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INTEGRATED STUDY MASTER'S THESIS

The Anti-Vaccination Movements in Eastern Europe: from the Application of Earliest Vaccines to Nowadays

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Table of Contents

Summary

This thesis explores the development of vaccine hesitancy and anti-vaccination movements in Sweden from the debut of vaccination from 1801 until 2023, including the preceding years of

inoculation in the 18th century. The importance of this research lies in the historical and contemporary relevance of vaccine refusal, focusing on the historical smallpox endemics and the recent global COVID-19 pandemic. Sweden provides a unique case due to its early public health policies and lately, strong traditions of individual freedom, which have shaped public responses to vaccination across time.

The main aim of this research is to understand how fears and misconceptions about vaccines have evolved in Swedish society over the last two centuries. The specific objectives include: 1) tracing the historical roots and development of vaccine hesitancy; 2) identifying key psychological and social drivers of vaccine resistance; 3) evaluating both historical and modern government strategies in promoting vaccination; and 4) analyzing how Sweden has balanced public health needs with personal freedoms in its vaccination policies.

The methodology used in this thesis includes a historical-analytical approach, examining both primary and secondary sources. Primary sources include archival materials such as doctors' publishings, official reports and public health communications. Secondary sources involve scholarly articles, books and recent studies on vaccine hesitancy. The research also includes a comparative analysis of public health legislation and government campaigns from different periods to assess how strategies have changed or remained constant.

The results show that vaccine hesitancy in Sweden has deep historical roots, often emerging during times of social change, public health crises or political instability. Early resistance in the 19th century was influenced by fear of new medical procedures and distrust in authorities as well as state-inaction and monopoly. In modern times, hesitancy is more often shaped by misinformation, perceived adverse effects and concerns about personal autonomy. Although, historical patterns of fears remained. Government responses have ranged from mandatory vaccination laws to public education campaigns, with varying degrees of success.

The thesis concludes that vaccine hesitancy is not a new phenomenon but one that transforms with the social and cultural context. Swedish authorities have learned to adapt their strategies over time, moving from compulsion to persuasion and transparency. However, the delicate balance between protecting public health and respecting individual freedoms remains a central challenge. Understanding the historical and psychological dimensions of vaccine hesitancy is essential for designing more effective public health strategies in the future.

Keywords

Vaccination, Inoculation, Smallpox, COVID-19, Vaccine hesitancy, Anti vaccination

Abbreviations

WHO - World Health Organization

MSB - Swedish Civil Contingencies Agency

FHM - Public Health Agency in Sweden

MMR - Measles, Mumps, and Rubella

HPV - Human Papillomavirus

mRNA - Messenger RNA

Rdr - Riksdaler

SEK - Swedish krona

Introduction

Vaccination has been one of the most transformative public health interventions in history, dramatically reducing mortality from infectious diseases. (1) However, its implementation has never been free from controversy. Vaccine hesitancy, defined by World Health Organization “delay in acceptance or refusal of vaccines despite availability of vaccination services”, (2) has persisted for centuries, shaped by historical, psychological, sociological, and political factors. This narrative literature review researches the evolution of vaccine hesitancy in Sweden during the 19th to 21st century, including the years of inoculation in the 18th century, focusing on how fears, misconceptions and resistance to vaccination have formed public health efforts. By comparing historical and contemporary patterns of vaccine hesitancy, mainly focusing on the smallpox and COVID-19 eras, the study aims to highlight

both persistent fears and changing narratives surrounding vaccination and the social and psychological factors that fuels them. Additionally, it examines the role of governmental policies, public health campaigns and societal and governmental attitudes of individual rights versus collective health responsibilities.

The Review of the Previous Research

Historical studies on vaccine implementation in Sweden have largely focused on the early success of vaccination programs and the societal responses to them. Peter Sköld's doctoral thesis, *The Two Faces of Smallpox* (1996), provides a comprehensive analysis of how early vaccination efforts were strategically implemented by multidisciplinary teams at the parish level while also addressing the initial resistance to immunization. The same author has also published several papers within the same topic, such as *Offer and request:Preventive Measures against Smallpox in Sweden 1750-1900 (1997)* and *the Key to Success The Role of Local Government in the Organization of Smallpox Vaccination in Sweden (2000)*.

Adding to this field of research, Dribe and Nystedt (2003) examined how trust and access to information influenced the early dispersion of smallpox vaccination in Scania, the southernmost province of Sweden. Their findings from their paper *Information, trust and the diffusion of smallpox vaccination: The Case of Scania in Sweden, 1802–1835* show that vaccine approval was faster in literate and landowning communities, implying that social trust and communication were important factors in the vaccination program.

Other historical studies on vaccine hesitancy include Clarks' *The Right to Die? Anti-Vaccination Activity and the 1874 Smallpox Epidemic in Stockholm* (1992), which examines opposition to mandatory vaccination during a major epidemic. Similarly, Eklöf's *Preventionens Vapenvägrare* (2015) explores historical cases of vaccine refusal in the smallpox era as part of broader resistance to public health interventions. These works show that vaccine hesitancy is not a recent concept but has been a part of Swedish history since the start.

In more contemporary research, studies have emphasized the role of misinformation, conspiracy theories and digital media in shaping vaccine hesitancy. For instance, a quantitative analysis of the Facebook group "*Stop Mandatory Vaccination*" reveals how online communities reinforce vaccine skepticism through selective information sharing and mutual support among members. Additionally, *Vaccine Hesitancy in the Nordic Countries:*

Trust and Distrust During the COVID-19 Pandemic (2024) examines how political tensions and distrust in institutions contributed to vaccine hesitancy during the pandemic.

A study published in 2022 by Swedish Civil Contingencies Agency, *Conspiracy theories and covid-19: the mechanisms behind a rapidly growing social challenge,* identifies conspiracy theories during the COVID19 pandemic. It discusses the faces behind the phenomena and how to counteract it.

While these studies provide valuable insights into specific time periods and factors influencing vaccine hesitancy, there has been limited research that examines the evolution of vaccine hesitancy and anti-vaccine movements in Sweden over the entire period of vaccination existence in Sweden. In the narrative research *Two centuries of vaccination: historical and conceptual approach and future perspectives (2024)*, covers a bigger picture of vaccination including mechanism of actions of different vaccines as well as addressing the issue of vaccine hesitancy. Differently, this thesis focuses mainly on vaccine resistance and anti movements and aims to bridge the gap by exploring both historical and modern perspectives offering an analysis of how these movements have evolved over time.

The Relevance and Novelty of the Study

Globally, vaccine hesitancy is a critical public health concern. Sweden is fortunate with high vaccination rates, but we live in a rapidly changing world. Modern anti-vaccine movements are often linked to concerns about vaccine safety, distrust in authorities and misinformation spread via social media, similar patterns of skepticism existed long before the digital age. By tracing the historical roots of vaccine hesitancy in Sweden, this thesis aims to find the recurring themes and factors of public resistance to immunization. The study is particularly relevant in the post period of the COVID-19 pandemic, which intensified debates over individual rights, public health mandates and the role of trust in scientific and governmental institutions. The novelty of this narrative literature review lies in its comprehensive approach: combining historical and contemporary analysis with psychological and sociological perspectives to examine how Sweden has navigated vaccine hesitancy over time. The findings of this study can help future public health strategies that are aimed at increasing vaccine efforts and counteract hesitancy.

Methods

This study uses a narrative literature review approach to explore immunization hesitancy and anti-movements in Sweden from 1737 to 2023, particularly focusing on the smallpox and COVID19 era. The research is based primarily on secondary sources, including academic articles, doctors theses, official web pages and books. However, primary sources, such as historical newspapers, government documents and archival materials were also examined when they were particularly relevant to the topic. Another methodological aspect of this research is comparative analysis between primary and secondary sources. By cross-referencing these sources, the study evaluates the accuracy and consistency of information about vaccine skepticism.

The choice of a narrative literature review allows for a broad and historical analysis, capturing the evolution of vaccine hesitancy in Sweden. Unlike systematic reviews that rely on structured database searches, this study selects sources based on thematic relevance rather than predefined search terms. This method ensures a more contextualized understanding of the subject, allowing for connections between past and present attitudes toward vaccination.

Additionally, government policies regarding vaccination were analyzed to understand the state's role in managing vaccine hesitancy. This includes historical public health laws, official statements and communication strategies, which were compared with modern policies to understand their effectiveness and impact over time.

Given the interdisciplinary nature of the research, this study uses historical, sociological, and medical perspectives, integrating situations from political decisions, social media influence and public opinions regarding vaccination. By combining historical material with contemporary material, this method provides a comprehensive and nuanced analysis of vaccine hesitancy and anti-vaccine movements in Sweden throughout time.

Objectives of the Study

This study includes four important objectives in understanding the tendency of vaccine and inoculation hesitancy and anti-vaccine movements in Sweden, comparing the resistance during the 18th-20th century smallpox epidemics and 21th-century COVID-19 pandemic.

1. To determine how historical fears and misconceptions about vaccines have evolved over time in Sweden.
2. To identify the key psychological and social factors driving vaccine hesitancy in Sweden.
3. To evaluate and compare the Swedish government's strategies, historical and modern strategies, in addressing vaccine hesitancy and promoting vaccination.
4. To examine how Sweden has balanced personal freedoms with public health responsibilities in its vaccination policies, by comparing former and modern strategies.

By examining vaccine hesitancy through these objectives this thesis aims to provide a nuanced understanding of how Sweden historically has managed public resistance to immunization, which could expand understanding into present-day vaccine policies.

Chapter 1: The Early History of Smallpox immunization and Vaccine Hesitancy in Sweden, including the years of inoculation from 1737 to 1976

1.1.1 Introduction of Historical Analysis

While smallpox vaccination was one of the earliest and most successful achievements in public health, its acceptance in Sweden was far from straightforward. From the first inoculation attempts in the 18th century to the introduction of compulsory vaccination laws in the 19th and 20th centuries, hesitancy and resistance persisted across different parts of society. Unlike today's concerns centered around personal freedom and digital misinformation, early opposition was often rooted in religious fatalism, limited infrastructure, and skepticism towards new science. (3) (4) (5)

This chapter analyzes the historical aspects of vaccine hesitancy in Sweden. It discusses how public health strategies evolved alongside public doubts, shaped by folk beliefs and rumours, socioeconomic conditions, as well as misinformation and medical conflicts. It examines the complex relationship between the state, the church, and the physicians in implementing vaccination campaigns, it explores how they negotiated and navigated the risks and responsibilities of smallpox prevention. By examining the national rollout of smallpox immunization and resistance to it, the chapter lays a historical foundation for understanding

how fears, misconceptions and societal dynamics influenced the acceptance or rejection of vaccines.

1.1.2 Background of Smallpox, Vaccination and Inoculation

Smallpox was one of the deadliest infectious diseases in human history, estimated to have caused millions of deaths over 3,000 years. The disease, caused by the variola virus, was highly contagious, spreading primarily through respiratory droplets and airborne transmission. Its symptoms included severe fever and characteristic skin eruptions, which often led to permanent scarring and complications such as blindness. In many cases, the virus also led to death, especially for children, since they have a weaker immune system. The mortality was around 20 percent. (6) In Sweden, between 1750 and 1900, approximately 300,000 people died from smallpox. The cause of death was often pneumonia or meningitis. (7)

The discovery of vaccination was made by Edward Jenner, an English physician. Jenner was inspired by a milkmaid’s observation that those exposed to cowpox did not suffer severe smallpox infections. In 1796, he tested this theory by scraping the arm of James Phipps with material from a cowpox ulcer taken from Sarah Nelmes, who had contracted the disease during an outbreak. It was later shown that Jenner's discoveries were a success, providing immunity against smallpox. (8)

Before the debut of vaccination, inoculation was the preventive method against Smallpox. Also known as variolation, the practice involved scraping small amounts of human smallpox material into the skin to induce a controlled infection, which would provide immunity. The term "variolation" is derived from Variola, the Latin name for smallpox. (4) Inoculation had been practiced in various parts of the world long before it reached Europe. Historical records suggest that inoculation was known in China and India for centuries. (9) It was likely spreading through Arab traders to other regions. (10) In Europe, the practice was introduced through the efforts of Lady Mary Wortley Montagu, the wife of the British ambassador of Turkey. After witnessing the procedure in Constantinople, she arranged for her own children to be inoculated in England in 1721, generating significant interest. King Gustav III and his siblings underwent the treatment in 1769. (7)

As a consequence of extensive vaccination efforts, smallpox was eventually eradicated globally, with the World Health Organization officially declaring the world free from the

disease in 1980. Sweden had already discontinued general smallpox vaccinations in 1976, recognizing that the disease was nearing eradication. The last Swedish outbreak occurred in 1963, and the last country to be free from smallpox was Somalia in 1977. (6)

1.2 The Era of Inoculation in Sweden from 1737 to 1800

1.2.1 Introduction of Inoculation: Let the Experiment Begin on Orphans

As early as 1737, Swedish physician Herman Diedrich Spöring wrote about the "noise and discord" surrounding smallpox inoculation in Europe. He noted that some viewed the practice as "un-Christian" and unnatural, fearing it interfered with divine will. (11) Still, he defended the method by citing survival data: one in seven people died from natural smallpox, compared to just one in fifty among the inoculated. Variolation was first mentioned by The Medical Board in 1753, (4) and was officially first performed in 1756 at an orphanage in Stockholm. (3) In Stockholm, inoculations were performed at the Inoculation Houses. But the facility struggled to receive patients due to public distrust, particularly among the lower classes. By the 1790s, some inoculations were also carried out in private homes. Overall, the method was unpopular despite major outbreaks in the country. (4)

Authorities made efforts to promote inoculation, which included proposals for royal announcements and newspaper advertisements in churches. (4) Queen Ulrika Eleonora of Sweden died of smallpox in 1741, which made the method being promoted amongst the royalty. (10) In 1750, many adults in Sweden could read, and by the end of the century, the majority could, which made these promotions accessible to all social classes. (3) Counter arguments could include the belief that Sweden's cold climate was unsuitable for inoculation, making it more difficult to expand the practice even further. (4) Two huge epidemics in Sweden, one in 1779 and the second in 1784, killed more than 27,000 persons, showing a significant need for public health promotions in the country. (10)

1.2.2 Beauty or the Beast: Aesthetic Results from Inoculation

For those who survived smallpox, the disease often left permanent marks. The pustules could leave scars, pockmarks, and hyperpigmentation, sometimes leading to severe disfigurement. (6) Smallpox was also the leading cause of blindness in the 18th century, though less than one percent of survivors suffered eye damage. Beyond the eyes and the skin, the disease could

cause limb deformities and complications in the respiratory, gastrointestinal and central nervous systems, particularly in societies where hygiene was poor and treatment was difficult to get. (4)

The fear of disfigurement was a powerful tool for promoting inoculation, especially among young women who needed to preserve their beauty for marriage. Physicians spoke about the ruined faces of survivors as a warning, since finding a husband was important for women to secure their economic future. The physician Carl-Gustav Tessin, in his teachings to the young prince Gustav, later Gustav III, argued for inoculation by stating: “Never any face will be disfigured, so that no wife has to fear a changed temperament of her husband, or any maid is afflicted by a loss of suitors”. Dr. Nils Rosén von Rosenstein, a famous paediatrician, used similar arguments that women had the greatest reason to embrace inoculation: to preserve their beauty. (4)

1.2.3 One Less Mouth to Feed: Economic and Social Barriers to Inoculation

During the 18th century, Swedish district physicians frequently reported neglect in child care among the poor, particularly in rural areas. Dr. P. A. Norlin, from Mariestad, expressed frustration that despite daily smallpox deaths, parents refused to inoculate their children. In Närke, Dr. Johan Lyman observed that some families seemed relieved to lose a child during times of poor harvest, seeing it as “one less mouth to feed”. Similarly, Dr. Lars Montin, noted in Halland, a district of Sweden, that many parents viewed multiple children as an unbearable burden. (4)

Physicians also criticized traditional care methods used by poorer families, such as the “hot treatment,” which meant keeping children in unventilated and closed rooms, which were seen as dangerous by doctors. But it was done because of opposite beliefs, parents feared that washing or exposing children could lead to deadly colds. What physicians often labeled as ignorance and carelessness was, in reality, a survival strategy shaped by poverty, repeated loss, and limited options. Faced with high mortality and little control, many families turned to faith for meaning, a shift that brings us to the next powerful obstacle against inoculation. (4)

1.2.4 Let Go and Let God: Religious Resistance to Inoculation

Religious skepticism was a significant barrier to the acceptance of inoculation in Sweden. During the 18th century, Christianity was deeply integrated in everyday life, and many

viewed inoculation as an unnatural interference with divine will. Disease and death were commonly believed to be beyond human control, predetermined by God. The Bible viewed suffering as a test of faith, which could mean that avoiding illness through medical intervention could go against divine judgment. This fatalistic worldview contributed to passivity towards immunization against smallpox and other diseases. (4)

Further, religion was not limited to opposition. In fact, early inoculation campaigns were sometimes explicitly blessed through prayer. An example is a public prayer written in 1783 for the Swedish Crown Prince's variolation, which asked God to grant success, fortune, and blessing to the smallpox inoculation and called the prince's health a precious life, the surest pledge of God’s mercy upon our land. (12)

Additionally, the Christian tradition of visiting the sick and elderly, intended as an act of compassion, paradoxically hindered disease prevention. Frequent contact with the ill in combination with the absence of strict quarantine practices increased the spread of smallpox and other infections. Unlike today, death in the 18th century was an accepted and even expected part of life, further minimizing efforts to control disease outbreaks. This religiously driven hesitancy took decades to overcome. Beyond Christianity and other beliefs, some people were simply suspicious of medical innovations, holding on to long-standing beliefs in natural healing or self-reliance. However, not all communities in Sweden responded to the disease in the same way. (4)

1.2.5 Leave the Weak Behind: a Strategy from the Northern North

Unlike the majority population in Sweden, the Sámi, an Indigenous people in the north, lived in small communities often isolated in mountainous regions. Their spiritual beliefs, viewed by many Swedes at the time as pagan, were fundamentally different from Christianity and more effective in containing disease spread. When someone fell ill, especially the elderly who could not easily relocate, it was not uncommon for them to be left behind while the rest of the group isolated themselves in the mountains. (4)

The Sámi believed smallpox was caused by evil spirits, forces that could be fought or pleased, unlike the Christian view that saw disease as God's will and therefore unchangeable. This belief system, paired with strict isolation practices, contributed to a lower overall smallpox mortality rate among the Sámi compared to the rest of Sweden. (4) However, when smallpox did reach Sámi communities, the outcomes were devastating due to low immunity.

