

4 Local Failure in a Global Success

At first, it seemed that the unprecedented cooperation between emigrants, international organisations, the Catholic Church and the communist government of Hungary was fully successful. Medimpex, the state company that imported the vaccine in the summer of 1957, received an award for its efforts.¹ The following year there was no epidemic and the government celebrated the feat.²

However, a new and severe outbreak in the summer of 1959, when almost 2,000 children fell prey to the disease, prompted the state and the medical profession to re-evaluate their success. How could such a severe epidemic happen when a high number of children were supposed to have been protected by the Salk vaccine? What went wrong? Who was to blame? Public health officials, parents, ministers and doctors tried to work out the reasons for what appeared to be a complete failure. They engaged in a conversation on effectiveness and prevention by using and producing medical data in various ways, clashing lay and medical experiences, and revealing a broad set of expectations.

The introduction of the Salk vaccine, its perceived success and eventual failure was an overtly political issue that manifested in the pages of medical journals and daily newspapers, during visits to the doctor and in private conversations. The uncertainties of knowledge and practice in polio vaccination brought to the fore sweeping, high-stakes problems at all levels of governance and daily life.

The controversy that followed the 1959 epidemic provides a glimpse into the way a new vaccine, introduced worldwide over the course of a few years, played out locally, raising the question of the extent to which vaccination with a particular vaccine in different locales could be interpreted as the same. When

¹ 'Letter to Jenő Incze Foreign Trade Minister', Budapest: National Archives of Hungary, Egészségügyi Minisztérium Állami Közegészségügyi Felügyeleti és Járványvédeli Főosztály, XIX-C-2-e, 54304/1957, 1957.

² András Faludi, '1958 Örvendetes Eredményeket Hozott a Gyermekbénulás Elleni Küzdelemben', *Népszabadság* 1959, 4.

we think of vaccination on a global scale, we often consider vaccines as objects moving across countries and continents. However, they also move from clinical trials to the field, from national to transnational use and are translated from scientific debates to vaccination policy, and onto parents and vaccinees. If we interrogate the key moments when scientific research moves on to public health intervention and across political dividing lines, cultures and societies, vaccines are revealed to be part of a larger conceptual framework and, as medical technologies, something that cannot be divorced from local expectations and interpretations created in the process.

While the Hungarian story of the Salk vaccination failure adds to a growing scholarship that questions the seeming universality of biomedical technologies such as vaccines,³ the discussions and debates brought to light by an epidemic crisis also reveal the very tangible consequences of international medical and political rivalries. At the end of the 1950s, the Salk vaccine's efficacy was under debate at poliomyelitis conferences and in the pages of medical journals. Several methods for using the vaccine existed and there was no international standard set out for the vaccine's application. Knowledge about the disease and its prevention was in flux, complicated by the personal agendas of rival scientists and situated in a Cold War world built on antagonism and contest. In the face of scientific uncertainties, medical data gained political meaning and vaccination campaigns became political acts. As is usually the case with vaccine evaluation, determining the Salk vaccine's success or failure in Hungary in the 1950s was far from a merely medical affair. There was plenty of blame to go around for the epidemic of 1959. Citizens distrusted the state, the state was disappointed by the lack of compliance of citizens, physicians were dissatisfied with the chaotic centralisation of medical supplies and methods, and everyone was frustrated by the scientific certainties of the disease in a time of epidemics and revolutions.

This chapter follows the evaluation of the Salk vaccine in Hungary between 1957 and 1960 and analyses how a new epidemic wave affected the scientific and political discourse on polio. The way in which vaccine efficiency was determined over time shaped subsequent vaccine policies in the country and

³ Jeremy Greene's work on the generic drug market explores problems in sameness and similarity in therapeutics, see Jeremy A. Greene, *Generic: The Unbranding of Modern Medicine* (Baltimore: Johns Hopkins University Press, 2014). A collection on HPV vaccines edited by Keith Wailoo, Julie Livingston, Robert Aronowitz and Steven Epstein provide a global, comparative view of vaccine reception, use and its meaning in Keith Wailoo et al., eds., *Three Shots at Prevention: The HPV Vaccine and the Politics of Medicine's Simple Solutions* (Baltimore: Johns Hopkins University Press, 2010). Studies on vaccine development and vaccination and highlight the role of the state in the different way the 'same' vaccines play out across the globe in Stuart Blume, Paul Greenough, and Christine Holmberg, eds., *The Politics of Vaccination: A Global History*, Studies for the Society for the History of Medicine (Manchester: University of Manchester Press, 2017).

contributed to Hungary's path-breaking role in polio eradication. Moreover, changes in the evaluation of the Salk vaccine highlighted broader problems in the relationship between the government and its citizens and between the efficiency of production and the organisation of the state.

Defining Success

Aladár Kátay, director of the epidemiology department at the Health Ministry and head of the poliomyelitis section of the Hungarian Microbiology Society, published one of the first comprehensive accounts of the 1957 epidemic wave in an article in *Népegészségügy*,⁴ the public health journal of the Health Ministry. Titled 'Our current situation and tasks in epidemiology', Kátay's article discussed Salk vaccination and its evaluation.

Regarding the efficacy of the administered vaccination, we have to state first and foremost that given the time needed to gain relative protection, we did not expect any direct result in the peak of the epidemic as a result of the vaccine. We did expect, however, the ameliorating effect in the last section of the epidemic wave and we are expecting children of the most endangered age to be protected in the epidemic waves of the coming years. The effect of the vaccination on [1957's] epidemic cannot be measured yet. It is a fact that the epidemic wave receded drastically sooner, already in September. However, *this alone is no proof*.⁵

Kátay stressed that further studies were needed to determine vaccine efficiency – an epidemiological-statistical analysis of morbidity among the vaccinated and non-vaccinated population and an immunological study of blood samples taken from vaccinated children. This opinion did not gain much publicity. Again, there was no space for uncertainty or doubt regarding the feat of importing and distributing the precious vaccine.

The sudden decline of the epidemic wave did come up, however, in further scientific evaluations, some of which provided different explanations: for instance, that the decline could have been caused by other factors, such as the particular pattern of the epidemic in 1957. In a report by the State Hygienic Institute in *Népegészségügy*, Dr Ottó Rudnai pointed out that compared to the polio epidemics of the past, the wave of 1957 was unusual. The curve of polio cases increased and also decreased much more drastically than before, creating a much sharper spike in the diagram than previous epidemics. The temporal layout of the epidemic wave was also peculiar: polio usually reached its peak

⁴ Aladár Kátay, 'Járványügyi Helyzetünk És Feladataink', *Népegészségügy* 8, no. 10–11 (1957): 247–58.

⁵ *Ibid.* 253–54 (emphasis mine).

in August, and only three times in the past twenty-five years had it peaked in July, as it did in 1957.⁶

Strangely enough, Rudnai decidedly left issues of vaccine evaluation out of the report. The only time he mentioned the vaccine at all was in relation to the changes in the affected age groups after the end of the epidemic: 'We do not wish to address the issue or the efficacy of the vaccine here, but . . . the decline in polio incidence among children under 6 years old in the fourth quarter [of 1957] is probably due to the effect of the vaccine.'⁷ Thus, a more cautious evaluation of the vaccination's effect on the epidemic detects a possible change months after the epidemic wave was over.

By April 1958 the Health Ministry was presenting the vaccination process as a clear success. Nationwide vaccination with the brand-new vaccine was a costly enterprise, especially for an Eastern European country like Hungary struggling with debt and difficulties in accessing hard currency. Therefore, it was important to demonstrate that it had actually worked. In the context of polio, the moment of the vaccine import marked a turning point in the ability of the state to gain control of the unpredictable and chaotic situation that the epidemic waves had caused and to return to its role as a providing and protective parent.

On the pages of *Népszava* in June 1958, Dr Frigyes Doleschall, the Hungarian health minister, evaluated the success of vaccination:

We began vaccination in July 1957, that is, during the epidemic: The epidemic wave quickly started to recede and by October it ended. Thus, it finished before we could apply the three doses of vaccine that are needed to achieve optimal immunity. *This alone proves the efficiency of the vaccine.*⁸

The interpretation of the Health Ministry, therefore, was that even one dose of the vaccine was enough to curb polio and cause a sudden decline in the epidemic wave. For this, the decline of the epidemic served as proof.

In scientific publications, there was also a shift towards the emphasis on a marked success in the vaccination campaign, although with more reserved enthusiasm. As virologist Aladár Petrilla points out in his report of 1958 in the journal *Acta Microbiologica*, a scientific evaluation of the vaccination was indeed a difficult task. First of all, vaccination started at the peak of the epidemic rather than preceding it, making it difficult to pinpoint the efficacy

⁶ Otto Rudnai, 'Az 1957. Évi Poliomyelitis Járvány. Közlemény az Országos Közegészségügyi Intézet (Főigazgató: Bakács Tibor Dr.) Járványügyi Osztályáról (Osztályvezető: Petrilla Aladár Dr.)', *ibid.* 39, no. 5–6 (1958): 121–27, at 124.

