See table). As was previously the case, vaccinations were still carried out by pox students from among peasants and the Buryat indigenous people.

Since there was a lack of vaccination specialists, medical students were trained especially for this purpose. Given the unfavorable situation, on July 14, 1867, the Transbaikal regional board decided to release vaccination specialists from paying taxes and all duties “after 15 years of diligent work” and to increase their salaries (from 17 rubles and 50 kopecks to 80 rubles per year). Transbaikal medical personal undertook major efforts to vaccinate the population, but these measures could not provide the desired result and the region’s inhabitants continued to suffer from smallpox. In the Transbaikal region, as in the whole of pre-revolutionary Russia, the population’s low living standards, lack of health literacy, and the prevalence of religious

<sup>5</sup> SARB F. 11. Op. 16. D. 22. P. 57.

<sup>6</sup> SARB F. 11. Op. 16. D. 22. P. 85.

<sup>7</sup> SARB F. 11. Op. 16. D. 86. P. 1.

<sup>8</sup> SARB F. 11. Op. 16. D. 86. P. 8.

<sup>9</sup> SARB F. 11. Op. 16. D. 86. P. 53.

<sup>10</sup> SARB F. 11. Op. 16. D. 86. P. 63.

<sup>11</sup> Russian State History Archive (RSHA). F. 1265. Op. 1. D. 88. P. 1.

<sup>12</sup> State Archive of the Transbaikal Territory (SATT). F. 111. Op. 1. Ed. Ch. 16. P. 8.

<sup>13</sup> SATT F. 111. Op. 1. Ed. Ch. 16. P. 64.

### Smallpox vaccination in the Transbaikal region in 1861

| Location name                                     | The number of unvaccinated children | The number of arrivals for vaccination | Total vaccinated | Vaccine efficiency, % |
|---|-------------------------------------|--|------------------|-----------------------|
| Defunct towns of Barguzin, Selenginsk             | 4                                   | 33                                     | 32               | 100                   |
| The city of Chita                                 | —                                   | 16                                     | 16               | 100                   |
| In the villages of the Chitkanskaya district      | 28                                  | 90                                     | 89               | 100                   |
| In the villages of the Tataurovskaya district     | 83                                  | 218                                    | 301              | 91                    |
| In the villages of Ust-Klinskaya district         | 5                                   | 125                                    | 112              | 100                   |
| In the villages of the Mukhorshibirskaya district | 8                                   | 151                                    | 135              | 100                   |

*Note:* The table presents data based on the analysis of archival materials (SATT. F. 111. Op. 1. Ed. Ch. 16. P. 54, 55, 68).

prejudice contributed to the spread of epidemics. Among Buryats, infectious diseases were not widespread only due to low-density population and significant economic isolation as a result of their nomadic way of life. But smallpox was the scourge of “Semeyskie” (Old Believers’) villages. The reasons for its spread among this population group were not only religious and due to the social isolation of the Old Believers, but also their reluctance to be vaccinated because they thought that vaccination was the “mark of the Antichrist.”<sup>14</sup>

Smallpox detritus was available in limited quantities and booster vaccinations were carried out in rare cases. In schools, vaccinations were carried out in the following way: a vaccine was used to inoculate 10 children, and when they developed pustules, their contents were used on others, ignoring the risk of contracting other infectious diseases (such as syphilis, tuberculosis, sepsis, and others) [10, p. 19]. Doctor N.V. Kirillov (1860–1921), who worked in the second half of the 19th century in the Transbaikal region, described the administration of vaccinations in the Barguzin district as follows: “There was not even detritus available. We were forced to take the contents pus bubbles from a child vaccinated against smallpox and transfer it from hand to hand” [11, p. 27]. In 1890, Kirillov went to live in Bichura (the present-day regional center of Buryatia), a large (stretching for more than

7 kilometers) Old Believer village, then belonging to the Verkhneudinsk district. He wrote about Bichura inhabitants: “The population considers it a ‘sin’ against ‘the will of God.’ One hears the following argument: ‘God has given parents the consolation of caring for children and then sends the ‘gospochka’ [pox] at the appointed time to remove the superfluous, so that those who remain are not cramped. With the arrival of a medic, the ‘Semeyskie’ not only refused medical attention, but even hid the ill. If, for example, a child was inoculated against smallpox, the household’s adults tried to suck out all of the inoculum from his or her skin incision through a straw. It was impossible to isolate the sick and carry out disinfection, since the old fanatical dogmatists (preachers) considered it a sin and they firmly held the intimidated population in their hands” (quoted in [12, 28]).