In a 1750 epidemic, mortality reached 70 percent, and unlike the Swedish population, where smallpox was mostly fatal to children under ten years of age, the disease could take all ages among the Sámi. (13)

In comparison to the Swedes, the Sámi feared the virus much more. (4) The Sámi went as far as sacrificing reindeer to satisfy the gods, actions that severely diminished their herds. In 1781, only one doctor was appointed to perform inoculations among the Sámi, and it wasn't until 1791 that organized efforts began in the local rectory in Jokkmokk. In 1798, 40 people were inoculated and all survived the procedure. But ironically, the very solution designed to prevent suffering would itself become a source of fear and suspicion. (13)

1.2.6 Inoculation as a Life-Saving Method: Could the Savior Be the Source of Infection

Inoculation, a promising method for reducing smallpox mortality, faced resistance not only due to religious or cultural beliefs but also because of practical concerns: cost, complications, and safety. While inoculation was significantly safer than contracting the disease naturally, it still carried risks, for example, the potential for an inoculated person to spread smallpox to others if not properly quarantined. (4)

Rumors circulated that inoculation itself was to blame for new outbreaks. Although physicians' reports largely dismissed these ideas, fear remained. Some doctors hesitated to inoculate unless an epidemic was already ongoing, afraid of being held responsible for triggering a new one. The general public often became more open to preventive measures during epidemics due to concerns about infection. Fear both hindered and fueled the fight against smallpox, among many other obstacles that will be further explored. (14) (4)

1.2.7 Money and Monopoly

Another major reason inoculation never reached full national implementation was the absence of leadership, money and communication from the Swedish Medical Board. Although individual physicians had promoted the practice for decades, public knowledge remained limited, and the state failed to provide long-term financial support. Adding to this, physicians held a legal monopoly over the procedure, only doctors were permitted to perform inoculations. (4)

The Swedish Medical Board pushed for an inoculation house in Stockholm, which was deemed "desirable" in a 1760 public notice by the Health Commission, yet it was only opened in 1766 due to financial constraints from the government (15). Even when funds were allocated, such as the 700 Riksdaler, a former currency in Sweden, granted in 1773. The full amount was never disbursed, leaving district physicians without adequate resources. By the late 18th century, repeated funding requests were ignored, which led to a decline in enthusiasm from the Medical Board. The Royal Office, while supporting inoculation in principle, hesitated to approve free procedures, fearing unintended harm from side effects. As support decreased further, physicians proposed alternative strategies. Dr. Hardtman suggested tax exemptions for inoculated children, while Dr. Wahlbom argued that state-sponsored procedures could increase public acceptance. (4)

This strict monopoly of inoculation by doctors, justified by them as necessary for patient safety, was also likely influenced by financial incentives. Physicians earned money for each inoculation, and opening up the practice to others would have threatened their income. The monopoly became one of the greatest barriers to making inoculation a widespread and accessible preventive measure. (4)

1.2.8 End of a Method that Never Flourished

By the late 18th century, interest in inoculation increased again. Advertisements promoting the procedure began to appear in daily newspapers, which made the wealthier classes aware again. Sadly, this revival came too late. It wasn’t until the major smallpox epidemic around the turn of the 19th century that serious preventive efforts gained momentum. But by then, a safer and more effective method had emerged: vaccination. (4)

Vaccination required fewer technical skills, had fewer risks and was significantly cheaper, making it an attractive replacement for both physicians and the public. Inoculation, or variolation as it was also called, quickly lost its relevance. Physicians, who had long been anxious about the potential for inoculation to spread the disease, gladly embraced this new approach. By 1803, formal discussions of inoculation disappeared from the Medical Board's agenda, and within just 15 years of vaccination's introduction, variolation was no longer practiced in Sweden. (4)

1.2.9 The Fate and Fade of Inoculation

Inoculation, a first step toward smallpox prevention, never gained full acceptance in Sweden. Religious fatalism, fears of complications and economic barriers limited its reach in combination with state inaction and physician monopolies. Despite its effectiveness as an immunization method, it remained a privilege of the wealthy rather than a national solution. Looking back, the inoculation's failure of recognition reflects a recurring challenge in public health: scientific progress alone is not enough without public trust and financial accessibility.

1.3 Smallpox Vaccination in Sweden from 1801 to 1976

1.3.1 The First Vaccination

After the invention of Vaccination by Dr Jenner, it quickly spread across Europe. On October 23, 1801, Dr. Eberhard Zacharias Munck af Rosenschöld performed Sweden's first vaccination in Scania, a region in the south. He vaccinated the children of his colleague, Dr. Beyer, using vaccine material originating from Dr. Luigi Sacco in Italy, which had been sent via England and Denmark. This first vaccination was an important milestone in Swedish medical history, and it was just the beginning of a much larger effort to implement the practice throughout the whole country. (4)

Vaccination was initially performed arm-to-arm, transferring cowpox material from one vaccinated person to another (4). This method made sure of an ongoing supply of the vaccine, but concerns soon arose about contamination. Nevertheless, Dr. Rosenschöld became a strong advocate for vaccination, promoting its safety and effectiveness through publications such as *Till allmänheten om kokoppor, et säkert förwaringsmedel emot menniskokoppor (To the Public about Cowpox: A Safe Preventive Method Against Smallpox),* where he explained the method and benefits of vaccination. (16)

1.3.2 Another Round of Experiments in the Orphanage, This Time with More Success

Already by 1802, vaccination had gained widespread acceptance in Swedish society. Recognizing its advantages over variolation, the Medical Board, which consisted of 12 board members and one secretary, actively promoted vaccination as a safer and more effective alternative. To ensure public confidence, the rollout of vaccination followed a structure

similar to inoculation, with controlled experiments. Orphanages were again chosen as early vaccination sites. Children in need were the first patients, receiving vaccinations in exchange for food and care from charitable institutions. Since vaccination carried fewer risks than inoculation, more physicians began to trust the procedure, choosing to vaccinate their own children and those of close friends. (4)

The initial results from vaccination were overwhelmingly positive, which led to financial support from King Gustav IV Adolf, who recognized vaccination as an important tool to improve public health. (4) However, before vaccination was introduced to the general population, authorities believed it was strategic to begin with wealthier families, to set an example for the broader society and to prevent public hesitancy. More public health strategies were soon to be introduced. (17)

1.3.3 When God's Hands Actually Could Change the Destiny: Churches Became Vaccination Centers

In the early phase of this major public health initiative, physicians recognized that medical intervention alone would not be enough to reach the broader population. To gain trust and encourage participation, doctors collaborated with familiar social figures, especially the clergy. Doctors around the country wrote instructions on how to perform the vaccination that was distributed in the parishes. Through sermons and moral appeals, vaccination was framed as a Christian duty and an act of parental care. The priesthood, deeply rooted in local communities and supported by an already well-organized parish system with its own local governments, soon became the functional equivalent of modern vaccination centers. In many parishes, it was often the sexton or bell-ringer who carried out the vaccinations. This proved to be an efficient strategy, as the clergy already had the trust of their congregations and could reach even remote areas through existing infrastructure. Although it was not without criticism. District Doctor Johan Martin Ekelund was initially skeptical towards using non-medical professionals as vaccinators, and believed they would fail their task. He later changed his mind. (17)

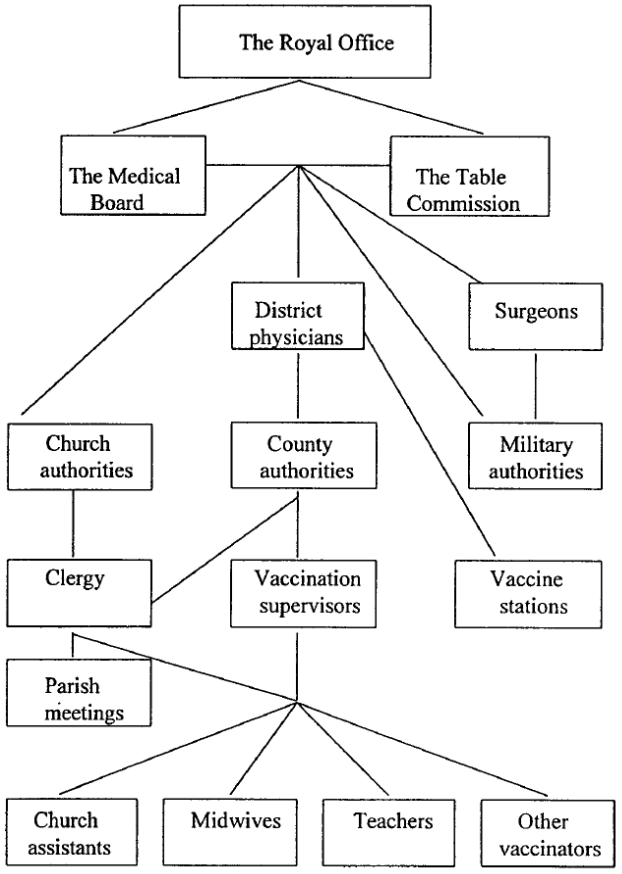
Parish ministers, acting as representatives of both the state and the church, not only performed vaccinations but also carefully documented immunization and birth data, records that were reported to the government as early as 1804. This church-led network formed a tightly woven administrative system that extended across the country, making mass

vaccination both logistically possible and socially accepted in an overwhelmingly agrarian society. (18)

Initially, vaccinations were mostly carried out by church assistants. Over time, however, the role expanded to include midwives and teachers who were trained to support a higher immunization coverage. (19) Recognizing the importance of the clergy's involvement, the Medical Board introduced incentives in 1811, including promotions for priests who actively supported vaccination. (3) This shift marked a major turning point: physicians no longer held a monopoly on vaccination as they had during the era of inoculation. With broader participation, vaccination rates rose significantly across the country. (4)

However, physicians were also cautious about how much authority to relinquish. While clergymen and church assistants were seen as effective in spreading information and administering basic parts of the vaccination process, physicians worked to preserve control over more specialized tasks, such as handling the lymph or training others. (17) This division of labor reflects ongoing boundary negotiations between professional and community-based actors in public health, but more hands were necessary, as Sweden had a limited number of physicians. In 1805, there were only 281 doctors available to serve the entire nation, making the reliance on non-medical vaccinators absolutely essential. (18) While this decentralized model helped facilitate widespread immunization, it also introduced new challenges, particularly in urban centers, where traditional parish networks had less social influence. (17)

Figure V.4.1. The Administration of Vaccination in Sweden, started in 1804 completed in the 1850s



Source: Norrman, R. (1979). Prästerna och vaccinationen. En regional undersökning avseende Uppsala län 1811-1820. *Kyrkohistorisk Årsskrift 1979*, pp 105-06. *Kongl. Collegii Medici Kungörelse, om wissa föreskrifter och underrättelser til Vaccinationens almännare och säkrare befrämjande i riket. Med kongl. Maj:ts nådigste samtycke. Gifwen Stockholms slott den 14 Julii 1810.* Stockholm 1810. Kongl. *Maj:ts nådiga reglemente för vaccinationen i riket. Gifwit Stockholms slott den 6 mars 1816. Stockholm 1816. Kungl. Maj:ts Instruction för provinsial-läkare i riket. Gifwen 13 Juni 1822.* Stockholm 1822. *Kongl. Sundhets-Collegii till Kongl. Maj:t inlemnade underdåniga förslag till förnyadt Nådigt Reglemente för skydds-koppympningen i Riket.* Stockholm 1852.

392

Figure 1. *Administrative structure for vaccination in Sweden, developed after 1804. The State Church played a central role in implementation and outreach. (4)*

1.3.4 Houses of Horror or Hope: the Historical Version of Vaccination Clinics

As Sweden's cities expanded, so did the need for centralized vaccination facilities, since clergy had less influence in bigger cities, such as Stockholm. To meet this demand, the

government established vaccination houses, state-funded institutions, to be able to systemize the immunization and increase vaccination rates. (3)

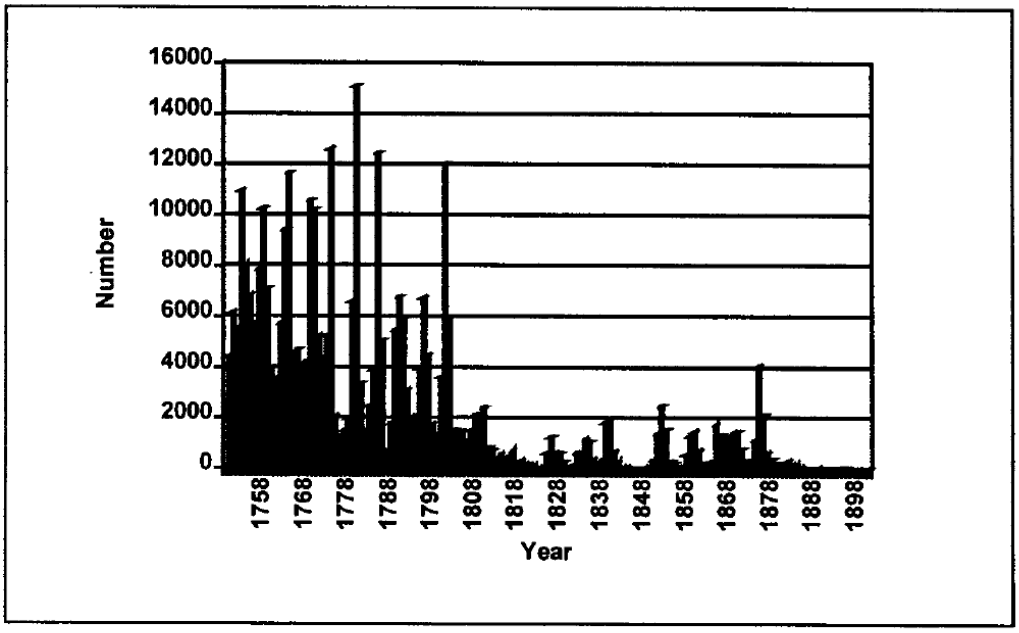
The vaccination houses quickly became criticised by the people. In 1804, only 10% of children in Stockholm were vaccinated compared to 40% in rural areas, a gap partly explained by underreporting, as some physicians vaccinated outside official institutions. Parents were concerned about the mandatory two-week stay for children for isolation purposes, as they did not feel confident enough that someone else would look after their children. For wealthier families, it was another concern: they did not like the thought of mixing their children with working-class children. (3)

Public trust was further decreased when the Vaccination Houses also were used to care for smallpox patients. Similar hesitations surrounded hospitals, where families often preferred to care for sick relatives at home rather than risk infection in institutional settings. Despite these challenges, vaccination efforts by the authorities continued. In 1805, the Medical Board declared that all seasons were fit for vaccination, a small but symbolic step in expanding access to preventive measures all year-round. (4)

1.3.5 When a New Law is Life-Saving

In 1816, Sweden became one of the first countries in the world to make vaccination compulsory for all children before the age of two. The law, that will be explained in subchapter 1.4.3, was advocated by both physicians and clergy and was in the beginning accepted with little public opposition. (3) To ensure compliance, vaccination records were systematically reported from the priesthood and vaccination houses to the Medical Board, who was responsible for the national immunization report to the government. (4) The long-term vision of smallpox eradication was already being discussed as early as 1802, when the Dr. Hedin opinion that vaccination was one of the greatest inventions ever and that the disease could be eliminated. (20) The public health impact of these efforts became clear in the decades that followed. In Sweden, smallpox caused an average of 1,914 deaths per million between 1792 and 1801. This number dropped to 623 per million in the decade following the introduction of vaccination (1802–1811), and to just 133 per million in the following decade (1812–1821). (21) Another source claims numbers of reported deaths from smallpox from about 12 000 in 1800 to only 11 in 1822 It shows that the deaths decreased even before compulsory law, but even more significantly after the introduction. (10)

Figure VI.1. Total number of deaths from smallpox in Sweden 1749-1900



Source: Sköld, P. (1994). Från fruktad farsot till sällsynt sjukdom. Smittkopporna i Sverige 1750-1900. *Nordisk Medicinhistorisk Årsbok 1994.* Södertälje, p 93.