⁷ *Ibid.* 127.

⁸ 'Dr. Doleschall Frigyes Miniszter Nyilatkozata a Népszavának az Egészségügy Hároméves Tervéről, a Salk-Oltásokról és a Gyógyszerfogyasztásról', *Népszava*, 17 June 1958, 1–2, at 2 (emphasis in original).

of the vaccine. Secondly, it seemed that many children eligible for the vaccine did not receive any injections, while many outside the age group set by the Health Ministry managed to be immunised all the same.⁹ Unfortunately, Petrilla does not elaborate on how the latter was achieved, nor does he reveal the source of his information. Thirdly, around 80,000 children were vaccinated in private practice, with a different method and different dosage.¹⁰ Instead of the intradermal method used in the state vaccination campaign, these children received a higher dose intramuscularly. Their results would therefore complicate the overall evaluation.

However, in the overall evaluation Petrilla states: 'The effect of the vaccination was satisfactory.'¹¹ He lists six factors that can serve as proof of the success of the vaccine – none of which had been communicated by the health minister in the newspaper. As there was no control group and, in May 1958 when the article was submitted to the journal, no way of knowing if a new epidemic had been prevented or not, Petrilla turned to alternative comparisons to analyse the effects of the vaccine.

First, he pointed out that the incidence rate in the autumn months was much lower than in previous epidemic years, which could be a result of the vaccination campaign. The second piece of proof was a comparison with neighbouring countries Austria and Romania, where there was no mass vaccination, at least according to the information of the Hungarian State Institute of Hygiene. While Romania seemed to suffer an even more severe epidemic that lasted longer than Hungary's, the curve was quite similar, whereas Austria's epidemic produced a much more gradual curve, staying well below the Hungarian one except for the months of October and November. The example of these two countries and the comparison with Hungary was left without analysis and conclusion, as Petrilla moved on to points three and four, both emphasising the decrease in the ratio of polio cases among the 0–6 age group compared to children older than six. The fifth piece of evidence was the difference in incidence rate between unvaccinated and vaccinated (either one or two doses) children in the months of October to December 1957. By this time, the vaccine should have taken effect. Petrilla found that the incidence rate of the non-vaccinated children was double that of those vaccinated once and five times the rate of children vaccinated twice. Petrilla admitted that these numbers were based on months with an overall low incidence rate (following the outbreak), which made evaluation difficult. For instance, the low number of cases in Budapest (nine in total over the course of three months) made it impossible to produce statistically relevant results.¹² Petrilla's last piece of evidence is the difference in the way the epidemic wave receded for children born between

⁹ Petrilla, *The Results of Intracutaneous Poliomyelitis Vaccination in Hungary, 1957*.

¹⁰ *Ibid.* 307. ¹¹ *Ibid.* 300. ¹² *Ibid.* 304–05.

1955 and 1956 and for children born between 1951 and 1954. The younger population (one-year-olds) had received their vaccinations one month earlier than the three-to-six-year-olds, and the case numbers among the former started falling earlier than among the latter. Petrilla pointed out that the evaluation of the effect on two-year-olds was not possible, since the report cards only contained the age of the children, not the birth years, and thus there was no way of knowing whether two-year-olds were born in 1954 or 1955 and therefore to which vaccination group they would belong.¹³ Other possible reasons for the difference in age groups (e.g. comparison to age patterns in previous epidemics) were not discussed.

In his summary, Petrilla used an even more cautious tone. Whereas he had claimed at the beginning of the article that the effects were satisfactory, he now changed his evaluation, saying, 'The efficacy of the vaccination could not be determined exactly.'¹⁴ He further confused his analysis by first admitting that the unvaccinated population included vaccinated children who had received vaccine through private practice, and then that he considered the 'unvaccinated group' as a control group for the evaluation of the vaccination.

These evaluations of the Salk vaccine seemed to fall in line with what Tibor Bakács, director of the State Hygienic Institute from September 1957, wrote in his memoir in the 1970s: 'During the sectarian years [the pre-1956, Stalinist era], it was an institutional directive that 'research is only allowed with the certainty of success.' Those who could not show results in time in their research were reprimanded and not only on the scientific level.'¹⁵ Bakács saw this attitude and distrust in scientific research, which was still prevalent in 1957, as one of the main challenges he faced as director. It is hardly surprising that scientists therefore did not have much choice but to produce results and success, especially in a case of such national importance as the Salk vaccination.

Meanwhile, the vaccination campaign continued, as further age groups were included in the immunisation programme in February 1958. The Health Ministry raised the age limit from 6 to 18 years and covered the broadened vaccine needs by importing further batches of vaccine. The vaccination campaign was organised in state homes for mothers and infants,¹⁶ kindergartens and health centres. Older children were vaccinated in high schools and vocational schools.¹⁷ However, the age group of 14 to 18 was apparently not very enthusiastic about receiving vaccination. According to a newspaper article in

¹³ Ibid. 306. ¹⁴ Ibid. 308.

¹⁵ Tibor Bakács, *Egy Életrajz Ürügyén* (Budapest: Kossuth Könyvkiadó, 1978).

¹⁶ Single mothers would be admitted to the former, while orphans and state wards were accommodated in the latter.

¹⁷ 'Tízennyolc Éves Korig Adnak Gyermekbénulás Elleni Védőoltást – Február 10-én Kezdődik az Új Oltási Kampány', *Népakarat*, 28 January 1958, 3.



Figure 4.1 *Hungarian researchers against poliomyelitis*. Népakarat, 18 September 1957, 2, no. 218, 1. Credit: Arcanum Digitecha. **This image is protected by copyright and cannot be used without further permissions clearance.**

Népszava in April, the majority did not show up at the immunisation points. Therefore, they were called upon by the newspaper to attend their vaccination before the epidemic months of the summer began.¹⁸

In the spring of 1959, polio vaccination became compulsory and was administered through a continuous vaccination programme. The process had begun a year before, in March 1958, when Vilmos Kapos, director of the Public Health and Epidemiology Station of Budapest, had proposed implementing continuous immunisation for children instead of the method of vaccination campaigns that had hitherto been applied. Kapos argued that at many points during the campaigns there had been some kind of epidemic in place, e.g. flu or polio, which set back vaccination processes. Moreover, many children specified by the respective age groups of certain vaccination programmes were in daycare (*bölcsőde*), where infectious diseases were a constant feature, therefore often barring whole communities from taking part in a campaign. These children then would have to be vaccinated in the next campaign, joining the ones who were regularly scheduled. This produced a serious strain on authorities providing and distributing the vaccine.¹⁹

Continuous vaccination would serve as a solution to these problems, since individual children could be vaccinated at the moment they reached the

¹⁸ Moldován, 'Aki Még Nem Kapott – Áprilisban Jelentkezzék Gyermekbénulás Elleni Védőoltásra', *Népszava*, 16 April 1958.

¹⁹ Vilmos Kapos. 'A Kötelező Védőoltások Folyamatos Végrehajtása a Főváros Területén', Budapest: National Archives of Hungary, Egészségügyi Minisztérium Állami közegészségügyi felügyelet és járványvédelmi főosztály iratai, XIX-C-2-e 1959, 51453, 1958.

required age or recovered from their current illness. Until then, polio vaccinations had been organised in biannual campaigns, in which children of certain age groups were vaccinated over the course of several days. In April, the Humán Vaccine Production and Research Institute assured the Health Ministry that in terms of vaccine distribution, continuous vaccination was indeed possible.²⁰ The next month, plans were afoot: the Health Ministry authorised the experimental implementation of continuous immunisation along with the diphtheria-pertussis-tetanus and smallpox vaccines. Budapest was to report on the progress of the test run every six months.²¹

The government issued the decree on mandatory immunisation against poliomyelitis in September 1958,²² to become effective in 1959.²³ Children between 6 months and 17 years old were to receive compulsory polio injections with the Salk vaccine. In cases of epidemic outbreaks, the health departments of city or county councils had the authority to order additional mass vaccinations against the disease.²⁴ It was parents' responsibility to appear with their children before the vaccinating doctor, and everyone who was obliged to be vaccinated would receive an immunisation card on which the physicians could record vaccinations and control examinations.²⁵ Although the continuous immunisation programme was still in its experimental phase in Budapest, Kapos assured the Health Ministry that they would be able to conform to the new regulation, despite the extra strain it placed on their infrastructure.²⁶

The use of the Salk vaccine was thus established and became fixed in the legal system. In this environment, there was little space for doubts or the circulation of alternative views, especially on a public level. The subjects of vaccination policies and their parents and guardians were not consulted at any point of the process. Instead, vaccination and the evaluation of its success were centrally decided. After all, the epidemic had receded, the summer panic was over and the main task remaining was to reach as many children as possible with the vaccination programme to try to avert another attack. For this project, emphasising that the efficacy of the vaccine had been confirmed was crucial. Soon, however, the immunisation programme would be put to the test in the

²⁰ Oltóanyagtermelő és Kutató Intézet Humán. 'Kötelező Védőoltások Folyamatos Végrehajtása a Főváros Területén', *ibid.* 51918.