In the winter of 1886–1887, smallpox killed more than 2,000 children and 40 were blinded or suffered serious damage to their vision. The epidemic spread to one-third of the Verkhneudinsky district’s territory, which was home to 145,000 people. In an 18-month period, diphtheria killed more than 300 teenagers in Tarbagataya, Kuitunskaya and Kunaleyskaya districts. However, some progress had been made: the Old Believers in secret from the “preachers” began to vaccinate their children against smallpox and sneak visits to hospitals [12, p. 14].

Smallpox vaccinations continued to be actively administered in East Transbaikal. In 1872,

<sup>14</sup> SARB F. 11. Op. 16. D. 90. P. 9.

pox student Ayusha Mitiev was awarded a silver medal by the regional board for success in vaccinating children. In East Transbaikal in 1883, a total of five pox students were engaged in vaccinating the population. They received the appropriate salary and were completely exempt from duties. In 1907, the Aginsk ethnic district (present-day Chita region) had four vaccination specialists, two of whom received a salary from the treasury of 22 rubles and 40 kopecks per year, while the other two received 30 rubles from the public. As such, some vaccination specialists were in state service, while others were supported by the public. They received their salary at Chita County Police Department.<sup>15</sup>

The Transbaikal region kept strict records of those vaccinated against smallpox and monitored the effectiveness of smallpox vaccinations. For example, the Aginsk ethnic district office reported to the doctor of the Chita district second section. The "Bulletin on the preventative vaccination against smallpox to newborn children of both sexes at the Aginsk district" reported that in the first half of 1904, "250 boys and 239 girls were born. All were vaccinated against smallpox. In 454 cases it took, while it failed in 35 newborns."<sup>16</sup>

In pre-revolutionary Russia, in order to provide material for vaccinations, public and private smallpox calf-houses were organized. Initially, the Transbaikal region received vaccines from Saint Petersburg. However, such a supply system was inconvenient, so, on September 3, 1880, the governor-general of Eastern Siberia proposed "creating a calf-house in the region for acquiring calf smallpox material."<sup>17</sup> However, the production of smallpox material was unsuccessful in the Transbaikal region. A calf-house appropriate for vaccines<sup>18</sup> was created in Krasnoyarsk.<sup>19</sup> In the Transbaikal region, detritus was also received from the private smallpox calf-house of veterinarian K. Zhivopistsev, which was set up in Orel on March 16, 1887. On September 29, 1914, at the Verkhneudinsk pharmacy, the Red Cross reported the following: "Calf smallpox

vaccine (detritus) was sent on September 29, 1914, in the amount of 200 tubes of vaccine to the value of 8 rubles and 28 kopecks – payment on delivery."<sup>20</sup>

At the end of the 19th century, it became possible to source the vaccine from Tomsk, as evidenced by the following document dated November 7, 1896: "The question of a City Council donation for the creation of a station for preparation of preventative medical vaccines. Dear Verkhneudinsk mayor, At Imperial Tomsk University, a station is being organized for the preparation of preventative medical vaccines and their creation will probably only begin when enough donated funds have been collected to support the entire business. The amount of funds currently collected has only reached 2,187 rubles and 39 kopecks. To commemorate the 100th anniversary of the discovery by Dr. Edward Jenner of the preventative smallpox vaccine, which was marked on the past May 2 and celebrated in the Russian Empire with the highest permission, in November of this year the Tomsk city Duma has allocated from city funds 1,500 rubles, to be paid over three years, 500 rubles per year, to maintain the aforesaid station and has appealed to other cities of Siberia for donations for the same object, as the fruits of this enterprise will undoubtedly serve the residents of the whole of Siberia. In bringing attention to this, please do not fail to raise for discussion by the City Duma the question of recognizing whether it is possible to make any feasible donation to strengthen the resources of the aforementioned station, as all the same and the smallest donation provides the opportunity to strengthen this much needed enterprise. Money, in the case of its appropriation, will be addressed to the Tomsk city council, from where it will be immediately transferred to the board of Imperial Tomsk University. With true reverence, Mayor Andrei Kornakov. Tomsk city government. October 3, 1896, № 241, Tomsk."<sup>21</sup> This document received a resolution from the Verkhneudinsk head: "Report to City Council at its December meeting this year. One hundred rubles has been sent. March 24, 1898." A letter from the rector of Tomsk State University of May 28, 1898,

<sup>15</sup> SARB F. 131. Op. 1. D. 455. P. 3.

<sup>16</sup> SARB F. 131. Op. 1. D. 17. P. 7.

<sup>17</sup> SATT F. 1. Op. 2 (sp). D. 17. P. 1.

<sup>18</sup> Cowpox provoked the development of immunity against smallpox, with an observed reduction in mortality and a smaller amount of side effects compared to inoculation.

<sup>19</sup> SATT F. 1. Op. 2 (sp). D. 17. P. 18.