Figure 2. *Number of reported smallpox deaths in Sweden, 1758–1898. A sharp decline began with the introduction of vaccination in 1801. (4)*

1.3.6 Money, Money, Money: Financing the Vaccination System

At the start of the vaccination era, only physicians were financially compensated for their work, while other vaccinators, such as church assistants and midwives only received medals or public recognition. (22) The majority of vaccinations were carried out by non-physicians, particularly in rural areas. This unequal system led to growing dissatisfaction as vaccinators outside the medical profession also began asking for payment. (4)

The financial budget for vaccination was maintained through state contributions, church resources and local collections. A vaccination fund had already been established in 1804, generating an annual income of 252 Rdr, which helped cover the costs associated with vaccinations. However, the most significant change came on December 9, 1812, when financial rewards were officially extended beyond physicians. At this point, the remaining 278 Rdr of the total 1200 from the vaccination budget were allocated as monetary rewards

not only for doctors but also for non-medical vaccinators who had demonstrated outstanding efforts. (22) This move acknowledged the increasing role of non-physicians in vaccination efforts, ensuring wider participation in Sweden's immunization campaign. After continued pressure, the Medical Board decided in 1813 that all vaccinators, regardless of occupation, should receive compensation. (4)

Further reforms followed throughout the 19th century. In 1828, the Royal Office allowed more individuals to apply to become vaccinators, though certification remained mandatory. In 1833, fines were introduced for vaccinators who failed to fulfill their duties. In 1853, a new law allowed vaccinators to charge patients for their services. In 1897, the Royal Office ruled that vaccinators should receive a small fixed payment per vaccination, while vaccinations for the poor were to remain free of charge. (4) To further increase vaccination rates, in some districts, those who rejected vaccination would lose their support for seeds, and suddenly everyone showed up for their appointments. Moreover, the Reverend of a parish called Kubby was so sure of the success of the method that he offered 100 Rdr to anyone who could prove anyone getting infected after being vaccinated. (3)

As vaccination efforts expanded and financial incentives were introduced, physicians, who had once held a monopoly over immunization, now faced growing competition from non-medical vaccinators. Physicians started lobbying for stricter control over who had the right to vaccinate, perhaps one of the first anti-vaccination movements? (4)

1.3.7 Re-gaining Power as a Physician: Medical Control and Professional Conflict

The huge involvement from the priesthood and local governments created concerns among doctors who feared their professional authority was being weakened. Ironically, they needed the support from non-medicals to reach their public health goals. (17) For the physicians, vaccinations were seen as a win-win situation; not only did they significantly reduce mortality rates, but it also provided a stable source of income. However, as vaccinators increased beyond their control, the doctors found themselves competing with the non-physicians. By the 19th century, an estimated 2,000–3,000 vaccinators were operating in Sweden, including midwives, clergy and other assistants. To reassert their dominance, physicians formed alliances and lobbied authorities, emphasizing their expertise and the need for stricter medical control. Despite these efforts, they failed to regain exclusive control over vaccination throughout the 19th century. (4)

Still, physicians were unwilling to accept their non-exclusivity. By the 1890s, their focus shifted to restricting the role of midwives, who had become more important in the vaccine program. In 1890, physicians publicly criticized midwives for performing vaccinations without formal certification, arguing that proper training was necessary to ensure safety and effectiveness. In response, midwives defended their role, insisting that their existing medical education was sufficient. By 1896, physicians had nearly succeeded in securing control over vaccination procedures and their organization. Although they never fully reestablished a monopoly, their push for stricter regulations on who could administer vaccines gradually restricted the role of non-physician vaccinators. (4)

As for public health reasons, it was fortunate that the doctors did not reclaim their monopoly instantly. Midwives and church clerks were essential to Sweden's early vaccination campaigns, especially in rural areas with limited access to physicians. Figures like sexton Johan Wård in Heds parish vaccinated children for decades, while midwives such as Katarina Fröman and Florentina Andersson led revaccination efforts during the 1877 smallpox outbreak in Arboga. These non-physician vaccinators were often publicly rewarded, Fröman, for example, received a 20 SEK prize in 1879. However, a 1916 law shifted authority back to the medical profession by banning all non-physicians from vaccinating, with fines up to 200 kronor for violations. (23) In 1917, midwives were banned from performing vaccinations, they were only allowed to do the post-14-day inspection to determine if the vaccination was successful. (24)

This power battle reflected more than just questions of competence, it was a negotiation over the right to define and deliver medical truth in society. Physicians wanted to reclaim their monopoly at a time when their legitimacy depended not only on science but on public trust and political influence. (17)

1.3.8 The Smallpox Vaccine Implementation, Success or Mess?

The early implementation of vaccination in Sweden was built not only on medical innovation but on the creation of a broad social, religious and administrative network that enabled acceptance throughout the whole country. Strategic collaborations with the clergy, the opening of vaccination houses, compulsory vaccination laws and financial incentives helped Sweden to become probably one of the most vaccinated countries around the world.

The national public health campaign against smallpox was not without tension. Conflicts over professional authority, particularly between physicians and non-medical vaccinators, revealed early struggles over who could define and control public health practices. It seemed like doctors themself were the first anti-vaccination group, since their lobbying for exclusivity amongst the vaccinators could have been a threat to the whole immunization program. As many hands as possible were needed to conquer smallpox.

1.4 The Road to Compulsion: State Strategies to Enforce Smallpox Vaccination and Counteract Hesitancy

1.4.1 Local Control and Regulation

In the early 1800s, Swedish authorities began taking serious steps to organize and expand vaccination. In 1804, a directive was issued requiring county governors to appoint individuals responsible for carrying out vaccinations, which often included church clerks and midwives . A year later, local authorities in Stockholm introduced fines for those who failed to report completed smallpox vaccinations. (4) By 1810, physicians pushed for stricter medical control. They suggested that only certified medical personnel should be allowed to vaccinate and proposed fines for non-certified individuals. However, this faced pushback from the clergy, who were still largely responsible for administering vaccines (22). There were also proposals for vaccination certificates to be able to marry or go to school, but these were rejected by the Royal Office. (22) Between 1812 and 1886, some local regions and churches implemented compulsory vaccination policies at their own initiative, issuing fines to parents who failed to vaccinate their children. Already in 1812, County Governor Berndt Fock of Uppsala proposed a national law to the Medical Board to make vaccination compulsory. (4)

1.4.2 The Parliamentary Debate of 1815

The 1815 parliamentary debate that led to the mandatory vaccination law was a huge milestone in Swedish public health work. A petition raised from the nobility led to a national discussion across all four estates in the parliament: Nobility, Clergy, Burghers and Peasants. Doctors belonged to the estate of Burghers and opinions varied between the groups. Reverend Ek supported the law, using arguments grounded in the mercantilist views: Sweden needed more children to survive infancy in order to grow its labor force. He suggested tax reductions

for families who vaccinated all their children, and completely tax-free if more than five children were vaccinated. He also pointed out that physicians were underpaid for their work. (4)

By contrast, Dr. Rosenschöld, the first physician to administer vaccination in Sweden, opposed a strict compulsory law. He feared it would provoke greater resistance. Instead, he advocated for indirect incentives, such as requiring vaccination certificates to attend school or rewarding large vaccinated families with reduced taxes. He also questioned why the state focused on saving children from smallpox only to let them die from other preventable causes. Other voices, such as Dr. Rosenstein, argued that the Royal Office could no longer use the excuse of lacking vaccine lymph, as the supply issues had been resolved. David Schultz von Schultzenheim, a leading member of the Medical Board, stated that “the state must act as a guardian, at least when fools and reluctant persons were involved”. (4)

The Committee for Petitions and Economy supported the suggested law, claiming that “it was both the privilege and duty of theState to protect its inhabitants from infectious disease”. Despite concerns, the estates of the nobility, burghers, and peasants voted to approve the compulsory vaccination law, although the clergy voiced strong opposition due to the heavy administrative burden on the parishes. (4)

1.4.3 The Vaccination Law of 1816

In 1816, Sweden officially introduced compulsory vaccination for all children under two years of age, becoming one of the first countries in the world to implement a national immunization law. (4) Only Bavaria (today a region of Germany), Denmark, and Bohemia (today a region of Czech Republic) were faster; their laws were established respectively in 1807, 1810, and 1812. (10) The King rejected the clergy's complaints regarding and the idea of tax incentives but supported the main parts of the proposed law. (4)

The law allowed only certified vaccinators to administer vaccinations, except during epidemics, when registered individuals could step in. All unvaccinated individuals were to be recorded, and families that refused vaccination were to be fined. Those who could not pay the fine risked prison sentences. However, in practice, these fines were rarely enforced, and the law functioned more as a deterrent. (4)

That same year, the Medical Board introduced new measures for infection control. If smallpox appeared in a home, a sign reading “here is infection” had to be posted. Funerals were to be held the same day as death, and social gatherings were banned following a passing. Ships arriving from epidemic regions were placed under quarantine. (4)

While the 1816 law marked a significant step in public health governance, its success depended not just on top-down enforcement but on earlier efforts to build social trust. The groundwork laid by clergy-led communication and voluntary compliance helped make the transition to legal compulsion smoother and more socially acceptable. (17)

1.4.4 Revisions of the Vaccination Law

Vaccination was now enforced by law, and in 1817, the Health Board suggested that the poor should carry health passports. Those who could not show a vaccination certificate should be vaccinated immediately. (3) By 1836, the Medical Board recommended revaccination every 15 years, after increased smallpox deaths, which raised concerns that immunity might not last for life. Although revaccination was never made mandatory, except for military recruits, it became recommended for long-term protection. (4)

In 1853, the regulations were tightened with a requirement for vaccination to attend public schools. (25) In 1857, local health boards were formed in towns to coordinate sanitation and health education. By 1874, these boards became mandatory nationwide, typically led by town physicians. This was in response to the rapid urbanization and industrialization in Sweden, which had led to unhealthy conditions and high disease burdens in growing cities. (18)

Several times, during the 19th and 20th centuries, the Medical Board and the government instead proposed that the law, due to poor compliance, should be further tightened. However, such proposals were also rejected. The Parliament feared that stricter regulations would undermine public trust and have the opposite effect to what was intended. (25)

1.4.5 Exemptions from the Mandatory Vaccination Law

By the early 20th century, some individuals sought formal exemptions from the vaccination requirement, appealing to the government on the basis of previous negative experiences. However, Swedish law was strict: only medically confirmed injuries or personal harm were

considered valid reasons for exemption. Scientific reports or statistical data on vaccine side effects were not accepted. Very few exemption requests were approved. (25)

1.4.6 An Obligatory Law That Outlasted the Disease

Despite increasingly organized policies and a structured vaccination system, public opinion about mandatory vaccination fluctuated. During epidemics, vaccine acceptance increased, especially as survivors bore permanent scars from smallpox. However, when case numbers declined, skepticism re-emerged, with some arguing the disease was no longer a serious threat. (4)

Still, the law of 1816 achieved major successes. By the late 19th century, Sweden had one of the most effective and comprehensive smallpox vaccination programs in Europe. The combination of legislation, public health campaigns and professional oversight by the Medical Board gradually normalized vaccination. Most Swedes obeyed the law without protest. (4)

In 1895, Sweden was the first country to eliminate native smallpox. The mandatory vaccination law remained in effect until 1976, when it was finally abolished in response to changing medical ethics and the global eradication of smallpox. (6) In 1980, smallpox was declared eradicated worldwide by the WHO. (26)

1.5 Anti-Vaccination Movements in Sweden from 1850 to 1976

1.5.1 The Rise of the Early Anti-Vaccine Movements 1850-1900

Vaccination remained mandatory throughout the 19th century and organized resistance did not come forth until the 1850s. Early objections were largely as previously discussed, individual concerns, but by the late 19th century, opposition became more structured, influenced by debates on personal freedom, medical skepticism and alternative medicine. The early resistance were driven by medical doubt, political liberalism and concerns about personal integrity. Carl Estenberg, a member of the Nobility, publicly argued that the vaccine lymph used in smallpox vaccination was a form of poison. Soon after, the first formal petition in 1856-58, was sent to the Swedish parliament demanding the abolition of the mandatory

vaccination law. Among its supporters was Carl Berglund from the Burgher class, who strongly opposed state interference in private health decisions. He argued that “that it was not the privilege of the State to force mothers to inoculate a matter into the bodies of their children, which they believed was of more danger than use.” and insisted that vaccination should be voluntary. (4)

1.5.2 Alternative Medicine Instead of Vaccination: Homeopathy and Hydropathy

These early objections were also influenced by a growing interest in alternative medical methods. At the time, some Swedes were turning to homeopathy and hydropathy, both of which claimed that smallpox was less threatening thanks to their modern treatments. In the 1860s, Steffan Creutz, a member of the Nobility, submitted another petition against mandatory vaccination. He argued that vaccines could transmit other diseases and that every individual had the right to accept or reject medical treatment. Only two members of the Burgher class supported his proposal, though some expressed concern that vaccination contributed to a decline in physical health among military recruits. (4)

By the 1870s, the anti-vaccination movement in Sweden had gotten more attention, with public debates now reaching broader audiences through the press. In 1874, the first official anti-vaccine publications were released. Several articles published in the daily paper Aftonbladet accused physicians of withholding essential information about the prevention and treatment of smallpox. One of the most prominent voices in this debate was Dr. Adolf Fredrik Melander, a physician whose arguments were heavily influenced by homeopathic ideology. He claimed that smallpox was not a disease to be eliminated, but rather a natural process of purification within the body. In his view, vaccination interfered with this process and disrupted the body’s natural ability to expel illness. (4)

In Stockholm, vaccine refusal became widespread, and by 1872, vaccination rates in the capital had dropped to just above 40 percent, compared to nearly 90 percent in the rest of the country. Concerned about the risk of a major outbreak, the city's chief physician, Dr. C. A. Grähs called for tougher enforcement measures. A large-scale epidemic in 1874 ultimately shocked Stockholm's residents, where 1,206 deaths occurred in a population of 136,000, and in the county, with over 4,000 deaths and a national mortality rate of 940 per million. This resulted in a wave of vaccinations, over 107,000 children were vaccinated which was about about 81 percent of all births, and brought an end to future major outbreaks. (27) (28)

During the 1880s and 1890s, Per A. Siljeström, a journalist and one of the most vocal anti-vaccination figures of his time, petitioned against the mandatory vaccination law. He argued that it was based on an unverified scientific hypothesis. Siljeström claimed that vaccination had no measurable effect on smallpox mortality and stated that other infectious diseases had increased following its introduction. He was defending personal freedom, which he believed outweighed the state's right to mandate public health measures. However, his claims were rejected by the authorities and many critics suggested that his opposition was rooted more in provocation of government control than in scientific facts. (4)

1.5.3 When the Opponents Made Sense

A major test of public trust came with the Malmö smallpox outbreak of 1932. Following a citywide vaccination campaign, a significant portion of the population experienced adverse effects and four individuals died after showing signs of central nervous system complications. The public raised serious concerns about vaccine safety and medical experts themselves were divided over how the vaccine was produced and how its contents should be regulated. The National Bacteriological Laboratory came under inspection, but those responsible resisted cooperating with investigations. This institutional opacity deepened public mistrust and highlighted how vaccine hesitancy could emerge not from ignorance or ideology, but from firsthand experience of medical failure and lack of transparency. (29)

1.5.4 The Vegetarian and Natural Health Movement 1900-1976

As the 20th century approached, vaccine resistance in Sweden began to evolve into more ideologically and culturally driven forms. Influenced by broader critiques of industrial society, modern medicine and institutional control, new movements that combined health ideals with social reform came out. Among these were the vegetarian movement, life reformers and practitioners of natural health, who advocated for harmony with nature through clean eating, fresh air and self-discipline. For these groups, vaccination symbolized an unnatural interference in the human body and a disruption of its natural balance. The vegetarian movement viewed vaccines as part of a larger medical system that conflicted with ideals of bodily purity and personal responsibility. They argued that health should come from lifestyle and discipline and not from state-mandated injections. (30)

Abolishing the mandatory vaccination law became a core political goal by the vegetarian movement. Their views were published in Vaccingranskaren ("The Vaccine Examiner"), a

magazine that was published from 1913-1952, was dedicated to opposing compulsory vaccination and promoting natural health ideals. Activists such as Johan Hansson, active in both the vegetarian and life-reform movements, played a leading role in coordinating petitions and spreading anti-vaccine arguments. Vaccine refusal became more than just a medical decision; it became a cultural and political act, driven by the belief that individuals had the right to protect their own bodies from institutional control. (30) Moreover, Sweden became a parliamentary democracy in 1921, giving both women and men the right to vote, which perhaps could have influenced the peoples mindset towards state enforcement. (31)

1.5.5 Movement that Would not Fade: The Anti-vaccination Movement

The early anti-vaccine movements in Sweden evolved from scattered individual concerns into more organized resistance by the late 19th century. Driven by fears of vaccine safety, faith in alternative medicine and a vegetarian diet, as well as demands for personal freedom. In combination with growing distrust of state control, the opposition to vaccination gained attention across different social groups. Public debates, petitions, and the spread of anti-vaccine publications reflected a change in society where health choices became a bigger part of people's lives. These developments marked the beginning of a more structured and ideological resistance, laying the groundwork for later vaccine skepticism in the 21st century.