²¹ Aladár Kátay. 'Folyamatos Védőoltások a Fővárosban.' *Ibid.* Magyar Országos Levéltár, 52417.

²² 'Rendelet a Kötelező Védőoltásokról', *Népakarat*, 17 September 1958.

²³ *A Magyar Forradalmi Munkás-Paraszt Kormány 1027/1958 (VIII. 3.) Számú Határozata a Gyermekbénulás Elleni Védekezéséről*, 1958.

²⁴ *Az Egészségügyi Miniszter 5/1958. (IX. 16) Eü. M. Számú Rendelete a Védőoltásokra Vonatkozó Jogszabályok Végrehajtásáról* (1958), 1.

²⁵ *Ibid.* 2.

²⁶ Vilmos Kapos. 'A Folyamatos Védőoltások a Fővárosban', Budapest: National Archives of Hungary, Egészségügyi Minisztérium Állami közegészségügyi felügyelet és járványvédelmi főosztály iratai, XIX-C-2-e 1959, 51250, 1959.

face of a new epidemic – one that would prove to be tragic for thousands of children and their families.

An Unexpected Epidemic: Polio in 1959

Another summer came – the second since vaccination against polio had begun. Again, as two years previously, the heat rose in early June, compelling 37,000 people in Budapest to go to the baths and swimming pools on the first hot Sunday of the year. To the relief of many, beer production had been well prepared for the summer and Budapesters consumed 1.6 million glasses of beer in one day alone – along with hundreds of kilograms of ice cream.²⁷ National plans for children's summer holidays were also underway: The National Council of Trade Unions was to take 30,000 schoolchildren on holiday, while the Pioneer movement planned summer camps for 200,000 children.²⁸

As the summer progressed, the temperature kept rising every day. Swimming pools and outdoor baths were increasingly packed at weekends, with children and adults basking in the sun. But despite renewed assurances in the newspaper about the beer and ice cream supply in recreational places,²⁹ clouds of fear grew in the summer sky.

On 21 July readers of *Népszava* found the all too familiar health minister's report on the back page of the newspaper. The minister called attention to the growing number of poliomyelitis cases in Budapest and informed the public about the decree of the Health Ministry, which brought forward all scheduled polio vaccinations due in the autumn of 1959 and even in the spring of 1960.³⁰ Ten days later, Vera Szekeres, a paediatrician, wrote a newspaper article warning parents to avoid crowds and swimming pools and not to tire children with either games or studying during the holidays.³¹ Polio was back.

Soon, more and more cases were reported in Budapest, and the epidemic started spreading to Kecskemét, Szeged, Mohács and towns in Pest County.³² While the number of cases was lower than in the severe epidemic of 1957, it climbed higher than any other year before. In July 1959, 252 cases of paralytic polio were registered, which was surprisingly high compared to

²⁷ 'Rekordforgalom Az Első Meleg Nyári Vasárnapon', *Népszava*, 9 June 1959.

²⁸ 'Harmincezer Iskolásgyermekek Üdültet a SZOT, Kétszázézer Gyerek Megy Úttörőtáborba', *Népszava*, 4 June 1959.

²⁹ 'Kánikulai Jelentés a Strandokról, a Közlekedésről és a Vasárnapi Előkészületekről', *Népszava*, 11 July 1959.

³⁰ 'Az Egészségügyi Minisztérium Tájékoztatója a Gyermekbénulásos Megbetegedésekről', *Népszava*, 21 July 1959, 8.

³¹ 'Megkezdték a IV. Salk-Védőoltás Beadását', *Népszava*, 31 July 1959.

³² 'Az Egészségügyi Minisztérium Tájékoztatója a Gyermekbénulásos Megbetegedésekről', *Népszava*, 2 August 1959, 11.

those of previous years. In July 1958, the number had been 21; in 1956, 145; in 1955, 83; and in 1954, 198. Only the stunningly high number of 705 cases from July 1957 surpassed the number in 1959.³³ In August, the epidemic escalated, climbing up to 761 cases, well above the 487 of August 1957 and four times as many as the average number of cases in the August of previous epidemic years.³⁴

Again, as two years previously, an intensive vaccination campaign was quickly organised. A report on the Budapest campaign in July 1959 reveals the details:

Vaccination in the capital is executed by the 73 Mother and Infant Protection Agencies. Children under 5 years are summoned with personalised request cards. The request cards for [those] under 2 years old include punitive measures; the ones for above 2 year olds do not. Nurses and Red Cross activists visit the homes of children who do not appear for vaccination despite the request.³⁵

While vaccination took over as the primary mode of prophylaxis, as the numbers continued to creep up, other, more traditional steps were also taken to soften the blow of the epidemic. Children could no longer seek refuge from the summer heat in swimming pools or on the banks of the Danube; epidemic areas were closed off from holiday travels organised for children; tonsillectomies were postponed³⁶ in order to reduce the number of children with a weakened immune system and a wound in the gateway of the disease – the gastrointestinal system – exposed to polio; daycare centres in which outbreaks had been registered were shut down and disinfected.³⁷

In exceptional cases, children in the immediate environment of polio patients could also receive gamma globulin. As an article in *Orvosi Hetilap* pointed out: ‘Gamma globulin has ceased to be a mass tool of poliomyelitis prophylaxis, but in certain cases, we cannot renounce the protection it offers.’³⁸ Doctors would prescribe the serum to those who ‘due to their age or other reasons could not be

³³ ‘Az Egészségügyi Minisztérium Tájékoztatója az Ország 1959. Évi Július Havi Járványügyi Helyzetéről’, *Népegészségügy* 40, no. 9 (1959): 252.

³⁴ ‘Az Egészségügyi Minisztérium Tájékoztatója az Ország 1959. Évi Augusztus Havi Járványügyi Helyzetéről’, *Népegészségügy* 40, no. 10 (1959): 279–80.

³⁵ Gábor Vastagh and Ottó Rudnai. ‘Jelentés a Fővárosi Poliomyelitis Elleni Védőoltások Ellenőrzéséről’, Budapest: National Archives of Hungary, Országos Közegészségi Intézet Járványügyi és Mikrobiológiai Főosztályának iratai, XXVI-C-3-e, 5450/1959, 1959.

³⁶ Ottó Rudnai. ‘Heti Fertőzőbeteg Jelentés 1959. 30. Hét’, Budapest: National Archives of Hungary, Országos Közegészségügyi Intézet iratai, XXVI-C-3-e, 5421/1959, 1959.

³⁷ *Az Egészségügyi Miniszter 8200-4/1953. Eü. M. Számú Utasítása a Fertőző Betegségek Megelőzéséről Szóló 61/1953 (XII.20) M. T. Számú Végrehajtása Tárgyában*. 3.sz. melléklet a 8200-4/1953. Eü. M. számú utasításhoz.

³⁸ Pál Földes and Szeri Ilona, ‘A Gamma-Globulin Prophylaxis Szerepe a Poliomyelitis Elleni Küzdelem Jelenlegi Helyzetében’, *Orvosi Hetilap* 100, no. 3 (1959): 115–17 at 116.

vaccinated previously'.³⁹ The vaccine would be distributed free of charge by the local public health and epidemiology station.⁴⁰

The epidemic wave started to recede in the autumn. While 509 cases were registered in September, the number fell to 199 in October and 96 in November.⁴¹ These numbers were still much higher than the respective data from the previous epidemic year,⁴² 1957, although in that year, as we have seen in the previous section, the epidemic curve was unusually spiky, beginning and ending sooner than in an average epidemic year.

About 25 per cent of cases were reported in the capital and the surrounding Pest County in the peak month of August. Other epidemic areas were Bács-Kiskun, Szabolcs-Szatmár, Győr, Sopron, Veszprém, Heves, Fejér and Békés Counties. The incidence rate was highest in Pest County, at 21.6 per 100,000.⁴³ At the peak of the epidemic, the disease truly spread across the whole country; there was no county or region in Hungary that was not affected.⁴⁴

In total, 1,830 people, mainly children, fell ill with paralytic polio, making 1959 the second largest epidemic year in Hungary after 1957, with its 2,334 cases. Pest County continued to remain at the epicentre throughout the epidemic wave, reaching an incidence rate of 30.9 per 100,000, while the average rate was 18.3 nationwide. Similarly to 1957, it was Type I poliovirus that spread across the country that year. This type was more virulent than Types II and III, which had been the culprits in the epidemic years preceding 1957 and could have accounted for the severity of the previous two epidemics.⁴⁵

Something else was also different from previous epidemics. There was a statistically significant change in the age groups afflicted by the disease. The ratio of affected children between 1 and 2 years of age fell, while the number of cases among infants under one year and children between 3 and 5 years grew.⁴⁶ Public health officials and epidemiologists like Bakács and Rudnai

³⁹ 38/1958. (VI.10.) Korm. Számú Rendelet a Védőoltásokról Szóló 60/1953. (XII.20.) M.T. Számú Rendelet Kiegészítéséről.