<sup>20</sup> SARB F. 101. Op. 1. D. 9. P. 118.

<sup>21</sup> SARB F. 10. Op. 1. D. 1142. P. 1.

No. 1769 reported to the Verkhneudinsk city government that “100 rubles has been received for the manufacture of preventative vaccines against infectious diseases.”<sup>22</sup>

In the early 1880s, the Free Economic Society began to produce calf smallpox detritus, which when mixed with glycerol could be stored for a long time [12; p. 126–127]. According to S.A. Sher, from November 1885, a Moscow orphanage under the rights of the vaccination center began to prepare calf detritus and placed “on sale or in bottles (for 1 ruble) an amount sufficient to vaccinate 20 persons, or filtered detritus in tubes (40 kopecks each)” [6].

Military and civilian populations acquired smallpox detritus. Convicts were also vaccinated. On January 12, 1897, the Durovskoe village board from the Akshinsky district sent 5 rubles to the medical department of the Transbaikal regional board to receive smallpox detritus.<sup>23</sup> On January 28, 1897, the village Ataman approached the regional medical department in order obtain smallpox detritus for villagers.<sup>24</sup> The Urulginskaya steppe Duma on January 25 of that year confirmed to the medical department of the Transbaikal regional administration the receipt of 10 tubes and sent 3 rubles for the detritus received.<sup>25</sup> On February 20, 1897, a district village doctor approached the Transbaikal regional government with a request to send smallpox detritus. He explained that there was a very large demand for detritus due to local cases of smallpox disease. According to Art. 776 of the Charter of the Medical Unit of the Police Department of 1892, expenses for detritus were included in the zemstvo district tax subjects.<sup>26</sup> On June 15, 1897, a doctor of the Nerchinsk hard labor camp sent to the medical department of the Transbaikal regional board 1 ruble and 80 kopecks for six tubes smallpox detritus.<sup>27</sup> As we can see, the vital vaccine was being actively bought and used in the Transbaikal region.

However, despite preventive measures, smallpox remained a formidable disease. In the

ulus camp<sup>28</sup> of Arshantuy Urda-Agin buluk<sup>29</sup>, on May 20, 1916, a family of four – husband, wife and two children – fell ill with smallpox. They all died. The Urda-Agin buluk camp headman reported this.<sup>30</sup>

The medical department resolution of the Transbaikal Regional Board № 1 of January 2, 1917 approved vaccination specialists’ work locations and continued to exempt them from all kinds of additional duties.<sup>31</sup> Also, the administration and the medical community of the Transbaikal region continued control measures aimed at reducing the incidence of smallpox.

In the Transbaikal region from the 18th to the early 20th centuries, the priority of public health authorities remained the carrying out vaccinations, which first took place in 1770 in the western part of the region. But the vaccination was carried out irregularly by inoculation, and only by doctor-enthusiasts. Furthermore, various complications, including death, were observed. In East Transbaikal, vaccinations began later – in 1809–1811, as a result of the government’s decision on compulsory vaccination. As such, the starting date of organized, planned public measures for vaccination against smallpox for all of the Transbaikal population, including in the western and eastern parts, can be considered to be 1811. The indigenous Buryat population was on the whole eager to be vaccinated against smallpox. Residents of Old Believer villages long resisted mass vaccination against smallpox, so the mortality from infectious diseases among them was very high. At the same time, vaccination specialists never had enough vaccines. Attempts to organize the production of the vaccine directly in the Transbaikal region were unsuccessful. However, due to systematic government measures and the deliberate efforts of medical personnel, a positive attitude towards vaccination was formed among the population of Transbaikal and a lasting understanding that vaccination should be carried out among all age groups was established.

<sup>22</sup> SARB F. 10. Op. 1. D. 1142. P. 2.

<sup>23</sup> SATT F. 1. Op. 2 (sp). Ed. Ch. 250. P. 3.

<sup>24</sup> SATT F. 1. Op. 2 (sp). Ed. Ch. 250. P. 17.

<sup>25</sup> SATT F. 1. Op. 2 (sp). Ed. Ch. 250. P. 6.

<sup>26</sup> SATT F. 1. Op. 2 (sp). Ed. Ch. 250. P. 11-12.

<sup>27</sup> SATT F. 1. Op. 2 (sp). Ed. Ch. 250. P. 78.

<sup>28</sup> Ulus – an administrative unit of the Buryat-Mongolian people, including at least 15 families.

<sup>29</sup> Buluk – an administrative unit comprising several dozens, sometimes hundreds, of yurts and possessing, in addition to common administration, common grasslands, rangelands, etc.

<sup>30</sup> SARB F. 131. Op. 1. D. 504. P. 3.

<sup>31</sup> SARB F. 131. Op. 1. D. 648. P. 1.

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