1.6 Arguments Against Vaccination and Inoculation from 1753 to 1976

Although smallpox vaccination was widely recognized as one of the most significant breakthroughs in public health, it was never universally accepted in Sweden. Even during the early decades of the vaccination campaign, many children remained unvaccinated, reflecting persistent doubt, unwillingness, and opposition among parts of the population (4). In this subchapter, we will go through the major arguments against immunization.

1.6.1 Religion and Fatalism

For some, religious and fatalistic worldviews played a significant role. By Christians, illness was perceived as a divine test or punishment, and vaccination was seen as interfering with God’s will or the natural order. This belief, though more prominent in the 18th century, lingered into the 19th. For example, Brita Gustafsdotter, said that getting vaccinated was a sin

and that she was speaking words of God. She also spread these messages through pamphlets in 1818, that had a negative impact on vaccination rate in her county Höglyckan. (4)

1.6.2 Rumors, Misinformation and Folk Beliefs

Misinformation also played a critical role. In rural communities, rumors about vaccination often spread informally. Some women warned neighbors that vaccination could lead to illness, sterility or other harms. Widespread fears that vaccines might transmit diseases such as syphilis, tuberculosis, or other childhood illnesses made many parents hesitant to vaccinate their children. (4)

Some people had difficulty distinguishing smallpox from other diseases that caused rashes and fevers, such as chickenpox or impetigo. This led to misattributed vaccine hesitancy. Physicians like Dr. Rosenschöld attempted to correct misunderstandings through notices in the daily press. (17)

Distrust was often directed not just against vaccination itself, but against medical practice in general. In rural areas, especially, doctors were sometimes viewed with suspicion as outsiders and local traditions of natural healing remained strong. Remarkably, other unrelated rumors in the historical time, such as the belief that eating potatoes could cause syphilis, reflect the broader environment of medical skepticism. (17)

1.6.3 Medical Failures and Poor Implementation

Practical failures also contributed to vaccine hesitancy. Many early vaccinations were unsuccessful due to unskilled vaccinators, poor-quality vaccine lymph, or improper technique. These failures damaged public trust and fueled tensions between physicians, midwives, and clergy, each competing over who was "qualified" to administer vaccines. (4)

1.6.4 Institutional Mistrust and Self-Sabotage

In urban areas, mistrust of institutions such as vaccination houses contributed to further resistance. Parents were often reluctant to leave their children in official care centers for the mandatory two-week observation period after vaccination. In some cases, families even sabotaged vaccinations by reopening the wound to let the lymph leak out, allowing them to appear compliant with the law while avoiding actual immunization. (4)

1.6.5 Personal Tragedies and Emotional Arguments

Many anti-vaccine advocates also relied on personal stories and emotional appeals to support their views. Individual cases of alleged vaccine injuries were often cited in speeches, petitions and public letters. One of the earliest such examples came from Carl Estenberg, who claimed that vaccination had caused his child's death. Similarly, Siljeström often referred to stories of children who had allegedly died after vaccination, though never his own, as a way to reinforce his arguments. Another man, Rosenberg, reported that his son's rickets and other chronic health problems were caused by vaccination. These emotional narratives significantly shaped public perception and contributed to persistent vaccine hesitancy. (4)

1.6.6 Ethical Concerns: Animal and Human Rights

In the 20th century, concerns about animal welfare were also expressed, particularly regarding the treatment of calves used for vaccine production, as well as criticism of vaccine testing conducted on hospital patients and children. Animal welfare concerns are intertwined with growing human rights discussions, reflecting broader anxieties about exploitation and medical ethics. (25)

1.6.7 Political Ideology and Civil Liberties

Resistance to vaccination was also linked to broader political ideologies. Critics argued that compulsory vaccination violated personal freedoms and bodily autonomy. Particularly among liberal reformers, vegetarians and life-reform movements, vaccination symbolized unacceptable state intervention into private life and the human body. Here, health seemed to become a matter of individual responsibility rather than government mandate. (30)

1.7.8 Vaccination Resistance Will Remain

The resistance to vaccination and inoculation in Sweden arose from a variety of deeply rooted fears and misconceptions. Religious fatalism, rumors and mistrust of new medical practices shaped much of the early skepticism. Over time, practical failures such as poorly executed vaccinations, self-sabotage and emotional stories of vaccine injuries reinforced public doubts. Later, new concerns emerged, including ethical criticisms regarding animal rights, human experimentation and political arguments about personal liberty and bodily autonomy. These developments show that vaccine hesitancy in Sweden was not static. Understanding this

historical evolution helps explain why vaccine resistance adapted to new contexts rather than simply disappearing. It highlights that public trust in vaccination is built and lost, not only through science, but also through cultural, emotional and political dynamics.

Chapter 2: Contemporary Analysis of Vaccine Implementation and Hesitancy from 1998 to 2023

2.1.1 Introduction of Modern Analysis

While vaccination is regarded as one of modern medicine's greatest achievements, it has never been spared from skepticism. In the 21st century, vaccine hesitancy has taken new forms, shaped not only by concerns about safety and side effects but also by broader social, cultural, and political factors. In contrast to earlier periods when hesitancy was often driven by religion or suspicion of new inventions, modern resistance is frequently linked to personal autonomy, institutional distrust and the rapid spread of information and misinformation on digital platforms. (5) (4) During the COVID-19 pandemic, these dynamics became especially visible. Even in the Nordic countries, known for their high levels of public trust and strong health institutions, hesitancy emerged in various forms. In Sweden, vaccine acceptance remained relatively high overall, but concerns about mRNA technology, speed of vaccine development and long-term effects led some individuals to delay or refuse vaccination. Studies also show that trust in government, science and fellow citizens played a decisive role in vaccine decision-making. (5)

This chapter explores the development of vaccine hesitancy in Sweden during the modern era, particularly throughout the COVID-19 pandemic. It examines how fears and skepticism surrounding vaccination were shaped by new considerations such as the fast spread of wrong or misleading information on the internet, the rise of conspiracy beliefs and the growing role of personal identity in health decisions. This knowledge, in combination with the historical experiences regarding vaccine hesitancy, could give us valuable insights about immunization towards future infectious diseases.

2.1.2 The Wakefield Era: What Happens in the States does Not Stay in the States

Although vaccine skepticism has historical roots, the modern wave of organized hesitancy gained significant momentum in the late 1990s following the publication of a study by British physician Andrew Wakefield. The 1998 paper, published in *The Lancet*, falsely claimed a link between the MMR (measles, mumps, and rubella) vaccine and autism in children, based on a small and scientifically incorrect sample of just 12 cases. Despite lacking evidence, the study received widespread media attention and triggered concern among parents globally. It was fully retracted in 2010 after being exposed for ethical violations and data manipulation, (32) and later labeled fraudulent by the *British Medical Journal.* (33) Nevertheless, its impact continued. Wakefield's claims helped catalyze modern anti-vaccine movements, particularly in the UK and the US, and contributed to a growing climate of mistrust, amplified through growing digital platforms. (34) (5)

While Sweden did not experience the same sharp decline in vaccination rates seen in some other countries, the effects of international vaccine skepticism still left a mark. Swedish parents increasingly involved themself in vaccine-critical discussions in online platforms, particularly in social media threads and forums such as Facebook and Flashback, where personal stories and alternative health views were frequently shared. (5)

Sweden did not experience a drop in MMR vaccine coverage after the Wakefield study, but concerns about the vaccine safety gradually spread among some Swedish parents. A 2020 national study showed that the MMR vaccine was among the most commonly questioned or refused childhood vaccinations, second only to HPV. Among those who expressed hesitancy, the most reasons were fears of adverse events, negative media or online information and a general lack of reliable sources, even though there are many. While MMR vaccine uptake remains high overall, a 96% coverage from dose 1, these doubts reflect the effects of misinformation from the Wakefield era that is sustained through digital media. (35)

2.1.3 The Swine Flu Vaccine, a Pig in the Poke?

In 2009–2010, Pandemrix was used as a vaccine against influenza A(H1N1) and around 5 million Swedes were immunized. After the vaccination, about 150-200 children and young adults in Sweden developed narcolepsy, an autoimmune disease. The symptoms usually appear during the teenage years, but some become ill as children. The symptoms are fatigue,

persistent daytime sleepiness, and involuntary sleep attacks. The disease cannot be cured and it is still not clear what substance in the Swine flu vaccination that caused the disease. (36)

2.1.4 Background of the SARS-CoV-2 Virus and the COVID-19 Pandemic

The disease COVID-19, caused by the SARS-CoV-2 virus, was one of the most serious global health threats in modern history. It was first detected in China, in the city Wuhan, in December 2019 and the virus quickly spread across the world due to its high transmissibility, primarily through respiratory droplets and airborne transmission. COVID-19 commonly causes symptoms such as fever, dry cough, fatigue, and loss of taste or smell. In more severe cases, it led to pneumonia, respiratory failure, blood clots and multi-organ failures. Elderly individuals and those with pre-existing conditions were particularly vulnerable to serious illness and death. According to the WHO the COVID-19 pandemic resulted in about 7 million confirmed deaths globally, but due to probability for underreporting, the true number may be 20 000 million. (37) In Sweden from March 2020 to March 2022 16,645 people died, meaning 159.8 people per 100,000 of the population. (38) The pandemic was officially declared over by WHO on May 5, 2023, but the virus remains in circulation and as a threat. (39)

2.1.5 The Three Musketeers: The Major COVID-19 Vaccines

During the COVID-19 pandemic, several different vaccines were used for mass immunization in Sweden. All injections are administered intramuscularly in the deltoideus muscle in the arm. (40) One of the most notable developments was the introduction of a new vaccine technology based on messenger RNA (mRNA). This technology enables the body to produce a harmless piece of the virus, specifically the spike protein, based on genetic instructions delivered by the mRNA. The spike protein is the part of the virus that allows it to enter human cells. Once this protein is produced, the immune system recognizes it as foreign and responds by creating antibodies, which help protect against severe illness. One of the mRNA vaccines used in Sweden was Comirnaty, developed by Pfizer and BioNTech. (41) Another widely used vaccine during the pandemic was Spikevax, developed by Moderna, which also utilized mRNA technology. (42) In addition, the viral vector vaccine Vaxzevria, produced by AstraZeneca, was broadly administered in Sweden. However, this vaccine has since March 2024 been discontinued. (43)

2.2 The COVID-19 Vaccination Program in Sweden from 2020 to 2023

2.2.1 Coordination of the COVID-19 Vaccines

The first COVID-19 vaccination in Sweden was given on the 27 December 2020 to Gun-Britt, 91 years old, administered by nurse Ann Louise Broberg. It was given at a nursery home in the small town of Mjölby. (44) Sweden's rollout of the COVID-19 vaccination program was totally voluntary and expanded rapidly throughout 2021. (45) The program was coordinated and funded by the Public Health Agency (FHM) of Sweden, formerly led by the state epidemiologist Anders Tegnell, and was an independent public authority under the Swedish Government responsible for public health issues. FHM has the national responsibility to control infectious diseases and is working closely together with the governmental agencies, regions and municipalities. (46,47) Immunization was offered at health care clinics, vaccination centers, hospitals and temporary mass-vaccination halls were established all over the country. Vaccination was also administered in schools, in churches, in mosques, at public events and workplaces, amongst others. (48) Even the famous Nobel Prize hall in Stockholm was in 2021 used as a mass-vaccination venue. (49)

Priority was given to high-risk groups, including the elderly, individuals with certain medical conditions, and healthcare workers at increased risk of exposure to COVID-19. This approach differed from historical smallpox vaccination efforts, where children were prioritized due to their increased vulnerability to the disease, whereas in the case of COVID-19, the elderly were considered most at risk. The virus simply had a new target population. (17) (50) By July 14, 2021, all adults over the age of 18 were eligible to book vaccination appointments in all regions of Sweden, and by November of the same year, it was extended to everyone over 12 years of age. Booster doses, meaning the third dose were gradually offered to all adults beginning in the autumn of 2021, typically five to six months after their previous dose. (48) High-risk groups, such as individuals over 80 years of age or those aged 65 and older living in nursing homes, are continuously offered annual booster doses of the COVID-19 vaccine. (50)

2.2.2 Assisted Nurses and Pharmacists, the New Bell-Ringers?

During the COVID-19 pandemic, the demand for vaccinators increased rapidly, leading some healthcare companies in Sweden to delegate the task of administering vaccines to assistant

nurses. This raised concerns from Ami Hommel, Chair of the Swedish Nurses Association, who highlighted risks to patient safety and emphasized that assistant nurses might lack the necessary medical knowledge to respond to patient questions effectively. To meet the staffing needs, many nurses were recruited from non-clinical roles, and even retired nurses returned to service. Hommel stressed that Sweden has the capacity to rely on certified healthcare professionals, such as registered nurses and physicians, for administering vaccine doses. However, she acknowledged that assistant nurses could still play a valuable role in vaccination centers by supporting patients and providing logistical assistance. (51)

Nurses obtained the right to prescribe vaccination against COVID19, something before the pandemic was done by district nurses or doctors. As for today, to become a midwife, an undergraduate study in nursing is necessary, this was changed in 1951. Midwives are therefore allowed to vaccinate again after the discontinuity in the beginning of the 20th century, as mentioned in subchapter 1.3.6. All nurses were offered training to be able to administer COVID-19 vaccine doses and to be able to inform about side-effects and common related questions. (40,52) (53) (24)

In the end of october 2020, the chief pharmacist Fredric Boström wrote a blog article published on the Swedish Pharmacist Association Webpage, discussing if pharmacists should be allowed to vaccinate, since this was already a practice in other european countries. (54) As this study conducts, no information regarding if this was put in practice was found.

2.2.3 Protecting the Weak, a Need to Keep the Cash Coming and Society Running

Throughout the pandemic, All COVID-19 vaccination doses were free of charge, for all citizens in all parts of the country. (45) Today, only certain risk groups can get the vaccination for free, others have to pay but the cost may vary in different regions. (50) Similar to the smallpox era, where the cost also could differ, but one thing always remained the same: free of charge for the most vulnerable. Initial COVID-19 vaccination efforts not only prioritized protecting the weak, it was also ensuring societal function by offering health care workers injections at their work site, to ensure effortless immunization to protect their work availability and health. This shows that the mercantilist views of public health remain similar to the 19-century when the debate of mandatory law was ongoing: the society needed manforce to function and to have further financial growth. (4,50)

2.2.4 Multi Medium, the Modern Marketing Campaigns

On December 17, 2020, the Swedish government assigned the Public Health Agency, the Medical Products Agency, the Swedish Civil Contingencies Agency (MSB) and the National Board of Health and Welfare to carry out coordinated national information campaigns about COVID-19 vaccination. The agencies collaborated with the County Administrative Boards, regional authorities, the Swedish Association of Local Authorities and Regions and others. Sweden launched an extensive national communication campaign on COVID-19 vaccination, primarily targeting the general public, to ensure broad public engagement and informed vaccine decision-making. The campaigns had also tailored materials for groups with lower vaccination coverage, such as individuals born outside Sweden, younger adults, and socioeconomically disadvantaged populations. The messages emphasized both community protection as in herd immunity and protecting the weak, alongside concrete answers to frequently asked questions. Media channels included social media platforms, radio, newspapers, outdoor screens, but also targeted podcasts like Vaccinpodden, which addressed concerns among hesitant groups such as younger males. (55)

The effectiveness of these campaigns was carefully monitored. Surveys indicated that a majority of the public had encountered the campaign materials and found them trustworthy and clear. Notably, the campaigns improved vaccine confidence even among those previously unvaccinated, many of them not being born in Sweden: for example, 24% of those reached through vaccine information in their mother tongue, said they felt more positively toward vaccination afterward. These coordinated and adaptive marketing strategies proved vital in building public trust and increasing vaccine uptake, especially as attitudes evolved throughout the pandemic phases. (55)

2.2.5 Money Matters: Financing the COVID-19 Vaccination System Contemporary

In 2022, the Swedish government allocated nearly 200 million SEK to the regional authorities to support broader efforts such as expanding vaccination capacity and strengthening communication initiatives during the year. In addition, regions continued to receive compensation of 275 SEK for each administered dose. For first and second doses given to individuals over the age of 18, the reimbursement was increased to 325 SEK. The government also earmarked 4 million SEK specifically for nationwide communication efforts coordinated through the health platform 1177.se. (56) In year 1812 the vaccination budget

was 1200 Rdr which is equivalent to around 170 000 SEK in 2025 value, also including costs of vaccination material and compensations for vaccinators. (57) The population in 1812 was around 2,4 million people whereas in 2024 10,6 million. (58) This shows how Sweden's vaccination funding has evolved from modest, centralized budgets in the 19th century to large-scale, regionally distributed investments in the 21st century, reflecting not only population growth but also the increased scale of modern public health systems.