⁴⁰ Barnabás Göllner, 'Gamma-Glonulin Felhasználása Fertőzőbetegségek Megelőzésére', Budapest: City Archives of Budapest, Budapest Fővárosi Tanács VB Egészségügyi Osztályának iratai, XXIII.115.a/34. kisdoboz, 180788–1959, 1959.

⁴¹ Aladár Kátay, 'Járványügyi Adatok Közlése az Egészségügyi Világszervezettel', Budapest: National Archives of Hungary, Egészségügyi Minisztérium Allami Közegészségügyi Felügyelet és Járványvédelmi Főosztály iratai, XIX-C-2-e, 57370, 1959.

⁴² In November 1957, 45 cases of poliomyelitis were registered in Hungary, while in 1959 the number was over double with the 96 cases. Ibid.

⁴³ 'Az Egészségügyi Minisztérium Tájékoztatója az Ország 1959. Évi Augusztus Havi Járványügyi Helyzetéről', 1959.

⁴⁴ Gábor Vastagh, 'Az Országos Közegészségügyi Intézet Járványügyi Tájékoztatója 1959. Augusztus Hóról.' Budapest: National Archives of Hungary, Országos Közegészségügyi Intézet Járványügyi és Mikrobiológiai Osztályának iratai, XXVI-C-3-e, 5571/1959, 1959.

⁴⁵ Ottó Rudnai, *The 1959 Poliomyelitis Epidemic in Hungary*, Acta Microbiologica (Budapest: Academiae Scientiarum Hungaricae, 1960).

⁴⁶ Ibid. 439.

explained that this was the effect of the Salk vaccination. According to their argument, the reason for the increase among the two age groups was that infants had not been fully vaccinated (they started receiving vaccine from the age of six months, often even later), while in the cases of older children, the vaccine had lost much of its protective effect. Children between 1 and 2 years old had mostly received all their injections and had been vaccinated relatively recently.⁴⁷

'The 1959 epidemic was, to some extent, unexpected. It was hoped that the Salk vaccination, carried since 1957, would protect the otherwise most endangered age groups, which have been vaccinated most systematically', wrote Ottó Rudnai in a report on the 1959 epidemic.⁴⁸ Tibor Bakács similarly voiced puzzlement, and perhaps disappointment: 'In the light of . . . the fact that from 1957 to 1959, 70 to 90 percent of the population under 20 years of age had been vaccinated with Salk vaccine, it was difficult to explain how the 1959 epidemic had come about.'⁴⁹

Placing the Blame

Who or what was to blame for this unexpected epidemic? Were parents irresponsible for not having their children vaccinated? Was it the state that failed to organise immunisation effectively or secure adequate supplies? Was it the fault of physicians, who undermined the success of vaccination with doubts and alternative views? Or perhaps did blame lie with the vaccine itself, which had given a false sense of security to the nation?

The epidemic of 1959 changed the game. In the search for explanations, the success story of the Salk vaccine in Hungary was re-evaluated. The state blamed the parents who neglected their children and acted irresponsibly in not taking their children to be vaccinated. Doubts formed about the intracutaneous method in the medical community. Bitter parents pointed fingers at the state, as a persistent conspiracy theory took hold among them. Administrators pointed out deficiencies in organisation, adding that medical supplies had also failed to reach the standard required for a successful immunisation. Finally, the Salk vaccine, which was slowly losing the battle against the rising live-virus vaccine of Albert Sabin, came under scrutiny. The following section analyses these circles of blame in order to unravel further the expectations and responsibilities shared among the multiple actors of state, medical profession and parents.

⁴⁷ See *ibid.* and Dr Tibor Bakács, 'Poliomyelitis Prophylaxis in Hungary', *ibid.* VII, no. 3: 329–37.

⁴⁸ Rudnai, *The 1959 Poliomyelitis Epidemic in Hungary*, 442

⁴⁹ Dr Tibor Bakács, 'Poliomyelitis Prophylaxis in Hungary', *ibid.* VII, no. 3: 329–37 at 331.

The Parents: Irresponsibility and Neglect

It seems that there were definitely issues with the organisation of the vaccination process from the beginning. A side note on an internal draft version of the ministerial instructions for the August–September vaccination campaign in 1957 reveals that ‘the preparation and announcement of the vaccinations in July were flawed in many instances’.⁵⁰ Sándor Tóth’s opinion might have informed the minister’s unfavourable view of the vaccination campaign. Tóth, the managing hospital director in Debrecen, the second largest city in the country and home of the regional medical centre, submitted a report that listed several problems he had observed in his region.⁵¹ One of the recurring problems was that many parents did not turn up at the vaccination points to have their children immunised. This issue became central very early on in the outbreak of the new epidemic and served as a context in which all public communication about polio was framed.

As the previous section shows, there were many similarities between the epidemics of 1957 and 1959. The type of the virus, intensity of the epidemic and age groups afflicted during these two events all stood out in comparison to previous epidemics. The 1959 epidemic was also extraordinary for another reason. This time, the nation was supposed to have been vaccinated. This epidemic, especially with such vehemence, should not have happened.

The paternalist state, which had invested so much in reclaiming its role as the provider by importing the Salk vaccine in 1957 and was then so intent on proving its efficacy, could neither afford a loss of face in 1959, nor could it admit to a failure or claim responsibility for this tragic turn of events. For two years, virtually every public communication had discussed polio in the context of the government’s achievement in securing the Salk vaccine and saving Hungary’s children from the crippling disease.

While the government was consistent in emphasising its own heroic role in the fight against polio throughout 1959, the new epidemic did bring about a change in viewpoint on the rate of vaccination. Up until the outbreak in the summer of 1959, one of the achievements emphasised frequently in newspapers was the success in immunising the masses with the vaccine. In November 1957, in a talk delivered at the Hungarian–Soviet Medicine meeting, the Hungarian vice-minister of health demonstrated the success of implementing the great pillar of Soviet healthcare – prevention – by stating that one million

⁵⁰ Benyó, ‘Gyermekbénulás Elleni Folytatólagos Védőoltások Szervezése’, Budapest: National Archives of Hungary, 1957.

⁵¹ Sándor Tóth, ‘Gyermekbénulás Elleni Védőoltásokkal Kapcsolatos Felmerült Problémák’, Debrecen: National Archives of Hungary, Egészségügyi Minisztérium Állami Közegészségügyi Felügyeleti és Járványvédeli Főosztály, XIX-C-2-e, 53137, 1957.

children had been given the Salk vaccine.⁵² In June 1958, the health minister boasted that ‘two and a half million people, that is, one fourth of the population, has been immunised against polio’.⁵³ The same number was cited in the report titled ‘The results of 1958 in Hungarian healthcare and its plans for 1959’, assembled in early 1959 by Health Minister Doleschall Frigyes and submitted to the president of the Ministerial Council, Ferenc Münnich, on 9 January 1959.⁵⁴ Where vaccination rates did not reach a high percentage, as was the case in Budapest, public health officials pointed to the proliferation of privately imported and implemented vaccines that could have reached as many as 80,000 people.⁵⁵

However, the evaluation of the vaccination rate changed quickly in official communications when the first signs of an epidemic started to show. In the summer of 1959, newspaper readers wishing for more information about the spread of the disease looked in vain for the weekly reports of the Health Ministry, as they had done in 1957. While in the summer of 1957 the Health Ministry had issued a report every week on polio in major newspapers, eight in total, only two reports appeared in 1959. The reports had become scarce and less informative about the number of cases and infected areas.⁵⁶ Instead, they concentrated on vaccination issues, and most of all, on scolding parents for neglecting their duties.

The first report barely gave any information about the cases and geographical spread of the disease: almost half consisted of an overview of previous prevention efforts and the success of immunisation before offering details of the growing number of polio cases and naming parents as responsible for this unfortunate turn of events.

In the summer of 1956 the number of polio cases in Budapest was unusually high; on a national scale the highest number of people contracting the disease was in 1957. The number of new cases already started falling in the three months after vaccination was introduced and the epidemic ceased completely. In 1958 reports of the disease were scarce from all over the country. The number of cases stayed low in the summer months

⁵² ‘Egymillió Gyerek Kapott Idén Védőoltást. Megkezdődtek a Magyar-Szovjet Orvosi Napok’, *Népakarat*, 22 November 1957, 1.

⁵³ ‘Dr. Doleschall Frigyes Miniszter Nyilatkozata a Népszavának Az Egészségügy Hároméves Tervéről, a Salk-Oltásokról és a Gyógyszerfogyasztásról’, *Népszava*, 17 June 1958, 1–2.

⁵⁴ Frigyes Doleschall, ‘A Magyar Egészségügy 1958. Évi Eredményei És 1959. Évi Terve.’ Budapest: National Archives of Hungary, Doleschall Frigyes egészségügyi miniszter iratai, XIX-C-2-q, 1959.