2.2.6 Vaccination Coverage During the COVID-19 Pandemic

By the end of September 2021, approximately 77,8 percent of the Swedish adult population had received 2 doses of vaccine, in comparison to 72,6 percent of the population in the EU. (48) By December 2021, over one 21 million doses from different vaccine companies had been delivered to Sweden. The majority of the supply came from Pfizer/BioNTech with 72 percent, followed by 22 percent from Moderna and 8 percent from AstraZeneca. Sweden's vaccination strategy was in tight collaboration with the European Union that ensured the extensive number of vaccines. (45).

The Public Health Agency of Sweden (FHM) provides regional authorities with detailed analyses of vaccination coverage. Data on vaccine uptake is reported weekly and published on FHM's official website, also, state epidemiologist Anders Tegnell is holding frequent press conferences in regards to the whole pandemic. In week 37 of 2021, the agency released a report analyzing vaccination coverage by country of birth. The report highlighted that Sweden's 21 regions have different population structures, which explains some variation in vaccination rates across regions. However, the overall pattern is consistent: the highest vaccination rates are found among individuals born in Sweden. (48)

FHM's analysis also shows a correlation between income and vaccination rates, higher income levels are associated with higher vaccine uptake, a difference most notable among younger age groups. Educational level is another important socioeconomic factor. A higher level of education is linked to a higher likelihood of being vaccinated, although this difference decreases with age and is almost non-existent among those aged 70 and above. In other words, for people over 70, vaccination coverage is largely independent of education level. A similar pattern is observed among healthcare, social care workers and migrants, where vaccination rates also correlate with educational background. (48) Additionally, more women are vaccinated in comparison to men. By the end of 2022 82 percent of all men and

85 percent of all women above 12 years old have received their second dose. A study from 2021 reveals that COVID-19 vaccination rates amongst swedes, regardless of gender, age and education level, was 4% percent points higher if being offered 24$ in comparison to no compensation. (59)

In 2022, the vaccination uptake continues to be satisfactory, even though many citizens still have not undergone immunization. As of April 2022, 85 percent of all individuals aged 12 and older in Sweden had received at least two doses of a COVID-19 vaccine, and 63 percent of those aged 18 and older had received three or more doses. Out of Sweden's 10.5 million residents, 1.5 million are under the age of 12, and just over 700,000 people are between the ages of 12 and 17. The group aged 18 and older consists of 8.3 million people, of whom 7.3 million were vaccinated, meaning 1 million was not reached sufficiently by the public health efforts. (60)

At the beginning of 2023 and when the final days of the pandemic was to come, over 95 percent of individuals in the prioritized risk groups had received both the first and second doses of the COVID-19 vaccine. At the same time, the general population aged 12 and older, 86 percent had received the first dose and 84 percent had completed the second. Amongst the risk groups, people with hypertension, cancer, bipolar disorder, chronic liver disease and intellectual disability have lower vaccination coverage, ranging from 42 to 63 percent. (59)

2.2.7 No one Should be Left Behind: How Fall-Out groups Were Followed-up

Despite Sweden's high overall COVID-19 vaccination rates, some groups were in a bigger need of precise public health push than others. While most municipalities and districts in Stockholm County eventually achieved high vaccination coverage, some areas, especially those with high proportions of foreign-born residents and lower socioeconomic classes, initially lagged behind. For instance, as late as August 2021, the Stockholm district of Rinkeby-Kista had just reached a full vaccination rate of 75 percent among individuals aged 65 and older, compared to over 84 percent in the county as a whole, with even higher rates in more affluent areas such as Norrmalm and Östermalm. (61)

To increase the vaccination rates in underprivileged areas, local health authorities implemented targeted interventions, such as vaccination buses, multilingual webinars, community-based info hubs and the involvement of local health informants in areas of need. (61) All regions in Sweden were working with mobile teams and outreach initiatives for both

information and vaccination, as well as easy access drop-in vaccination services in common and public spaces. Through local knowledge and collaboration these activities were effectively implemented at the regional level. Some regions also conducted targeted information campaigns through letters, vaccine appointment invitations, SMS messages or direct phone calls. (56)

Mobile vaccination services are also provided to vulnerable groups, such as people experiencing homelessness or those receiving housing support. Vaccinations take place at shelters, addiction treatment centers, activity centers, the Salvation Army, community houses and through the Church of Sweden. Collaboration also occurs at Migration Agency asylum centers, where health guides provide on-site information alongside mobile vaccination teams. Additional efforts target volunteer centers, housing for unaccompanied minors, and family support centers. (48)

Additionally from 2022, Sweden's municipalities and regions were required to submit written monthly reports to Government Offices, regarding the progress and implementation of their vaccination efforts. (56) These efforts were showing with gradually increasing vaccine uptake in previously under-vaccinated communities, showing that trust-building and tailored communication were essential to reaching the most vulnerable populations. (61)

2.2.8 Exemptions and Formal Objections to the Vaccines

In contrast to the former mandatory smallpox vaccination law, (10) there was no need for formal exemptions required by law for those who did not want to undergo COVID-19 vaccination, as the entire program was voluntary. Unlike countries that implemented vaccine mandates tied to certain employment, public spaces or travel, Sweden relied primarily on public trust, communication and accessibility rather than legal compulsion. As a result, individuals could refuse vaccination without having to submit formal objections or exemption requests, they could just simply not undergo vaccination. Consequently, exemptions were not tracked systematically by FHM, and there was no data collection of refusal rate, only statistical trends in vaccine uptake by age group and region. (45)

2.2.9 Vaccination Passports

In March 2021, the European Commission presented a proposal for a regulation introducing a digital certificate to confirm that the holder had been vaccinated against COVID-19, tested

negative, or recovered from the infection. The regulation was adopted by the Council and the European Parliament in June 2021 and came into effect on July 1, 2021. In Sweden, these certificates are referred to as “Covidbevis” (COVID certificates), and the responsibility for issuing them lies with the Swedish eHealth Agency. (48) The Covid certificates were in Sweden only used for public events, such as concerts and sport competitions. Personal information regarding entrance was never saved for future usage, scanning of the QR-code only showed approval or denial of entrance. These certificates were never mandatory for entering grocery stores, pharmacies, schools or similar. (62) Obtaining a vaccination certificate was never compulsory since vaccination was not enforced. The service was open to all citizens, unlike during the smallpox-era where health passports only were suggested for the poor. (62) (3)

2.2.10 Sweden’s Vaccination Program Did it Again

Sweden’s COVID-19 vaccination program was successful due to fast-acting measures from the authorities, broad public accessibility and a strong public trust. From the very first dose administered in December 2020, national and regional authorities worked closely to ensure widespread availability with targeted outreach. High-risk groups, such as the elderly and healthcare workers, were prioritized, while large-scale public health communication campaigns helped inform the wider population. Through adaptive strategies such as multilingual marketing methods, mobile vaccination units and digital platforms, efforts were made to ensure that no one was left behind. Despite challenges in reaching certain vulnerable groups, the campaign ultimately achieved overall high coverage rates, especially among those most at risk.

2.3 Anti-Vaccination Movements in Sweden from 2020 to 2023

2.3.1 Hesitant and Opposing Groups

Although Sweden’s vaccination program was generally met with high public compliance, the vaccine hesitancy during the COVID-19 pandemic had developed new features of doubt and resistance which will be explored in this subchapter. Vaccine hesitancy, similarly to the years of Smallpox vaccination, did not manifest as mass rejection but rather as a continuum, ranging from cautious acceptance to selective refusal from certain groups. Concerns about

side effects, distrust in institutions and anxieties about new vaccine technologies like mRNA were some of frequently expressed reasons for delaying or rejecting vaccination. (5)

In October 2020, MSB conducted a survey about the upcoming mass vaccinations against COVID-19. The results showed that only 50% of respondents were certain they would get vaccinated, a figure considered alarmingly low. Sweden's national vaccine coordinator at the time, Richard Bergström, expressed concern that the public's trust in new vaccines might have been weakened by the negative experiences related to the Swine Flu vaccination. (63) Fortunately, people's faith in science was restored in time.

According to a report from the Swedish government in 2022 regarding the National Children Immunization Program, most people in Sweden accept vaccination for their children, with an estimated 70 to 80 percent choosing to vaccinate without hesitation. Around 20 percent decide to vaccinate their children, but often express questions or concerns beforehand. A small minority, estimated at only 1 to 5 percent, are completely opposed to vaccination. (59)

In several cases, concerns were not rooted in opposition to vaccination itself, but in fear of adverse effects. For example, among some Arabic-speaking women in Sweden, there were fears that COVID-19 vaccines could affect fertility. These women were often open to vaccination if they had the opportunity to consult a doctor beforehand. However, scheduling such consultations was challenging, which likely contributed to lower vaccination rates. (64) Similar concerns about fertility were also observed among other groups, both men and women, despite no scientific evidence supporting such risks. (65) Other medical conditions were also feared, one anonymous internet user stated “What if diabetes type 1 is one of the side effects of the corona vaccine?” (5)

Lower vaccination rates were also observed among young adults and individuals born outside Sweden. Younger people often believed their immune systems could cope with the virus without immunization. Others cited previous infection and antibody development or expressed distrust in the healthcare system. A general sense of not belonging to a risk group was another recurring argument. Distrust towards the medical healthcare system or a general unwillingness to vaccinate were other arguments opposing vaccination from these groups. (66)

Many people feared that the development of COVID-19 vaccination was too quick and were scared that the vaccine was not tested enough before administered on humans. One

anonymous internet user commented: “No, I’m going to wait a few months, they’ve rushed the vaccine. Plus it doesn’t give 100% protection” another one said “Of course I’m not going to vaccinate. This is the first mRNA-vaccine given to humans”. (5) Although, the scientists did not start from zero. The family of sars-virus has been researched since 17 years when the COVID-19 vaccine was rolled-out. Also, mRNA had in 1994 shown to trigger immune response in mices and extensive testing in trials had been carried out. (67)

Gender differences in vaccine uptake were also notable. As discussed in subchapter 2.2.6, men were more likely than women to forgo vaccination, despite being at greater risk of severe illness from COVID-19. Studies suggest this may relate to gender norms and healthcare behavior; men are less likely to seek preventive care unless facing serious illness, unlike women who are regularly engaged with health services through screenings and maternity care. (68)

Some communities demonstrated vaccine resistance at a deeper ideological level. In Järna, a semi-urban area known for its alternative health perspectives, vaccination rejection was pronounced. Even before the pandemic, vaccination coverage in the area was low, for instance, in one health care clinic only 5 percent of children were vaccinated against measles in 2012, compared to a national average of 97 percent. A physician at Vidarkliniken, a private anthroposophic clinic in Järna, once described measles as “spiritually developmental.” Opinions that seemed to have permeated the small society as a whole in regards to immunization. (69)

2.3.2 When Health Services Became Hell Servants

Furthermore, some healthcare workers also expressed opposition, not necessarily toward the medical intervention of vaccination itself, but rather in protest against the legal restrictions imposed during the pandemic. For instance, the nurse Johan Lenell from Karlshamn, who remained unvaccinated, took part in a demonstration against the COVID certificate in January 2022. His motivation, as he stated, was to stand up for democratic rights and individual freedoms. (70)

In contrast, other healthcare professionals voiced opposition by actively questioning the safety and legitimacy of the COVID-19 vaccines themselves. In 2021, a nurse employed by 1177 Vårdguiden, a public health care platform, in Uppsala was reported for systematically spreading misinformation during phone consultations with patients. The nurse falsely claimed

that COVID-19 vaccines were not properly tested and could themselves spread the virus. These statements, presented as medical advice, led to concerns that symptomatic patients may have been misinformed and misdiagnosed. Region Uppsala suspended the nurse and reported the case to the Health and Social Care Inspectorate (IVO). (71)

2.3.3 Online Forums and Fake News: Today's Petitions and Pamphlets

In today's digital era, vaccine-critical narratives have found growing ground in the online environment. The easy access to networks, amplified the reach by the applications algorithms contributed to their rapid and wide-reaching spread. Unlike earlier periods when anti-vaccine sentiments traveled by mouth-to-mouth and printed media, doubts are today created in real-time across social media platforms, messaging apps and forums. In Sweden, online spaces such as Flashback, Facebook groups, and TikTok were arenas where vaccine skepticism flourished during the COVID-19 pandemic. These digital spaces offered not only information but also a community, a sense of belonging, allowing individuals with doubts to validate their concerns through easy-to-reach manifestations from opposing individuals or groups. (5,30)

One notable case of the rapid spread of misinformation, was the misinterpretation of a study from Lund University which explored the behavior of mRNA in a laboratory setting. The study found that mRNA from the Pfizer-BioNTech vaccine could be reverse transcribed into DNA in vitro*,* in isolated liver cells under lab conditions. This article went viral with over 1.2 million views after its release in 2022, however, this text was lost in translation. In anti-vaccine circles, the study was cited as evidence that the vaccine could alter the human genome. Social media posts falsely claimed that “a shocking new study” from Sweden had proven that Pfizer’s vaccine rewrites human DNA, despite the authors never making such a conclusion. These claims were widely shared on platforms like Facebook and Telegram, increasing mistrust in mRNA vaccines and public health authorities. (5)

However, the spread of misinformation was not always open and straightforward. Much of it operated through ambiguity, irony and emotions rather than direct confrontation with science. Vaccine-related memes, sarcastic headlines, and “we both know what this means” online posts on platforms such as Reddit, allowed people to express vaccine skepticism without openly being against vaccination.. These spaces are managed by users themselves, which builds trust and a sense of belonging, but with the absence of fact-check and platform

moderation. These actions made misinformation more durable and socially acceptable, particularly among younger users and those already critical of institutional power. (5) (66)

2.3.4 A Pandemic, a Growing Paradise for Conspiracy Theories

Conspiracy thinking has long accompanied moments of society, and during the COVID-19 pandemic, it emerged as a significant driver of vaccine resistance in Sweden and across the Nordic region. While some conspiracy claims were rooted in classical anti-elitist worldviews, others blended technological fears, religious interpretations and biomedical pseudoscience. The emotional appeal of these thoughts often outweighed their factual likeliness, particularly on digital platforms where alternative voices gained traction. (5) (72)

According to the MSB, the pandemic revealed the fragility of public knowledge in times of crisis. Since 2020, various conspiracy-driven narratives began spreading, not only to explain the situation but sometimes also to deliberately mislead the public. The WHO referred to this as an "infodemic", a viral spread of misinformation that complicates understanding of both the severity of the disease and the actions needed to fight it. (72)

One widely circulated claim in Swedish vaccine-critical communities was the idea that the COVID-19 vaccines contained microchips enabling population surveillance via 5G technology. A facebook post claimed, written by an anonymous Facebook user:

> *The entire vaccine and pass agenda is 100% satanic. It is slavery and the vaccinated have already been. The vaccinated have already been injected with an operating system. This system can be connected to an app, but even without it, people can be controlled and mind-controlled remotely via 5G.*

Such statements reflected a deep mistrust not only toward pharmaceutical companies but also toward digital infrastructure and the modern state. (5) Other comments interpreted the vaccination campaign in spiritual or apocalyptic terms. A recurring theme framed the vaccine rollout as a satanic plot tied to depopulation: “Blackrock already own the money, they own the banks! The goal of the Plandemic has always been depopulation, by cheating these Mrna injections into as many as possible. De-population”, written by an anonymous internet user. These thoughts are often merged with religious symbolism, picturing vaccines as tools of evil or deception. (5)

Prominent individuals and institutions were frequently named as orchestrators of the alleged agenda. Some online users pointed to Bill Gates and the World Health Organization as dual actors in a plan for global control:

> *I think one should be a little careful before elevating WHOs decisions to some kind of legal precedent. Not a completely transparent organisation. The Gates foundation donates a lot of money to WHO – at the same time as they also heavily invest in mRNA technology.* (5)

These views portrayed health interventions not as altruism, but as cover up for profit and world domination. Similar narratives circulated about Pfizer and Moderna. A post claimed: *"*All Pfizer vaccines will contain the new mRNA-graphen-PAG crap starting this year. Don't take any vaxx if you want to survive*",* from an anonymous Telegram user. Others stated the presence of nanotechnology or even HIV protein fragments in the vaccines, despite no evidence supporting these claims. The fear of hidden ingredients echoed earlier historical fears about vaccination being a form of contamination of other diseases. (5) (4)

Even more elaborate theories emerged about global elites. One user wrote:

> *WEF founder Klaus Schwab writes in his book covid-19: The great reset that he intends to change people's DNA to become part of AI secretly, without letting people choose for themselves, through injections. Where do you stand on that? What would Jesus say about this?*

Another user added:

> *They knew exactly what they were doing and what damage was being caused. Keep in mind that the mRNA vaccine's content and basic shielding ability have been under development for many years and that they are to some extent owned by the American defence – and others. (DARPA if I remember correctly.)*

These messages combined technological speculation with paranoia, picturing vaccines as biopolitical weapons designed by hidden powers. (5)

In the context of COVID-19 vaccination, these beliefs provided emotionally satisfying explanations to a complex reality. For many, conspiracies offered a sense of clarity and control in uncertain times. Despite their implausibility, such thoughts functioned as

alternative frameworks for understanding the pandemic. They allowed vaccine-skeptical individuals to position themselves as informed outsiders, not irrational, but critical thinkers in a corrupted media and political landscape. (5,72)

MSB identifies typical features of conspiracy narratives: the belief that all events are secretly planned, a "pattern" and that these plans are driven by malevolent intentions and that elites or outsiders are plotting against the common good. These stories often portray a world divided into absolute good and evil, with believers casting themselves as awakened truth-tellers. The result is not just skepticism, but a complete rejection of institutional authority and fact-based journalism. This worldview undermines democratic institutions and public trust, while also accelerating radicalization and psychological distancing from mainstream society. (72)

Sweden's experience during the pandemic confirms that conspiracy theories were not only a minority viewpoint but a broader societal challenge. As the MSB report concludes, tackling conspiracy thinking requires more than fact-checking, it demands psychological understanding, empathy and education to rebuild public trust and strengthen our democratic resistance. (72)

2.3.5 Organized Movements: The Doctors Appeal and the Freedom Movement

While vaccine hesitancy in Sweden was largely shaped by individual concerns, emotional narratives and social media discussions, the COVID-19 pandemic also gave rise to more organized forms of resistance.