⁵⁵ I. Ferencz, ‘The Results of Mass Poliomyelitis Vaccination Program Carried out in 1957 in Hungary’, in *Vaccination and Immunity, Neurophysical and neuropathological aspects of poliomyelitis. Vth Symposium of the European Association against Poliomyelitis*, ed. H. C. A. Lassen (Madrid: Europ. Assoc. Poliomyelitis, 1959).

⁵⁶ ‘Az Egészségügyi Minisztérium Tájékoztatója a Gyermekbénulásos Megbetegedésekről’, *Népszava*, 21 July 1959, 8, and ‘Az Egészségügyi Minisztérium Tájékoztatója a Gyermekbénulásos Megbetegedésekről’, *Népszava*, 2 August 1959, 12.

as well, and never before had so few cases been reported nationally than in that year. The situation remained favourable nationally in the first half of this year as well, but recently the number of polio cases has been rising in Budapest. Based on examinations so far, it appears that this increase is primarily caused by the fact that many children were not taken to get immunised in Budapest. There are also many children who only received one or two out of the three shots.⁵⁷

Other articles, such as the one titled 'All our responsibility', published in *Népszabadság* in July 1959, placed the blame more directly:

Who wouldn't remember the anxiety with which we looked at news about poliomyelitis cases two years ago, and what a weight had been lifted off the shoulders of worried parents, when the good news spread: the aircraft bearing the first batch of Salk vaccine has landed on Ferihegy airport? We gave news almost every day about steps taken to prevent the further spread of the disease, among them the credit of millions of forints, with which the government secured vaccine for the most endangered age groups. The greatest wish of all parents was to have their children protected against the dangerous disease that often leaves severe marks for life. All the more surprising is it that according to information recently published by the Health Ministry, a lot of children in the capital had not been taken to be immunised and based on examinations it can be said: the rising number of cases . . . are caused by exactly this.⁵⁸

The argument thus was simple and outright: the government had done everything in its power to curb the disease, and through great sacrifice provided protection for the children. But it was the parents who had neglected their duties and with their irresponsible behaviour caused a new epidemic.

What is particularly interesting in this latter account of events is the ambivalent relationship between the state and its citizens. On the one hand, the state and parents together comprised an all-encompassing family, creating a unit in which all members were responsible for working for the benefit of all. On the other hand, the actions of the state were completely removed from this unit; the credit that was needed to buy vaccine was presented as the sole sacrifice of the government, giving the impression that the debt of the country would not affect citizens in any way and therefore they need not be concerned.⁵⁹

But by 'a lot' of unvaccinated or only partially vaccinated children, how many were meant? Was participation in the vaccination campaigns against polio really a problem throughout? Or was the citing of low vaccination rates instead a tool of the government, used to point at a scapegoat to take the blame?

⁵⁷ 'Az Egészségügyi Minisztérium Tájékoztatója a Gyermekbénulásos Megbetegedésekről', *Népszava*, 21 July 1959, 8.

⁵⁸ Jenő Faragó, 'Mindannyiunk Felelőssége', *Népszabadság*, 24 July 1959.

⁵⁹ This remote concept of a country's debt, removed completely from the lives of the people inhabiting the country, came to be a persistent attitude towards state debt in later years, and only surfaced as a major problem in the eyes of citizens after 1989.

The number of children to be vaccinated in each age group was set according to data provided by the Central Statistical Office (CSO). Vaccine distribution was then calculated based on the number of local eligible children, and so was the vaccination result. According to an official evaluation of the Public Health Control and Epidemiology Department of the Health Ministry (PHCED) from early 1958, a total of 983,000 children were eligible in Hungary for vaccination during the campaigns of 1957. This number does not include the number of children in Budapest, since the data was still missing when the evaluation was compiled.⁶⁰ Of the almost 1 million children born between 1 January 1951 and 28 February 1957 (between 6 months and 6 years old), 792,000 were vaccinated twice, while 190,000 were not vaccinated at all. This means that, at least officially, at the beginning of Salk vaccination in Hungary, 80 per cent of the population under 6 years old were vaccinated. The evaluation remarks that some children in the 'non-vaccinated' group in fact received a first dose at the time when the rest were having their second dose, so the overall number of vaccinated children is likely to have been higher.⁶¹

A report from 1957 on Pest County, the region that suffered the highest incidence rate in the 1959 outbreak, reveals that in at least some cases, the data from the Statistical Office did not match local reality. The county's public health and epidemiology station reported that 70 per cent of eligible children had been vaccinated in August 1957 (most of them twice), while 10 per cent were ill at the time of the campaign. The director therefore deemed the campaign rather successful. Moreover, he argued, the ratio was probably even higher since 'the number of children belonging to the age groups assigned for vaccination is significantly lower, according to local data, than what is shown by the CSO'.⁶²

In the report from Debrecen mentioned at the beginning of this chapter, Sándor Tóth, for one, saw deficiencies in the way the campaign was announced and the public informed about it. He pointed out that there was very little time in July to advertise the campaign adequately. In addition to posters and radio news, the local PHCED tried to disseminate information by employing Red Cross and party activists and even literally 'drumming up' eligible families in railway stations: a drummer shouted out the details of the campaign during the rush hours of dawn and late evening, when agricultural

⁶⁰ If the report on Budapest was ever completed, it is lost from the archives of the Health Ministry.

⁶¹ Aladár Petrilla, 'Jelentés a Poliomyelitis Ellenés Védőoltások Előzetes Eredményeiről', Budapest: National Archives of Hungary, Román József egészségügyi miniszter iratai, XIX-C-2-e, 1958.

⁶² Sándor Sólyom. 'Augusztus Hónapban Végzett Gyermekbénulás Elleni Védőoltásokról Jelentés', Budapest: National Archives of Hungary, Egészségügyi Minisztérium Állami közegészségügyi felügyelet és járványvédelmi főosztály iratai, XIX-C-2-e, 53935, 1957.

and factory workers commuted to and from their workplaces. However, participation in the vaccination did not reach the desired quantity.

Other counties were more optimistic about their efficiency and did not report problems of any kind. The PHCED station of Somogy County, for instance, remarked that 'the vaccination in the whole of the county has been executed smoothly and according to plans'.⁶³ The report of Vas County recounted even bigger success: 'The result of the vaccination is 105 percent. This number proves that as an outcome of the good work in providing information, the population of the whole county understood the significance of the vaccination and complied gladly to our request'.⁶⁴

Unfortunately, such reports from later months in 1958 and 1959 are missing from the archives. It is therefore difficult to tell if there was a significant change in participation in vaccination as time went by, or if the records of 1957 can be taken as representative of the full period of Salk vaccination. It is also unknown whether the numbers and accounts of the campaign's sweeping success were results of wishful thinking rather than fastidious data collection, or to what extent such reports were tools for the personal advancement of local medical directors and PHCED stations. However, since the 1959 polio outbreak was peculiar in that it was roughly equally severe all across the country and not one county escaped the disease, it is possible to conclude that differences in vaccination rates, if there indeed were notable differences, did not significantly affect the outbreak of polio.

The only available public health document that chided parents for not taking their responsibility of vaccinating their children against polio seriously was a report submitted to the Health Ministry by the city council of Budapest in June 1959 on the health status of the capital's citizens.

Since the administration of the vaccine concerns nearly 100,000 children, it places a great burden on the vaccinating apparatus; therefore it is very important that the parents comply in time with the vaccination requests. Although vaccination discipline has recently improved, nevertheless in the case of many parents we need to revert to the disfavoured tools of fining, in order to get their children vaccinated in time.⁶⁵

One explanation could be that Budapest was unique in that its parents disregarded their duties both as guardians and as citizens and that the vaccination rates were indeed lower than in other parts of the country. Alternatively, in a progress report from one political authority to another, blaming parents for

⁶³ Pál Lakos. *Ibid.*, 53885.

⁶⁴ László Balló, 'Salk Védőoltások a Megye Területén', *ibid.*, 54099.

⁶⁵ 'Budapest Fővárosi Tanács Végrehajtó Bizottsága Határozati Javaslat a Főváros Egészségügyi Helyzetének További Javítására', Budapest: National Archives of Hungary, Egészségügyi Minisztérium Vilmon Gyula miniszterhelyettes iratai, XIX-C-2-p, 1959.

any past or future faults in the vaccination campaign could well have been a strategy the council wanted to pursue.

What the evaluations and reports do reveal is that apart from the above instance, the responsibility of the parents and the excessive blame present in the public discussion of the 1959 epidemic was almost completely absent in the internal papers of the Health Ministry and the State Hygienic Institute. Officially, therefore, there was hardly any foundation for the extent of finger-pointing that the government exercised in the public media. On the contrary, an article published in *Orvosi Hetilap* in 1961 stated that 'according to the Health Ministry, by 1959, 90 per cent of the population under 18 years old was vaccinated three times with the Salk vaccine'.⁶⁶

Furthermore, there is no sign that the issue of a low vaccination rate contributing to a new epidemic was further explored by the government after the summer of 1959. The recognition of the problem was localised to public discourse and also to the narrow temporal segment of the summer of 1959. The blame on parents was mostly laid through newspapers, not in scientific or in administrative literature. In a society where the working class had allegedly won the class struggle, it was ideology that took the place of socio-economic factors in placing blame. In a time of unexpected epidemic outbreak, blaming parents became a political tool for the government to preserve its image as a provider and successful protector of the nation's children.