A letter sent on January 13, 2022, by members of the Bio-Medico Legal Network, comprising nearly 100 Swedish doctors, researchers, lawyers, and academics, urged all members of the Swedish Parliament to vote against extending the COVID-19 emergency law, also called the pandemic law, as well as the use of Covid vaccination certificates. (73) In Sweden the law imposed restrictions to public gatherings such as night clubs, restaurants and concerts, but it never enforced any curfews or actual "lock downs", as seen in many other countries. Additionally, it included recommendations for example about remote adaptations for high school and university students as well as for non-essential workers. (74)

The authors argued that the justification for the law was outdated due to lower COVID-19 mortality rates, widespread natural immunity and the milder Omicron variant. They warned that the continued restrictions infringe on constitutionally protected rights such as freedom of

movement, demonstrations and religion due to restrictions of numbers of participants in sermons. The appeal claimed that these restrictions lacked proportionality and scientific backing. The group opposed the use of vaccine passports, calling them discriminatory and ineffective and emphasized that future efforts should prioritize strengthening health care rather than imposing limitations on society. They concluded by urging Parliament to vote no to any further extension of the pandemic law. (73) Although their objections did not carry legal weight, they gained traction in public debate and served as a form of ideological objection grounded in concerns over bodily autonomy, informed consent and perceived overreach by global institutions. (5)

The most prominent movement in Sweden was Frihetsrörelsen (The Freedom Movement), a loosely structured but highly visible network that emerged in 2020. It became a central platform for conspiracy-driven protest against pandemic restrictions and vaccination recommendations. Founded by activists Filip Sjöström and Max Winter Frånlund, Frihetsrörelsen was initially associated with the international World Freedom Alliance, which positioned itself against lockdowns, mask mandates, and perceived global health "tyranny." During the COVID-19 pandemic the group organized several large-scale demonstrations in Stockholm, some attracting thousands of participants, often in direct violation of temporary laws designed to curb virus spread and vaccination certificates. The movement's largest manifestation occurred in January 2022, gathering over 5,000 attendees despite public health guidelines. (75)

The ideological profile of Frihetsrörelsen evolved quickly. While initially focused on vaccine skepticism and opposition to pandemic policy, the organization increasingly adopted far-right, conspiratorial, and anti-democratic rhetoric. Its leaders compared themselves to victims of Nazi persecution, claimed the vaccine was a "dangerous experiment," and accused Swedish authorities of being part of a globalist plot to control humanity. The group's messaging frequently incorporated antisemitism and borrowed narratives from the American Sovereign Citizen movement, including the belief that individuals could exempt themselves from Swedish law by declaring themselves sovereign living men. (75)

Frihetsrörelsen's strategy combined street protest with digital mobilization. Platforms such as Flashback, Telegram and Facebook were used to organize rallies, sell pseudo-legal documents known as Live Life Claims, and circulate disinformation about vaccines, pandemic law and state power. The group also formed a paramilitary-style body called

Freedom Defence Sweden, presented as a “protection unit” made up of “strong men” defending liberty in the physical world. Symbolism, gendered rhetoric, and spiritual metaphors, such as references to “the army of the third world war” and men “stepping out of the shadows to lead” and “women waiting for men to take the lead” helped attract followers from both anti-authoritarian and extremist groups. In 2023, both founders left the movement but the group still remains active in far right circles. (75)

Frihetsrörelsen is a striking example of how vaccine skepticism can function not only as a public health challenge but also as a gateway into broader ideological mobilization. The group’s rhetoric fused distrust in science with anti-elitism, nationalism and spiritual warfare, showing how public health debates can become entangled with deeply political visions of society, identity and power.

2.4 Arguments Against Vaccination from 2020 to 2023

During the COVID-19 pandemic, opposition to vaccination in Sweden appeared in different forms. Although the majority accepted the vaccine, a variety of arguments were used by those who hesitated or refused. These arguments can be grouped into several common categories, often overlapping with one another.

2.4.1 Medical and Health-Related Concerns

Many hesitant individuals cited fears about the vaccine’s side effects and long-term health risks. Fertility concerns were stated by both men and women, despite the lack of scientific evidence. Young adults often believed their immune systems could handle the virus naturally, or referred to antibodies from previous infection as justification to forgo vaccination. These arguments reflect a desire to protect the body from unknown risks, often intensified by insufficient access to trusted medical advice or cultural beliefs about health. (5,64–66)

2.4.2 Distrust in Institutions and Science

A recurring argument was a lack of trust in health authorities, pharmaceutical companies and the government. Distrust and lower vaccination rates were especially present in communities with a high rate of foreign-born populations and those with lower socioeconomic status. Some groups feared that the COVID-19 vaccination and the mRNA technique lacked enough

research and transparency which further reduced confidence in official recommendations. (5)(43)

2.4.3 Conspiracy-Based Beliefs

Conspiracy narratives played a significant role in vaccine rejection. These included claims that the vaccine contained microchips for 5G surveillance, was part of a depopulation agenda, or involved nanotechnology and hidden ingredients. Influential individuals and organizations like Bill Gates, Pfizer and WHO were frequently blamed as orchestrators of a global plot. These claims framed vaccines as tools for control, deception, or even spiritual harm and often merged technological fear with apocalyptic and religious symbolism. (5) (72)

2.4.4 Personal Freedom and Autonomy

Another major argument was based on protecting individual rights. Individual opponents and groups such as the Doctors' Appeal criticized vaccine passports, emergency pandemic laws and other restrictions as violations of bodily autonomy and constitutional freedoms. Organized movements like Frihetsrörelsen claimed that these mandates undermined democracy and were promoting civil disobedience in defense of personal liberty. (5) (73) (75)

2.4.5 Alternative Health Beliefs

Some groups rejected vaccines based on holistic or spiritual health ideologies. In communities like Järna, connected to anthroposophy, diseases like measles could be seen as part of spiritual development; these existing beliefs amplified the hesitancy in the COVID19-era. These views positioned vaccination as unnatural interference, preferring natural immunity or alternative treatments over medical interventions. (69)

Chapter 3: Psychological and Sociological Drivers of Vaccine Hesitancy

3.1 Introduction

This chapter compares the psychological and sociological factors for vaccine hesitancy in the 18th, 19th and 20th century with those seen in modern Sweden, especially during COVID-19 pandemic in the 21th century.

3.2 Emotional and Psychological Fears: Then vs. Now

In both the past and present, emotional responses to vaccination are a strong factor behind hesitancy. In the 19th century, parents were afraid that vaccination could harm their children. Tragic stories of children getting sick or dying shortly after vaccination were widely shared and used as arguments against the procedure. Although these stories were not always scientifically proven, the emotional impact was very strong and influenced others. (4)

In modern times, similar fears have been seen. During the COVID-19 pandemic, many people worried about side effects, especially from the new mRNA vaccines. These fears were often spread quickly through social media, where personal testimonies were shared widely, even when they lacked medical proof. The emotional fear of "what if" has stayed the same across generations. (5)

3.3 Mistrust in Authorities and Science

Historically, many Swedes in rural areas were suspicious of doctors, especially when vaccination became mandatory in 1816. People believed that doctors and state officials might benefit financially from the vaccinations, and some thought the vaccines themselves were dangerous or could interfere with the body’s own healing. This mistrust was made worse by the fact that physicians had a monopoly on the procedure and ordinary people could not access or question the method easily. (30) (4)

Today, similar mistrust is found, especially toward pharmaceutical companies, global health authorities and government health agencies. During the COVID-19 pandemic, many Swedes expressed concern that pharmaceutical companies were pushing vaccines too quickly, without enough long-term testing, and having a hidden agenda. Conspiracy theories also circulated, claiming that the vaccines contained tracking devices or were tools for government control via “vaccine-induced infertility” or “population thinning” due to death from vaccination. Just like one and two centuries ago, mistrust combined with a lack of scientific understanding led to resistance. (5,30)

3.4 Sociological Factors

3.4.1 Gender

In the 19th century no large difference in hesitancy by gender was documented. Mothers often made health decisions for children and were the ones interacting with vaccination services. (4) In recent years, studies have found that women are slightly more likely to trust vaccines and take health precautions, while men are more likely to skip vaccination, possibly due to lower engagement in preventive healthcare. (68) Furthermore, immunization was historically considered especially important for women, as disfigurement from smallpox scars could jeopardize their future, particularly in terms of marriage prospects and financial security. (4)

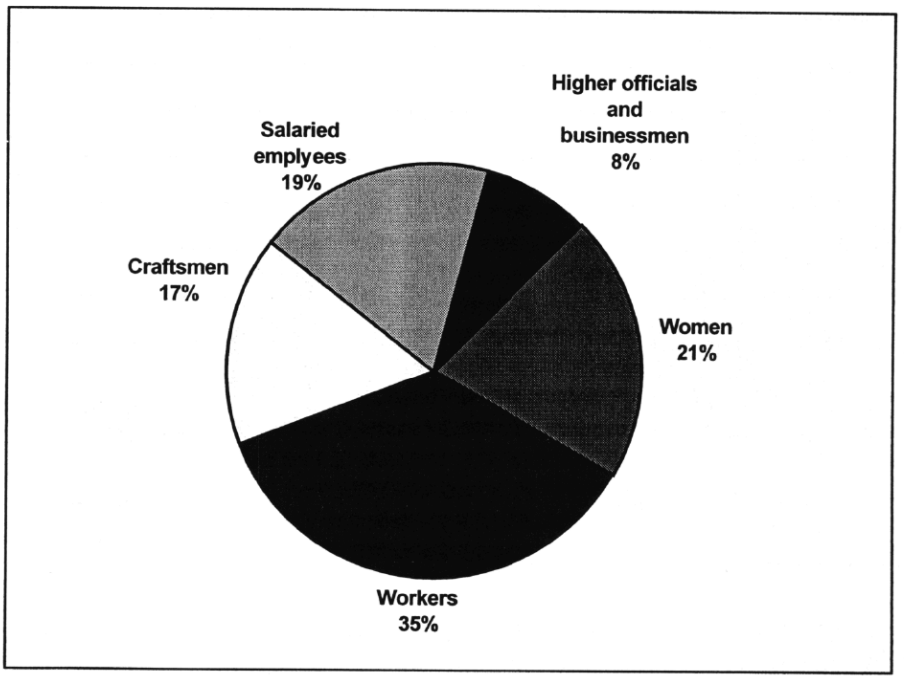
3.4.2 Age

In the smallpox-era, parental attitudes toward vaccination showed little correlation with age, both younger and older parents appeared equally likely to comply with vaccination recommendations. For early historical vaccination campaigns, it was a focus to vaccinate the children as the majority of the adults had already undergone natural immunization, also, as the virus was more deadly for smaller children. (4) In the modern era on the other hand, COVID-19 was a new disease and elderly people faced a higher mortality, which made the younger population more hesitant towards immunization and had a lower vaccination coverage. (66)

3.4.3 Social Class and Occupation

In both time periods, vaccine hesitancy has occurred in various social classes. In the historical period, some poor families did not vaccinate because they lacked access to information, while wealthier families sometimes avoided it due to avoiding interacting with the peasants. Further, in 19th-century Scania, landowning and literate peasants were more likely to get vaccinated than landless laborers, despite vaccination being free. Overall, wealthier individuals were more likely to accept vaccination than the poor (4,76). Similar patterns could be seen in the modern time period, where people from underprivileged areas and vulnerable groups needed more targeted efforts to reach a higher vaccination rate. (61)

Figure V.9.4. Occupation of parents of unvaccinated children in Östersund 1889 (N=208)



Source: Förteckning över ovaccinerade barn 1889-1912 (FIII:4). Archive of the town physician of Östersund. Landsarkivet in Östersund.

Figure 3. *Occupation of parents of unvaccinated children in Östersund, 1889.* (4)

3.4.4 Urban vs. Rural

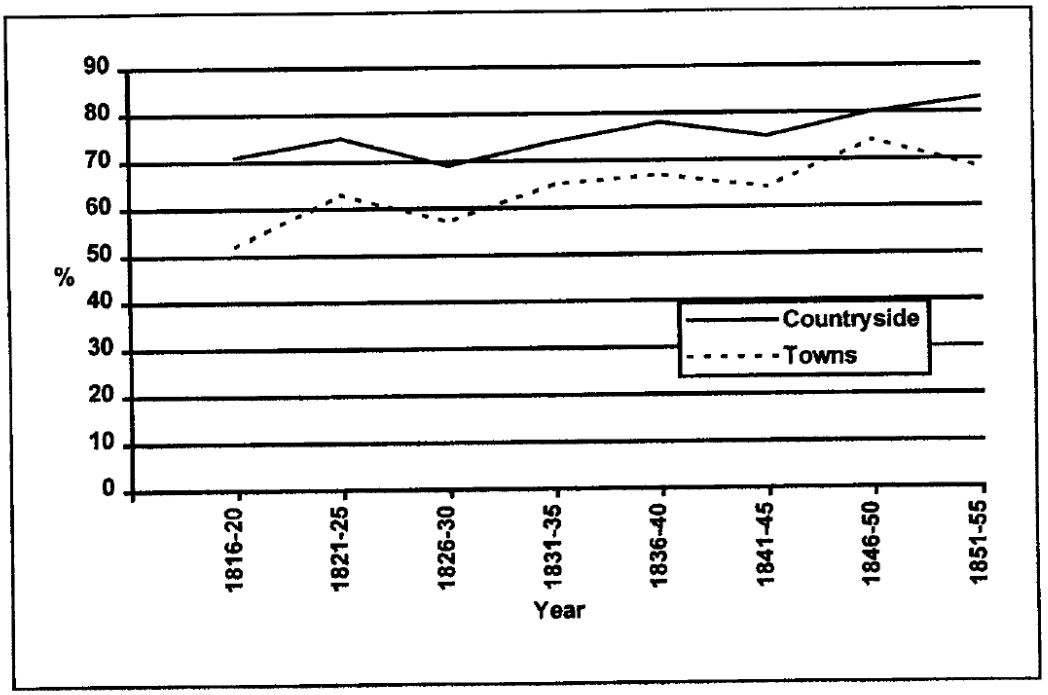
Up to the mid-19th century, Sweden remained relatively rural, avoiding many of the sanitation problems and overcrowding seen in larger cities across Europe. (18) In the early period of smallpox vaccination, rural areas in Sweden consistently showed higher vaccination rates than urban centers like Stockholm. This was largely due to the organizational strength of the rural church network, where clergy and church assistants actively coordinated vaccination efforts, earning trust and ensuring wide coverage. In cities, this structure was largely absent, and the responsibility fell to a small number of physicians, which corresponded with lower participation. (4) (3)

These historical divides between urban and rural areas can still be observed today, but in reversed and more complex forms. In 2024, 88% of the Swedish population lived in an urban area. (77) Today, urban areas generally show higher vaccine uptake, likely due to better access to healthcare infrastructure, digital literacy, and exposure to national health messaging.

Meanwhile, rural areas in Sweden have occasionally shown lower rates of COVID-19 vaccination, often due to logistical challenges and lower trust in central authorities. (78)

However, the underlying patterns remain consistent: trust in institutions, access to credible information and the presence of trusted community figures, are still crucial for successful vaccine campaigns. Then as now, the social and informational structures surrounding individuals play a determining role in vaccine acceptance.

Figure V.9.6. Vaccination rates, proportion of the number of births during the previous year in per cent, for the towns in Sweden 1804-1900 (except Stockholm) and the countryside. Five year averages



Source: *BiSOS* 1860, Tab. 41, XXXVII.

Figure 4. *Presenting vaccination rates in proportion to births, comparing citizens living in urban and rural areas year 1804 to 1900. (4)*

3.4.5 Religion and Faith

Religious beliefs have played a sizable role in shaping attitudes toward vaccination in Sweden, both in historical and modern contexts. While the Swedish Church has never formally opposed vaccination, interpretations of illness and divine will have influenced

individual behavior, particularly during the early introduction of smallpox immunization. On the contrary, the Church has actively supported it and framed it as a Christian duty, emphasizing the need to protect the vulnerable and contribute to the collective good. Clergy often led local vaccination campaigns and communities with stronger church ties showed significantly higher vaccination rates. In this way, the Church functioned not only as a spiritual authority but also as a trusted public health partner. (4) (3)

In modern Sweden, the Church of Sweden and other religions such as Islam, the second biggest religion in Sweden, (79) (45) have continued this supportive stance. Churches and Mosques hosted mobile vaccination centers and worked in collaboration with shelters, addiction services, asylum centers and family support hubs to ensure vaccine access for marginalized and vulnerable groups. (45) (48)

The contemporary era has also witnessed the rise of conspiracy-driven resistance to vaccination, some of which blends religious language with pseudoscientific claims. During the COVID-19 pandemic, some groups have been labeling vaccination as "satanic" or describing it as part of a technological mind-control system circulated on social media. While not directly linked to organized religion, these beliefs reflect how spiritual or metaphysical ideas can be utilized into anti-vaccine narratives. (5,72)

In both past and present, religion in Sweden has more often served as a facilitator of vaccination than a barrier. The consistent support from religious institutions has played an important role in public health campaigns. Yet the persistence of alternative spiritual movements and the emotional appeal of religiously tinted conspiracy theories show that the intersection of faith and vaccine acceptance remains complex and dynamic. (3–5,72)

3.4.6 Humans are still Homo Sapiens Sapiens

While the specific concerns regarding vaccination and disease have evolved from fear of visible smallpox scars to anxiety about new vaccine technologies. The underlying psychological patterns like fear of adverse-effects and skepticism toward institutions remain remarkably persistent. Sociological factors such as gender, age, class, geography and religion have also continued to influence vaccine acceptance. Comparing past and present shows that although the context has changed, the core drivers of vaccine hesitancy remain deeply rooted in social structures and human emotion.

Chapter 4: Between Mandates and Morals: Sweden's Public Health Strategies and Legal-Ethical Balancing in Vaccination Policy

4.1 Introduction

Throughout history, the Swedish government has played a central role in promoting vaccination and managing public health crises. This chapter examines how Sweden addressed vaccine hesitancy and organized immunization efforts during two key periods: the smallpox epidemics of the 18th-20th century and the COVID-19 pandemic in the 21st century. It compares the legal frameworks, communication strategies, and institutional collaborations used to promote vaccine uptake in both contexts. The chapter also explores how Sweden has navigated the complex balance between protecting individual rights and fulfilling public health responsibilities through vaccinations.

4.2 Vaccination Policies

4.2.1 To Be or Not to be Mandatory

Before the introduction of vaccination, smallpox was a deadly and widespread disease in Sweden. After Edward Jenner's method reached the country in 1801, the government acted fast by the standards of the time. In 1816, Sweden became one of the first nations in the world to introduce mandatory smallpox vaccination. The law required that all children be vaccinated before the age of two. Parents who failed to comply could face fines and barriers in receiving welfare benefits. (10) (22) (4) (3) While fines were rarely enforced, and health passports mainly targeted the poor, the goal was clear: to create social pressure and documentation that would encourage compliance. (3) (4)

During the COVID-19 pandemic that also shredded many lives, Sweden again moved quickly to roll out vaccines, with procurement supported by the European Union. However, in contrast to the smallpox era, vaccination remained entirely voluntary. The Swedish government emphasized personal responsibility and public trust, relying on guidance from FHM rather than legal enforcement (45)

4.2.2 Roll-outs and Revaccination

In 1836, following an increase in smallpox deaths, the Medical Board recommended revaccination every 15 years, for all groups. This marked an early example of adapting public health recommendations to emerging epidemiological data. Though revaccination was never made mandatory, except for military recruits, it became widely recommended for long-term protection (4) This shows a shift from enforcement to recommendation based public health work.

In the COVID-19 era, Vaccination was rolled out progressively to different groups. By July 14, 2021, all adults aged 18 and over were eligible to book appointments across Sweden and by November of the same year, it was extended to everyone aged 12 and older. (45) Booster doses, equivalent to the historical revaccination campaigns, were gradually offered to all adults starting in autumn 2021, typically five to six months after their previous dose. High-risk groups, such as those over 80 years or individuals aged 65+ in nursing homes, have been continuously offered annual booster doses. (34) In contrast to 19th-century revaccination recommendation, modern COVID-19 booster strategies reflect a more structured yet still voluntary model, guided by scientific risk assessments and adjusted in real time.

4.2.3 Vaccination Certificates

In 1817, the Swedish Health Board proposed that poor citizens should carry health passports, documents proving their vaccination status. Those without proof were to be vaccinated immediately. Vaccination certificates were discussed for broader purposes, such as marriage or employment, but were never implemented nationally. By 1853, the state tightened regulations further, requiring proof of vaccination for children to attend public schools (22)

In March 2021 the European Commission introduced digital COVID certificates, adopted in Sweden on July 1, 2021. These were non-obligatory, used only for certain public events, never for essential services and it was open to all citizens. Vaccination certificates were optional and accessible to all, reflecting Sweden’s modern emphasis on trust, transparency, and equality in public health. (62) (45)

4.3 Public Health Strategies

4.3.1 Communication and Misinformation

In the 1800s, communication about vaccination was often handled by clergy, local physicians, and newspapers. Government campaigns stressed the benefits of immunization and used sermons and church announcements in spreading awareness and building trust, especially in rural areas. (4) (3) These methods were more time-consuming to reach a broader audience, but appeared to fulfill its task in health prevention.

In contrast, the modern era is shaped by digital communication. During the COVID-19 pandemic, Swedish authorities used national broadcasts, websites, press conferences and social media to provide vaccination updates. However, digital platforms also enabled the rapid spread of misinformation. Anti-vaccine narratives, conspiracy theories and personal testimonies that lacked scientific basis became widespread on digital platforms. (5) (48) This digital noise seemed to make it harder for the state to deliver clear, trusted messages, especially to groups already skeptical of government intervention.

4.3.2 Role of Local Government and Partnerships

Historically, successful vaccination campaigns often depended on local leadership. In the 19th century, parishes with more clergy and midwives reported higher vaccination rates, showing how essential trusted local actors were in convincing people to participate. Some municipalities offered incentives such as tax exemptions to encourage vaccination. (4)

During the COVID-19 pandemic, local governments once again played a vital role. Mobile vaccination teams were deployed to reach elderly and vulnerable populations. Cooperation occurred with shelters, addiction centers, churches, mosques, and even the Migration Agency’s asylum centers. Religious institutions, particularly the Church of Sweden and Islamic organizations, supported vaccine rollouts and distributed accurate health information. (45)

4.3.3 Public Trust and Institutional Reputation

In both historical and modern contexts, public trust has been a decisive factor in the success of vaccination campaigns. During the smallpox era, rural communities often trusted clergy more than doctors and areas with strong church networks performed better in vaccine uptake.

Historically, religious and local influencers, especially the clergy, helped extend trust and access in rural communities (4). In Scania, for example, physicians distributed pamphlets and collaborated with the clergy to communicate directly with the population, often relying on respected local figures to explain and legitimize vaccination (76). Financial incentives and outreach to hesitant populations further improved coverage (4). Even with free access to vaccination, uptake varied significantly depending on local conditions. This shows that accessibility alone was not sufficient; trust in those promoting the vaccine was equally critical. (76)

Today, trust is more fragmented. Surveys during COVID-19 showed high trust in some institutions like FHM, but lower trust in political leaders and pharmaceutical companies. In response, Swedish officials emphasized transparency and frequent communication. For example, Sweden's state epidemiologist Anders Tegnell became a familiar public figure who regularly explained policies and data to the public, contributing to institutional legitimacy despite facing criticism. (5)

4.3.4 Flexibility and Adaptation

Historical sources show that the success of vaccination campaigns was linked to adaptability. Local strategies, adjusted for culture, religion and infrastructure, worked better than rigid national models. Similarly, during COVID-19, Sweden adapted its approach over time. For example, while early messaging focused on the elderly and healthcare workers, later phases included targeted outreach to immigrant communities and mobile vaccination clinics in underserved areas. (4,5)(43) In both eras, the lesson is clear: successful public health strategies must not only be scientifically sound but also socially sensitive and adaptable to different contexts.

4.3.5 Protecting the Weak

To ensure that economic barriers did not increase hesitancy, vaccinations were mostly provided free of charge, particularly for the poor and orphaned. It was a priority from the government that money should never be an impediment to immunization. In later decades, when vaccinators were allowed to charge fees for service, it was clearly stated that the poor must still receive vaccinations at no cost. (4) Similarly, throughout the COVID-19 pandemic, the vaccination remained free of charge for all groups. (45)

4.3.6 Records and Reports

The strategy of mandated recordkeeping and compulsory reporting made vaccination a part of the bureaucratic system. Clergy and physicians had to submit vaccination records, and unvaccinated children were to be registered by name. (4) This process helped make immunization into the structure of government work tasks and people's everyday life. These records formed part of annual health reports, such as Sundhetskollegii berättelse, showing how vaccination became integrated into Sweden's population monitoring system. (28) Today, keeping records of vaccination is no longer the task of the church, and no exact data per person is official, since vaccination is no longer mandatory. Yet, data are collected by age and regions and patterns can still be followed and analyzed. (45)

Table V.9.1. The organization of inoculation and vaccination, Stockholm and Sweden 1756-1900

	INOCULATION Stockholm and Sweden	VACCINATION Stockholm	VACCINATION Sweden
Monopoly	Only physicians allowed	Only physicians allowed	No restrictions, mostly laymen
Locality	Institute (Stockh.) Homes (Sweden)	Inoculation House	Homes
Care and charge	14 days	14 days (1802-40) 1-2 days (1840-)	No care-taking
Records	No records kept	No no records kept	Records from all parishes annually
Law force	No laws	Strong law force	Slight law force
Result	Low rates	Low rates	High rates

Source: See unprinted and printed sources in the list of references.

Figure 5. *Differences in organization and implementation between inoculation and vaccination in Sweden and Stockholm, 1756–1900, and its success.*

4.3.7 Personal Freedom

Sweden's vaccination policies over time reflect an ongoing effort to balance personal freedom with the responsibility to protect public health. Historically, during the smallpox era, this balance tilted strongly in favor of public health. The state introduced mandatory vaccination laws as early as 1816, with enforcement mechanisms such as fines and social requirements like vaccination proof for school entry. These measures prioritized population-wide immunity, even at the expense of individual autonomy. While effective in controlling the viral disease, they were met with opposition from citizens who viewed such mandates as intrusions into personal freedom. (3) (25) (30)

In contrast, Sweden's modern approach, which aligned with the state's Democratic status (31), has shifted toward protecting individual choice based on national recommendations. Vaccination is today entirely voluntary and not enforced by law. Instead, the government relies on public trust, informed consent and participation by free will. While digital COVID certificates were introduced in 2021, their use was limited to specific events and never extended to essential services, preserving important social access regardless of vaccination status. (62) (45)

Conclusions

This study has explored how vaccine hesitancy and anti-vaccination movements have developed in Sweden from 1801 to 2023, including the preceding years of inoculation in the 18th century. By examining historical fears, psychological and social influences and the strategies used by the Swedish government, we can better understand the complex factors behind public attitudes toward vaccination. Each objective offered insights into how Swedish society has responded to immunization in different time periods and how past experiences continue to shape present-day challenges. The following section concludes the main findings for each research objective.

1. In the 18th and 19th centuries, vaccination resistance was often based on the belief that disease was God's will or a mistrust in early medical science and state-enforcement. In the 21st century, fears became more linked to distrust in pharmaceutical companies and concerns over rapid vaccine development and unknown long-term effects, as well as growing hesitancy from conspiracy theories. More than 200 years after the introduction, many still see immunization as unnatural and worry about foreign substances being injected into the body, even though proven to be safe and effective. This history shows that vaccine fears do not simply disappear, they evolve with the social, cultural and technological challenges of their time, but some arguments will also remain the same.

2. Vaccine hesitancy in Sweden has always been influenced by psychological and social factors such as fear, trust, identity and social inclusion. In both historical and modern times, emotional stories, mistrust in institutions and exclusion from social or medical systems contributed to resistance. Individuals from marginalized or lower socio-economic groups, both then and now, were more likely to question vaccination efforts, seeing them as forms of control rather than protection. Social stability and perceived inclusion often correlated with vaccine acceptance.

3. Historically, government strategies in Sweden relied on a mix of compulsion and collaboration, such as the 1816 mandatory vaccination law and strong involvement from the Church. In contrast, modern strategies have emphasized voluntary participation, trust-building, and inclusive communication. Both periods show that legal measures alone are not sufficient, vaccination success relied heavily on public trust and community partnerships. Financial incentives have since always played a part in immunization decision making, both on a governmental and personal level. Sweden's evolution from constraint to consent reflects its progress in democratic values and shows that successful vaccination depends not just on science or law, also on scientific transparency and cultural understanding.

4. During the smallpox era, Sweden prioritized collective safety through mandatory laws, even at the cost of individual choice. In the modern era the approach shifted toward voluntary vaccination and respect for autonomy, with no legal penalties for refusal. This evolution reflects Sweden's growing democratic values. However, it also introduced new challenges, such as combating misinformation and ensuring equitable access to vaccines through methods like education and outreach, instead of legal enforcement. To minimize vaccination resistance, each approach to vaccination reflected an effort to balance scientific evidence, ethical principles and the societal values of its time.

From Past to Present and the Final Words

This study shows that the history of vaccine hesitancy in Sweden reveals that fear, mistrust, and social dynamics have always played a role in shaping public response to vaccination. From religious doubts and medical mistrust in history to modern concerns amplified by digital misinformation, the core issues have evolved but never disappeared. Sweden's success in managing these challenges has depended not only on medical advances but also on public engagement, institutional trust and cultural sensitivity. Moving forward, it is essential that Swedish public health strategies continue to prioritize transparent communication, tailor outreach to diverse communities and invest in education that builds critical thinking and health literacy. In an age where misinformation can spread rapidly, long-term public trust must be seen as just as important as scientific innovation in achieving sustainable vaccination programs. Sweden's experience also offers valuable lessons for other countries facing similar challenges, showing that balancing science, trust and cultural values is key to building resilient public health systems worldwide.

References

1. Vaccines and immunization [Internet]. [citerad 02 maj 2025]. Tillgänglig vid: https://www.who.int/health-topics/vaccines-and-immunization

2. Reticencia a la vacunación: Un desafío creciente para los programas de inmunización [Internet]. [citerad 02 maj 2025]. Tillgänglig vid: https://www.who.int/news/item/18-08-2015-vaccine-hesitancy-a-growing-challenge-for-immunization-programmes

3. Sköld P. The Key to Success: The Role of Local Government in the Organization of Smallpox Vaccination in Sweden. *Medical History*. 2000.

4. Sköld P. *The Two Faces of Smallpox*. Umeå University; 1996.

5. Borin L, Hammarlin MM, Kokkinakis D, Miegel F. Vaccine Hesitancy in the Nordic Countries: Trust and Distrust During the COVID-19 Pandemic [Internet]. 1:a uppl. London: Routledge; 2024 [citerad 29 april 2025]. Tillgänglig vid: https://www.taylorfrancis.com/books/9781003305859

6. Sjukdomsinformation om smittkoppor [Internet]. 2024 [citerad 29 april 2025]. Tillgänglig vid: https://www.folkhalsomyndigheten.se/smittskydd-beredskap/smittsamma-sjukdomar/smittkoppor/

7. redaktion S. Stockholmskällan. 2025 [citerad 29 april 2025]. Smittkoppor 1700-1980. Tillgänglig vid: https://stockholmskallan.stockholm.se/teman/epidemier/smittkoppor-1700-1980/

8. Williams G. Virus Hunters [Internet]. Knopf; 1959. Tillgänglig vid: https://books.google.fr/books?id=VCxrAAAAMAAJ

9. Razzell P. The conquest of smallpox: the impact of inoculation on smallpox mortality in 18. century Britain. Firle, Sussex: Caliban Books; 1977. 190 s.

10. Smallpox and its eradication - Red Book [Internet]. [citerad 29 april 2025]. Tillgänglig vid: https://biotech.law.lsu.edu/blaw/bt/smallpox/who/red-book/

11. Inoculatio variolarum eller Kort beskrifning om sättet at ympa koppor på menniskior. I anseende til des nytta, wälment upsatt af Herm. Diedr. Spöring. ... Åbo, tryckt af Joh. Kiämpe, kongl. acad. boktr [.] 1737 Spöring, Herman Diedrich, 1701-47 (författare)Publicerad: Åbo, 1737 Tillverkad: (Kämpe Svenska [04] , 34 s.