Quality: Organisation and Supplies

While the internal papers of the Health Ministry did not blame parents outright for the epidemic of 1959, they did raise issues that might have contributed to the unsuccessful immunisation of the nation. These problems mainly had to do with organisation, material supplies and the implementation of instructions and regulations.

The uncertainty about numbers that became apparent in the reports mentioned above originated from the lack of a clear registration system of vaccination. This might sound astonishing, given our preconceptions about the way a state socialist regime would work, but it seems from the documents of the Health Ministry that the state did not actually know who was vaccinated or how many doses they received. The numbers that local PHCED stations submitted to the ministry referred to the number of doses administered only, in order to calculate the amount of vaccine that needed to be distributed for the next campaign.

⁶⁶ György Losonczy et al., 'A Salk Vakcináció és a Poliomyelitis Klinikai Lefolyásának Összefüggése', *Orvosi Hetilap* 101, no. 16 (1961): 733–35 at 733.

In 1957, the State Hygienic Institute sent out inquiries to local PHCEDs in order to ascertain how many polio patients were vaccinated and thereby to evaluate the effectiveness of the vaccine.⁶⁷ By the end of the 1959 epidemic, there was written proof of vaccination in certain cases;⁶⁸ however, the registration system was still in its test phase in July 1959.⁶⁹

Since 1955, it had been the local registrar's duty to issue vaccination cards at birth, along with the birth certificate.⁷⁰ The vaccinating authority issued vaccination cards for older citizens.⁷¹ All compulsory vaccinations had to be recorded on the card, with dates and the sequence of doses (e.g., Salk I, II and III). The card was the responsibility of the person receiving the vaccination or their guardian; they had to take it to the vaccination point with them and check that it had been filled in by the doctor or nurse correctly. However, in 1956 there was still no 'unified vaccination registry and appropriate vaccination system'⁷² in place.

Parallel to the individual cards, beginning in 1958, the lists containing the names of people eligible for immunisation were compiled locally. These lists were made in accordance with a decree of the Health Ministry. The lists, compiled by the city councils' public health departments and village district physicians, contained not only the number of injections that each person received but also permission for delaying vaccinations (e.g. illness) or indication of absence without proper reason.⁷³ The documents were meant to be kept for twenty years in their respective archives.⁷⁴ In actuality, after each campaign came to a close, the lists were usually transferred to a general file-storage space, where it was 'impossible to find them after 1–2 years'. Therefore, in 1959 the State Hygienic Institute recommended that district physicians keep these files separately for easy access in the future. However, it seems that the system of lists was not nationally applied. In some places, like Stalin City

⁶⁷ Petrilla. 'Jelentés a Poliomyelitis Ellenes Védőoltások Előzetes Eredményeiről', Budapest: National Archives of Hungary, 1958.

⁶⁸ Bakács, 'Poliomyelitis Prophylaxis in Hungary', 0.

⁶⁹ Aladár Petrilla. 'Védőoltási Kimutatások Módosítása', Budapest: National Archives of Hungary, Országos Közegészségi Intézet Járványügyi és Mikrobiológiai Főosztályának iratai, XXVI-C-3-e I.d., 5331/1959, 1959; 'Jelentés a Poliomyelitis Ellenes Védőoltások Előzetes Eredményeiről.' Budapest: National Archives of Hungary, 1958.

⁷⁰ 'Az Egészségügyi Miniszter 8200–5/1953. Eü.M. Számú Utasítása Védőoltásokról Szóló 60/1953. (XII.20.) M.T. Számú Rendelet Végrehajtása Tárgyában', in 38/1958. (Eü. K. 19), ed. Egészségügyi Minisztérium (Budapest, 1958).

⁷¹ 'Az Egészségügyi Miniszter 5/1958. (IX. 16) Eü. M. Számú Rendelete a Védőoltásokra Vonatkozó Jogszabályok Végrehajtásáról, 1958.

⁷² 'Budapest Főváros Lakossága Egészségügyi Ellátásának 1956. Évi Fejlesztési Terve.' Budapest: City Archives of Budapest, Budapest Fővárosi Tanács VB Egészségügyi Osztályának iratai, XXIII. 115.a. 214. box, 1956.

⁷³ 'Az Egészségügyi Miniszter 8200–5/1953. Eü.M. Számú Utasítása Védőoltásokról Szóló 60/1953. (Xii.20.) M.T. Számú Rendelet Végrehajtása Tárgyában', 1958.

⁷⁴ *Ibid.*

(*Sztálinváros*), a system of individual vaccination registration was introduced to keep track of immunisation in place of lists. This system was actually favoured by the head of the SHI over the official system set by the decree, as it meant that when a document disappeared it was only one person's data that was lost, as opposed to the data of a whole list of people.⁷⁵

The lack of a clear and organised administrative system posed challenges for scientific inquiries. Shortly after the epidemic in 1959 broke out, the State Hygienic Institute contacted hospital directors in larger Hungarian cities to collect blood samples for the examination of immunity against poliomyelitis and the effect of the Salk vaccine. Blood would have to be collected from children staying in hospitals with non-polio cases and without fever. Vaccination histories would need to be taken 'based on vaccination cards or the account of the parents'.⁷⁶ Instead of choosing to leave children without written vaccination records out of the study, the institute simply chose to ask the parents. This suggests that either they were afraid that the required amount of samples could not otherwise be collected or that they were happy to take the words of the parents as the equivalent of written proof when it came to vaccination. In any case, the presence of vaccination cards was clearly not a fixed or given reality in the eyes of the SHI.

Another problem was the registration of polio cases. The PHCED station was supposed to collect reports and forward them to the State Institute of Hygiene. However, the reporting was often belated, as records of new cases were held up at the district physician's office. A recurring problem seemed to be that many hospitals would not report the children with polio in their care, even though they were obliged to report to the PHCED station via telephone as soon as a case came in.⁷⁷

Furthermore, paralytic polio cases were not connected to vaccination information; when a polio case was reported, the information about when and how many doses of vaccine the child received (if any) was not included in the form. Therefore, to determine how many children were indeed vaccinated out of those who had since come down with polio, a separate data collection was necessary. This system stayed in place through the whole period of Salk vaccination, with only the minor difference that the additional questionnaire form in use since 1957 was submitted for revision and update at the end of the 1959 epidemic.⁷⁸

⁷⁵ 'Védőoltási Kimutatások Módosítása.' Budapest: National Archives of Hungary, 1959.

⁷⁶ 'Polio Elleni Védőoltások Immunológiai Ellenőrzése', Budapest, 5416, 1959.

⁷⁷ Ottó Rudnai, 'Jelentés a Szabolcs-Szatmár Megyei Köjál Epidemiológiai Munkájának Ellenőrzéséről', Budapest: National Archives of Hungary, Egészségügyi Minisztérium Állami Közegészségügyi Felügyeleti és Járványvédeli Főosztály, XIX-C-2-e, 56593/1959, 1959.

⁷⁸ Bakács. 'Poliomyelitis Betegek Védőoltására Vonatkozó Adatgyűjtés', Budapest: National Archives of Hungary, 1959.

The fact that it was difficult to establish a link between polio cases and vaccination histories did not cause problems only for the Health Ministry and the SHI. For children who contracted polio despite being vaccinated and their families, it was particularly vexing that they were not able to track their own vaccination.

I was vaccinated. I don't know how many doses, though. This is such a problem as well. My mother went [to the local health centre] to ask about my vaccination, about the card. They said that they don't have it. One would think that these things, this information would be important to know for the treatment later on.⁷⁹

While being vaccinated – but not being able to check their immunisation history and details – caused concern and frustration about the illness and damaged trust in the treatment for some of those who came down with polio and suffered paralysis, others faced grave consequences because of the lack of clear directives and a national registration system. Katalin Parádi was particularly unlucky in being a rare case of someone who contracted polio *twice*. She came down with polio and was paralysed in the arm in 1944, and then again after being vaccinated in the summer of 1959: 'The vaccination was organised in my high school. I told them I already had polio and therefore do not need the vaccine. They did not care and made me get the vaccination. It was not open for discussion.'⁸⁰

Katalin's story shows that vaccination outside the most endangered group of those under 3 years old was not entirely voluntary, as the law and the newspapers made it out to be. Of course, 'voluntary' did have a particular meaning in this period, as Stakhanovites all over the country did overtime in factories voluntarily, while thousands of people demonstrated voluntarily in support of the Communist Party, Lenin and Stalin. Moreover, in the case of schools, parents were more often informed about, rather than involved in, decisions about education, extracurricular tasks and, as Katalin's case shows, health. In an already complicated and rather imperfect system of vaccination registration, such arbitrary mini-campaigns would make keeping track of individual immunisation history even more difficult.

Apart from organisational issues, the quality of equipment used in the campaigns also raised concern. A grave material problem that Sándor Tóth pointed out in his report on Debrecen was most probably an issue throughout the country: apparently, the needles supplied by the Health Ministry for the vaccination were of such bad quality that it was impossible to be certain if adequate doses could be administered. Simply put, the needles were leaking. 'Even after exchanging the [faulty] needles, they were not perfect, therefore it

⁷⁹ Zoltán Török, interview by Dora Vargha, 8 September 2011.

⁸⁰ Parádi, interview by Vargha, 27 January 2010.

was not possible to verify the quantity of vaccine in each case.⁸¹ As a solution, many doctors started using their own needles. However, that went against the idea of a centrally organised and executed vaccination, in which the methods, quantities and tools used were standardised and controllable.

The ministry did react to Tóth's observation and ordered a 'better quality check at the time of receiving the needle shipment from the manufacturer'.⁸² However, Tóth's report was handed in after the second campaign in August, which means that by the time the problem was pointed out to the ministry, the 'most endangered' age group had already received two doses of the vaccine. If some of these doses had been incomplete, that would have undermined the whole campaign.

Apart from vaccination issues, there seemed to be further problems with compliance with laws and regulations regarding the polio epidemic. A complaint from 1957, written by the PHCED station director in Nógrád County, reveals that although children's travel was restricted by law and children's organised holidays put on hold in times of epidemics (see Chapter 2), the execution of the law was another matter altogether.

We learned by accident that a group of schoolchildren from Budapest had holiday[ed] in Hasznos village, without informing the district physician ... the directors of the respective schools organised this through correspondence ... and the Station only learned about it well afterwards ... In our investigation we have found that not a single holiday-organising authority complied with what is set out in the law. The teachers were sent to locations without previous physical examinations. But an even bigger mistake was that they all brought their own kitchen staff with them, who were not examined either.⁸³

The director went on to mention five instances in which groups of children were brought to the county for holidays despite the ban on travel.

The ministry archives are lacking in evidence of any steps taken to strengthen enforcement of the law restricting child travel for future epidemics. Perhaps faith in the vaccination meant that this problem had low priority among any upcoming issues. Therefore, it is quite possible that similar incidents did happen in the next epidemic year of 1959.

Inadequate reporting, the absence of a clear (and functioning) vaccination system, deficiencies in equipment and the lack of strict law enforcement could all have contributed to the new epidemic in 1959. The confusion over numbers, data collection and reporting also complicated vaccine evaluation.

⁸¹ Tóth, 'Gyermekbénulás Elleni Védőoltásokkal Kapcsolatos Felmerült Problémák', Debrecen: National Archives of Hungary, 1957, 1.

⁸² Handwritten note on *ibid.*

⁸³ Imre Ádám, 'Az Ifjúság Csoportos Üdültetése.' Budapest: *ibid.*, 54228/1957.

These questions of quality were, however, overshadowed by issues of quantity: the amount of vaccine used throughout the campaigns.

Quantity: The Method

Not all physicians were convinced that the intracutaneous method was the best utilisation of the vaccine or that it would provide the same protection as the intramuscular method. The amount of vaccine used also came under debate. According to Tóth, the 'vaccination brigades' were fully committed to the method and quantity chosen by the Health Ministry, but in 'larger places', by which he probably meant cities with hospitals and health centres, alternative opinions and doubts voiced by doctors may have caused concern and suspicion among the public. This last issue was perhaps the most persistent problem in the course of polio vaccination with the Salk vaccine.

An article published in *Orvosi Hetilap* shows that there was, indeed, a heated if not very visible debate about the intracutaneous method for years. Among the reports published regarding the vaccination campaign of 1957, only one reveals laboratory testing of the Salk vaccine, published by the Microbiology Institution of the Budapest Medical University.⁸⁴ The aim of the study was to test the effects of the intracutaneous vaccination as practised in the mass campaign. This meant, as explained in Chapter 2, that vaccines were administered into the skin rather than the muscles. This method made it possible to cut down significantly the amount of vaccine needed for one injection, thereby stretching the available shipments in order to reach more people.

After vaccinating fifteen children with two consecutive injections, the study found that while Danish, British and Czech studies had found that Salk vaccination with this method provided 30 per cent less protection against Type I polio, the Hungarian case did not show such a difference. This test could have been the proof that Rudnai needed to declare the success of the vaccination, but at the end of the article, he wrote: 'Our data are not suitable to draw conclusions for the efficacy of the 1957 vaccination campaign. This is because the mass vaccination was not executed with the same vaccine used in our study.' This statement is puzzling for more than one reason. First of all, according to Petrilla, 'The bulk of the vaccine used in the campaign was prepared by three laboratories: Connaught; Eli Lilly and Co.; Parke-Davis and Co. Smaller quantities manufactured by other laboratories were also used.'⁸⁵ If such a study was planned to test the vaccine and the vaccination method, why did this particular group of scientists not have access to the

⁸⁴ Szeri, Földes, and Bognár, 'Adatok a Poliomyelitis Elleni Intrakután Védőoltás Kérdéséhez'.

⁸⁵ Petrilla, *The Results of Intracutaneous Poliomyelitis Vaccination in Hungary, 1957*, 298.

vaccines used in the mass campaign? The article was published in 1959, so perhaps at the time of the study the vaccine batches had all been used or were not accessible for such testing. But then why would such a study, executed with an unknown vaccine batch and therefore seemingly irrelevant to the vaccination campaign, be worth publishing in a renowned journal two years after the vaccination campaign had started? The last sentence of the article reveals the answer: the laboratory testing ‘strengthened the trust in intracutaneous vaccination’.⁸⁶

Two years after vaccination with the Salk vaccine began, the method still needed ‘strengthening’. The question still unanswered was whether the intracutaneous vaccination method was as effective as the intramuscular method. The former could be administered with a fraction of the full dose for the latter, making it possible to save a significant amount of vaccine – and money. Was this method to be blamed for the epidemic in 1959? Did the Hungarian state, in the end, compromise the health of its children in its efforts to save resources?

As mentioned in the previous chapter, the method used by the Hungarian authorities was called the Danish method. Denmark served as a model in the quest to curb polio in Hungary: it produced its own Salk vaccine (in the laboratories that the three Hungarian scientists visited on their study trip in 1956), was at the forefront of free mass vaccination, and could show significant results in both prophylaxis and polio treatment. In a report presented at the Fourth International Poliomyelitis Conference, the Danish delegation described its vaccination process. According to the delegates, 99 per cent of children between 9 months and 14 years had been vaccinated by 1957, and 93 per cent of 15–19-year-olds and 85 per cent of 19–35-year-olds had received the vaccine. Vaccination was voluntary and free of charge for citizens. Intradermal (intracutaneous) injections were administered with a domestically produced Salk vaccine. The dosage was 0.3 millilitres per injection in three doses. The population under 18 years also received a fourth booster injection of one millilitre, administered intramuscularly.⁸⁷

There had been no significant epidemic waves in the previous three years in Denmark, and the annual average incidence rate dropped from 15 per 100,000 before vaccination to 0.65 after 1955. However, the Danish delegation was wary of drawing conclusions as to the efficacy of the vaccination. Since such a high percentage of the population was immunised, there was no control group to make a scientific observation possible.⁸⁸ They pointed to the fact that there

⁸⁶ Szeri, Földes, and Bognár, ‘Adatok a Poliomyelitis Elleni Intrakután Védőoltás Kérdéséhez’, 1365.

⁸⁷ Henningsen, ‘Polio vaccination in Denmark’.

⁸⁸ ‘Poliomyelitis. Papers Presented at the Fourth International Poliomyelitis Conference’, 30.

had been no epidemic outbreak for six years, noting their resulting temptation to announce that their immunisation campaign had worked, but 'even if it [was] longer than the intervals formerly observed between bigger outbreaks, nobody can tell whether the immunity in the population is obtained by the 1952–1953 epidemics or by the vaccination.'⁸⁹

Hungarians definitely used less vaccine in each individual injection than did their counterparts in Denmark. Also, Hungarian scientists and politicians were much bolder in drawing conclusions about the efficiency of the vaccination than their Danish colleagues. While Denmark's vaccination method and results were defined as a success and a model for one country, on an international scale there was no clear agreement on what constituted successful immunisation programmes and how efficiency could be evaluated on a national scale.

The question of the vaccination method was not settled while Salk vaccination was in use in Hungary. A letter from the Health Ministry to the head of the PHCED, containing detailed instructions regarding vaccination in March and April 1959, reveals that in at least some cases, the intramuscular method made a comeback, which also brought about changes in the quantity of vaccine used.