12. Barna-bok, hans kongl. höghet kron-prinsen i underdånighet tilägnad af samfundet Pro fide & christianismo. Stockholm, tryckt i kongl. tryckeriet, 1780. [Internet]. [citerad 30 april 2025]. Tillgänglig vid: https://digital.ub.umu.se/node/250368/metadata

13. Kent N. The Sámi peoples of the North: a social and cultural history. London: Hurst; 2014

14. Sköld P. Offer and request: preventive measures against smallpox in Sweden 1750-1900. Health Transit Rev. 1997

15. Grant A. Globalisation Of Variolation. Singapore: World Scientific Publishing Company; 2019..

16. Til allmänheten om kokoppor, et säkert förwaringsmedel emot menniskokoppor. Eberh. Munck af Rosenschöld, 1801

17. Furbring A. *Smittkoppsvaccinets introduktion i Sverige 1798–1805*. Stockholm University; 2020.

18. Nelson MC, Rogers J. Gleaning up the cities: Application of the first comprehensive public health law in sweden[1]. Scand J Hist. januari 1994

19. Statistikmyndigheten SCB [Internet]. [citerad 30 april 2025]. När vaccinationerna utrotade smittkopporna. Tillgänglig vid: https://www.scb.se/hitta-statistik/redaktionellt/nar-vaccinationerna-utrotade-smittkopporna/

20. Digitala samlingar [Internet]. [citerad 08 maj 2025]. Handbok för practiska läkare-vetenskapen, utgifven af Sven A. Hedin .../51. Tillgänglig vid:

https://digital.ub.umu.se/relation/500477

21. Winslow CEA. Statistics of Small-Pox and Vaccination. Publ Am Stat Assoc. 1903

22. Svenska och finska medicinalverket, 1663-1812 Otto E A Hjelt; 1891-1893

23. Issuu [Internet]. 2022 [citerad 06 maj 2025]. Tidskriften Spaning tema farsoter 36–37/2022. Tillgänglig vid: https://issuu.com/vastmanlandslansmuseum/docs/tidskriften_spaning_2022_tillga_nglig

24. Öberg L. Barnmorskan och läkaren: kompetens och konflikt i svensk förlossningsvård 1870-1920. Stockholm: Ordfronts förlag; 1996.

25. Eklöf M. *Preventionens vapenvägrare*. Stockholm: Carlsson Bokförlag; 2015

26. Smallpox [Internet]. [citerad 01 maj 2025]. Tillgänglig vid: https://www.who.int/health-topics/smallpox#tab=tab_1

27. Wolfe RM, Sharp LK. Anti-vaccinationists past and present. BMJ; 2002

28. BISOS 1851-1917BISOS K Hälso- och sjukvården1861-1910BISOS K Hälso- och sjukvården 1861-1910Halso--och-sjukvarden-K1-1874.pdf [Internet]. [citerad 06 maj 2025]. Tillgänglig vid: https://share.scb.se/ov9993/data/historisk%20statistik/BISOS%201851-1917%2FBISOS%20K%20H%C3%A4lso-%20och%20sjukv%C3%A5rden1861-1910%2FBISOS%20K%20H%C3%A4lso-%20och%20sjukv%C3%A5rden%201861-1910%2FHalso--och-sjukvarden-K1-1874.pdf

29. Eklöf M. 4 Smallpox in Malmö, Sweden, 1932: Disputed Knowledge of Infection, Contagion, and Vaccination in the Baltic Sea Region. I: Hansson N, Wistrand J, Ottosson A, Hüntelmann AC, Tammiksaar E, Grüner F, m.fl., redaktörer. Explorations in Baltic Medical History, 1850-2015 [Internet]. Boydell and Brewer; 2019 [citerad 07 maj 2025]. s. 87–112. Tillgänglig vid: https://www.degruyter.com/document/doi/10.1515/9781787444485-007/html

30. Stolare M. Kultur och natur: moderniseringskritiska rörelser i Sverige 1900-1920. Göteborg: Historiska institutionen, Univ; 2003.

31. redaktion S. Stockholmskällan. 2025 [citerad 08 maj 2025]. Rösträtt. Tillgänglig vid: https://stockholmskallan.stockholm.se/teman/demokratisering/rostratt/

32. RETRACTED: Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children - The Lancet [Internet]. [citerad 06 maj 2025]. Tillgänglig vid: https://www.thelancet.com/journals/lancet/article/PIIS0140673697110960/fulltext

33. Godlee F, Smith J, Marcovitch H. Wakefield's article linking MMR vaccine and autism was fraudulent. BMJ. 06 januari 2011;

34. Kata A. A postmodern Pandora's box: Anti-vaccination misinformation on the Internet. Vaccine. 17 februari 2010;28(7):1709–16.

35. Byström E, Lindstrand A, Bergström J, Riesbeck K, Roth A. Confidence in the National Immunization Program among parents in Sweden 2016 – A cross-sectional survey. Vaccine. 08 maj 2020;38(22):3909–17.

36. Svininfluensan, Pandemrix och narkolepsi | Läkemedelsverket [Internet]. [citerad 05 maj 2025]. Tillgänglig vid:

https://www.lakemedelsverket.se/sv/behandling-och-forskrivning/vaccin/risker-med-vaccin/svininfluensan-pandemrix-och-narkolepsi

37. Coronavirus [Internet]. [citerad 01 maj 2025]. Tillgänglig vid: https://www.who.int/health-topics/coronavirus

38. Socialstyrelsen [Internet]. 2024 [citerad 08 maj 2025]. Statistics on COVID-19. Tillgänglig vid: https://www.socialstyrelsen.se/en/statistics-and-data/statistics/statistics-subjects/statistics-on-covid-19/

39. Statement on the fifteenth meeting of the IHR (2005) Emergency Committee on the COVID-19 pandemic [Internet]. [citerad 01 maj 2025]. Tillgänglig vid: https://www.who.int/news/item/05-05-2023-statement-on-the-fifteenth-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-coronavirus-disease-(covid-19)-pandemic

40. Weilenmann L. Vårdfokus. 2021 [citerad 05 maj 2025]. Här får alla gå vaccinkurs. Tillgänglig vid: https://www.vardfokus.se/nyheter/har-far-alla-ga-vaccinkurs/

41. Fakta om mRNA och vaccin mot covid-19 [Internet]. [citerad 05 maj 2025]. Tillgänglig vid: https://www.pfizer.se/om-pfizer/aktuellt/artiklar/fakta-om-pfizers-och-biontechs-vaccin-mot-covid-19

42. Spikevax (previously COVID-19 Vaccine Moderna) | European Medicines Agency (EMA) [Internet]. 2021 [citerad 05 maj 2025]. Tillgänglig vid: https://www.ema.europa.eu/en/medicines/human/EPAR/spikevax

43. Vaxzevria (previously COVID-19 Vaccine AstraZeneca) | European Medicines Agency (EMA) [Internet]. [citerad 05 maj 2025]. Tillgänglig vid: https://www.ema.europa.eu/en/medicines/human/EPAR/vaxzevria

44. Nyheter SVT. SVT Nyheter. 2020 [citerad 01 maj 2025]. Här blir Gun-Britt, 91, först i Sverige med att få vaccinet. Tillgänglig vid: https://www.svt.se/nyheter/lokalt/ost/har-blir-gun-britt-91-forst-i-sverige-med-att-fa-vaccinet

45. Sverige. Sveriges tillgång till vaccin mot covid-19: framgång genom samarbete och helgardering. Stockholm: Regeringskansliet; 2022. 307 s.

46. The Public Health Agency of Sweden [Internet]. 2024 [citerad 01 maj 2025]. Tillgänglig vid: https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/

47. Vaccination programmes - The Public Health Agency of Sweden [Internet]. 2025 [citerad 01 maj 2025]. Tillgänglig vid: https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communicable-disease-control/vaccinations/vaccination-programmes/

48. Regionernas planering och genomförande avseende vaccinering mot covid-19: delrapport 9. In: Vaccination som skydd mot allvarlig sjukdom och död i covid-19 – Betänkande av Vaccinutredningen. SOU 2023:73. Stockholm: Statens Offentliga Utredningar; 2023. Available from: https://www.regeringen.se/contentassets/045e47bb40f543bab98f079241b16b6d/sou-2023_73_pdf-a_webb.pdf

49. Sweden’s Nobel Prize hall to become COVID-19 vaccination venue | Reuters [Internet].

[citerad 02 maj 2025]. Tillgänglig vid: https://www.reuters.com/article/business/healthcare-pharmaceuticals/swedens-nobel-prize-hall-to-become-covid-19-vaccination-venue-idUSKBN29V1PR/

50. 1177 [Internet]. [citerad 01 maj 2025]. Vaccination mot covid-19. Tillgänglig vid: https://www.1177.se/sjukdomar--besvar/lungor-och-luftvagar/inflammation-och-infektion-ilungor-och-luftror/om-covid-19--coronavirus/om-vaccin-mot-covid-19/vaccination-mot-covid-19/

51. Weilenmann L. Vårdfokus. 2021 [citerad 03 maj 2025]. ”Sverige har råd med att sjuksköterskor vaccinerar”. Tillgänglig vid: https://www.vardfokus.se/nyheter/sverige-har-rad-med-att-sjukskoterskor-vaccinerar/

52. Socialstyrelsen [Internet]. 2021 [citerad 05 maj 2025]. Senaste version av HSLF-FS 2020:81 Socialstyrelsens föreskrifter om behörighet för sjuksköterskor att ordinera läkemedel för vaccination mot sjukdomen covid-19. Tillgänglig vid: https://www.socialstyrelsen.se/kunskapsstod-och-regler/regler-och-riktlinjer/foreskrifter-och-allmanna-rad/konsoliderade-foreskrifter/202081-om-behorighet-for-sjukskoterskor-att-ordinera-lakemedel-for-vaccination-mot-sjukdomen-covid-19/

53. Svenska Barnmorskeförbundet [Internet]. [citerad 04 maj 2025]. Barnmorskeutbildning. Tillgänglig vid: https://www.barnmorskeforbundet.se/barnmorskan/barnmorskeutbildning/

54. Blogg oktober 14 / 2020 / LS/ C. Apoteksföreningen. [citerad 03 maj 2025]. Är det dags för farmaceuter att börja vaccinera på apotek? Tillgänglig vid: https://sverigesapoteksforening.se/vaccination-pa-apotek/

55. Folkhälsomyndigheten. *Nationella informationsinsatser om vaccination mot covid-19: återrapportering av regeringsuppdrag*. Solna: Folkhälsomyndigheten; 2022. Available from: https://www.folkhalsomyndigheten.se/contentassets/286a6e05fab44dc3bff26870c7703e55/nationella-informationsinsatser-vaccination-covid-19-aterrapportering.pdf

56. Sveriges Kommuner och Regioner (SKR). *Regionernas månadsrapport om genomförandet av vaccination mot covid-19: juni 2022*. Stockholm: SKR; 2022. Available from: https://skr.se/download/18.6cd28ef51817fe522b51ea72/1655990351844/Regionernas-manadsrapport-vaccin-juni-2022.pdf

57. historicalstatistics.org/Jamforelsepris.htm [Internet]. [citerad 30 april 2025]. Tillgänglig vid: https://historicalstatistics.org/Jamforelsepris.htm

58. Population by sex and year. PxWeb [Internet]. [citerad 30 april 2025]. Tillgänglig vid: https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START__BE__BE0101__BE0101G/BefUtvKon1749/table/tableViewLayout1/

59. Sverige. Genomförandet av vaccineringen mot sjukdomen covid-19: en utvärdering. Stockholm: Regeringskansliet; 2023.

60. Vaccination mot covid-19 under andra halvåret 2022 - Kunskapsunderlag, juni 2022.

61. Region Stockholm [Internet]. 2021 [citerad 01 maj 2025]. Samtliga stadsdelar och kommuner nu över 75 procents vaccinationstäckning i gruppen 65+. Tillgänglig vid: https://www.regionstockholm.se/nyheter/2021/08/samtliga-stadsdelar-och-kommuner-nu-over-75-procents-vaccinationstackning-i-gruppen-65/

62. Myndigheten för digital förvaltning (DIGG). *Covidbevis – en biljett till samhället*. Sundsvall: DIGG; 2023. Available from:

https://www.digg.se/analys-och-uppfoljning/publikationer/publikationer/2023-12-19-covidbevis---en-biljett-till-samhallet

63. Radio S. Svininfluensan har skadat tilliten till coronavaccin - Nyheter (Ekot) [Internet]. 2020 [citerad 05 maj 2025]. Tillgänglig vid: https://www.sverigesradio.se/artikel/7577237

64. Så får falska vaccinrykten fäste | Karolinska Institutet Nyheter [Internet]. 2025 [citerad 02 maj 2025]. Tillgänglig vid: https://nyheter.ki.se/sa-far-falska-vaccinrykten-faste

65. Detta gäller om coronavaccin | Läkemedelsverket [Internet]. [citerad 03 maj 2025]. Tillgänglig vid: https://www.lakemedelsverket.se/sv/behandling-och-forskrivning/vaccin/sjukdomar-man-kan-vaccinera-sig-mot/coronavaccin/detta-galler-om-coronavaccin

66. Radio S. Många unga och födda i andra länder vill inte vaccinera sig - Radio Sweden på lätt svenska [Internet]. 2021 [citerad 04 maj 2025]. Tillgänglig vid: https://www.sverigesradio.se/artikel/manga-unga-och-fodda-i-andra-lander-vill-inte-vaccinera-sig

67. Vaccinutveckling i raketfart | Karolinska Institutet [Internet]. [citerad 07 maj 2025]. Tillgänglig vid: https://ki.se/forskning/popularvetenskap-och-dialog/popularvetenskapliga-teman/tema-vaccinforskning/vaccinutveckling-i-raketfart

68. Jämställdhetsmyndigheten [Internet]. [citerad 04 maj 2025]. Fler kvinnor än män vaccinerar sig. Tillgänglig vid: https://jamstalldhetsmyndigheten.se/aktuellt/nyheter/fler-kvinnor-an-man-vaccinerar-sig/

69. Radio S. Mässlingsutbrotten i Järna - P3 Dokumentär [Internet]. 2021 [citerad 04 maj 2025]. Tillgänglig vid: https://www.sverigesradio.se/avsnitt/masslingsutbrotten-i-jarna

70. Sydöstran [Internet]. 2022 [citerad 05 maj 2025]. Sjuksköterskan Johan från Karlshamn deltog i manifestation mot vaccinpass. Tillgänglig vid: https://www.sydostran.se/2022-01-23/sjukskoterskan-johan-fran-karlshamn-deltog-i-manifestation-mot-vaccinpass/

71. Nyheter SVT. SVT Nyheter. 2021 [citerad 05 maj 2025]. Sjuksköterska anmäld – ska ha spridit desinformation om vaccin. Tillgänglig vid: https://www.svt.se/nyheter/lokalt/uppsala/sjukskoterska-anmald-ska-ha-spridit-desinformation-om-vaccin

72. Önnerfors A. Konspirationsteorier och covid-19: mekanismerna bakom en snabbväxande samhällsutmaning. Myndigheten för samhällsskydd och beredskap; 2021.

73. Doctors Appeal | Läkarupropet [Internet]. [citerad 01 maj 2025]. Den 13 januari 2022 skickades följande appell ut till alla riksdagsledamöter. Tillgänglig vid: https://doctorsappeal.com/docs/den-13-januari-skickades-foljande-appell-ut-till-alla-riksdagsledamoter/

74. Larsson OL. The Swedish Covid-19 strategy and voluntary compliance: Failed securitisation or constitutional security management? Eur J Int Secur;2022

75. Frihetsrörelsen [Internet]. [citerad 04 maj 2025]. Tillgänglig vid: https://expo.se/lar-dig-mer/wiki/frihetsrorelsen/

76. Dribe M, Nystedt P. Information, trust and the diffusion of smallpox vaccination: The Case of

Scania in Sweden, 1802–1835.

77. Statistikmyndigheten SCB [Internet]. [citerad 06 maj 2025]. Tätorter i Sverige. Tillgänglig vid: https://www.scb.se/hitta-statistik/sverige-i-siffror/miljo/tatorter-i-sverige/

78. Acceptans för covid-19-vaccination – Invånare i Sverige födda utanför EU/EES och Storbritannien [Internet]. [citerad 05 maj 2025]. Tillgänglig vid: https://www.folkhalsomyndigheten.se/pubreader/pdfview/95540?browserprint=1

79. Islam och muslimer i Sverige - Forum för levande historia [Internet]. [citerad 05 maj 2025]. Tillgänglig vid: https://www.levandehistoria.se/for-skola/kompetensutveckling-for-dig-som-arbetar-med-utbildning/prata-rasism-i-skolan/stodmaterial-om-antimuslimsk-rasism/stark-era-kunskaper/islam-och-muslimer-i-sverige