Children born between 1 September 1957 and 30 September 1958 are legally obliged to be vaccinated. The first vaccination in March needs to be administered with 1 ml, the second in April with 0.5 ml vaccine ... In the case of the compulsory vaccination of 6–18 months old [children], the vaccine has to be administered intramuscularly.⁹⁰

The reason for the decision to change the method of administering the vaccine in the spring of 1959 is unclear. It is also puzzling why only one particular age group was included in this change. Nor did it fit into the method described by the Danish delegates, whose system Hungary was allegedly using. However, the seemingly arbitrary switch from intracutaneous to intramuscular vaccination does demonstrate that despite the internal and external communication of the Health Ministry, there was no clear, unanimous agreement on the method in the national vaccination campaign.

The State: A Conspiracy Theory

Physicians and health officials were not the only ones looking for a reason for the severe epidemic wave of 1959. The debates and uncertainties regarding the

⁸⁹ 'Polio vaccination in Denmark', 26.

⁹⁰ Béla Tóth, 'Gyermekbénelás Elleni Védőoltások 1959. Március És Április Hónapban', Budapest: City Archives of Budapest, Budapest Fővárosi Tanács VB Egészségügyi Osztályának iratai, XXIII.115.a/34. kisdoboz, 181.476, 51.070/1959 V/3, 1959.

required amount of vaccine to establish immunity filtered down from the medical profession and surfaced as rumour among the population, while distrust in the vaccine and, most of all, in the state led to bitter explanations.

It is common belief among Hungarians living with polio today that the reason for the 1959 epidemic (in which many of them contracted the disease) was that the state halved the required dosage during the vaccination campaigns with the Salk vaccine.⁹¹ According to this explanation, quantity won over quality, as was the case in most cases of production and services in the communist era. The state could not afford (or rather chose not to spend the money) to purchase enough vaccine, and because it was irresponsible, or simply did not really care about its citizens, decided to stretch out its supply and give lower doses than needed.

Uncertainties about the quantity of vaccine used could have originated from the medical profession itself. As Tóth also remarked, the doubts voiced by physicians could have affected vaccination rates; something about the vaccine and its quantity most probably circulated among the public. Moreover, even today, the belief in the state's culpability in deliberately halving the vaccine is shared by some health workers as well.⁹² Another source for this widely held interpretation of events could be the state itself. As shown in Chapter 3, the Health Ministry made efforts to curb the public's expectations by emphasising that the initial vaccine would not be sufficient to immunise all children.⁹³ Moreover, in the article 'Fight against infectious diseases', Tibor Bakács, director of the State Hygienic Institute, brought up the issue of the vaccination method in public:

I consider it necessary to note here: international research of the latest years has established that 0.2 ml vaccine injected intradermally (into the skin) and 0.5 ml vaccine injected intramuscularly (into the muscle) are basically equal in effect. Among the great specialists of the vaccines against infant paralysis, the Danish [von] Magnus refers to this result. Our comparative epidemiology research also confirms this.⁹⁴

A combination of unexplained changes in the method of vaccine administration, the circulating alternative views of local physicians and the often confusing information lay people could read in the pages of newspapers could very well have served as fertile ground for the view that something was amiss in the organisation and execution of the vaccine campaigns.

⁹¹ Based on conversations at the National Heine-Medin Convention of the Hungarian Organization of Disabled Associations (Meosz), 6 November 2010.

⁹² Dékány Pálné, interview by Vargha, January 11, 2008; Mészáros, interview by Vargha, 11 January 2008.

⁹³ 'Beoltják Gyermekbénulás Ellen az 1–2 Éves Gyermekeket: Külkereskedelmi Szerveink Már 250 000 Köbcenti Vakcinát Szereztek', *Népakarat*, 1957.

⁹⁴ Tibor Dr. Bakács, 'A Fertőző Betegségek Elleni Küzdelem', *Népszabadság*, 26 August 1959.

Whatever the origins of the conspiracy theory might be, as of now there is no evidence in the governmental archives that proves a premeditated plan to 'halve' the vaccine. It is more likely that in search of an explanation, parents, health workers and polio patients identified the state as the entity to blame, as a responsible actor in the unexpected tragedy.⁹⁵ This was hardly surprising in an environment in which the state blamed parents for misconduct and failed to deliver any other explanation for the epidemic, while parents helplessly watched their often fully vaccinated children come down with the paralyzing disease.

One can only guess, therefore, where this rumour (as the information at this point cannot be termed more than a persistent rumour) originated. What it does reveal, however, is something very important in the relationship and mutual expectations among the state and its citizens. People did expect the state to provide protection, especially for their children, against polio. It was the state itself that set up this expectation, through its rhetoric of paternal roles and through propaganda emphasising the importance of care for mother and child.⁹⁶ However, people also expected poor quality, insufficient quantity and corruption in the distribution of any product or service provided by the state. Moreover, the state was by no means perceived as a friend by many – especially just a year after the revolution. So a wilful deception that endangered children was not wholly unimaginable.

The Salk Vaccine: From the Saviour of Children to an Imperfect Technology

In 1960, based on the blood samples and information collected after the epidemic wave had settled, Bakács of the State Hygienic Institute estimated that '35.4 per cent of those who contracted poliomyelitis in 1959 had a written record of vaccination with 3 doses and an additional 2.7 per cent certainly remembered having been subjected to vaccination.'⁹⁷ Over one third of the people – mainly children – who came down with polio in 1959, therefore, had been fully vaccinated. In a study conducted by the infectious disease hospital in Budapest (László Hospital), 53.3 per cent of polio patients had received two

⁹⁵ No doubt subsequent events, such as a feeling of abandonment by the state after the mid 1960s, or the drastic changes in the health-care and welfare system in the post communist era, all feed into an often bitter and disappointed perception of the Salk vaccination. I argue, however, that the particular set of expectations explored in this section have existed in the 1950s as well as throughout the communist era – and in many cases, even today.

⁹⁶ See e.g. László Buga, *Hogyan Gondoskodik Államunk a Dolgozó Anyáról és Gyermekeiről* Útmutató Városi És Falusi Előadók Számára (Budapest: Művelt Nép könyvkiadó, 1953); Gyula Surányi, *Egészséges Anya – Egészséges Gyermekek* Útmutató Városi és Falusi Előadók Számára (Budapest: Művelt nép könyvkiadó, 1953).

⁹⁷ Bakács, 'Poliomyelitis Prophylaxis in Hungary', 332.

or more doses of Salk vaccine beforehand, and 37.3 per cent were fully vaccinated with three or four doses, including the ‘reminder’ injection.⁹⁸ Both evaluations stated that these ratios were in accordance with international experiences of the Salk vaccine.

Until the epidemic in 1959, there was no mention in Hungary of the efficacy rate of the Salk vaccine in international experience. Not one newspaper article, not one governmental or ministerial document pointed to the fact that the vaccine would not protect the whole population even if everyone received the full dosage. However, in the thick of the epidemic wave, the blaming of parents gave way to the rather detached and objective citing of efficacy rates of the vaccine. In August, the official line of the State Hygienic Institute was that the efficacy of the Salk vaccine was between 70 per cent and 80 per cent in Hungary, which, they argued, fell in line with the experiences of socialist and capitalist countries. These figures were published in the daily newspaper *Népszabadság*.⁹⁹ A joint evaluation by the institute and László Hospital from 1961 then modified these numbers to between 60 per cent and 70 per cent.¹⁰⁰

Experiences with the Salk vaccine on a global scale had far been from uniform. The WHO’s Expert Committee on Poliomyelitis pointed out in their third report in 1960 that:

The review of national experiences clearly shows that in most areas the protection afforded had been the greatest where the degree of vaccination had been high. This experience, however, had not been universal and some unsatisfactory rates of protection have been reported. The reasons for these variations in experience are not clear, although vaccine potency and mode of administration have been suggested as possible factors.¹⁰¹

In fact, the effectiveness and long-term protection of the Salk vaccine had been the focus of investigations and international comparisons for the last three years of the 1950s. It appeared that the Salk vaccine had failed to fulfil the hopes and dreams of other countries as well. In a paper presented at the Fifth International Poliomyelitis Conference, Alexander Langmuir described the rising trend of polio cases in the late 1950s as ‘a sobering experience’.¹⁰²

⁹⁸ Losonczy et al., ‘A Salk Vakcináció és a Poliomyelitis Klinikai Lefolyásának Összefüggése’, 734.

⁹⁹ Dr Bakács, ‘A Fertőző Betegségek Elleni Küzdelem’, *Népszabadság*, 1959.

¹⁰⁰ Losonczy et al., ‘A Salk Vakcináció és a Poliomyelitis Klinikai Lefolyásának Összefüggése’, 733.

¹⁰¹ Expert Committee on Poliomyelitis, ‘Expert Committee on Poliomyelitis. Third Report’, in *Technical Report Series*, ed. World Health Organization (Geneva: World Health Organization, 1960), 4.

¹⁰² Alexander D. Langmuir, ‘Inactivated Virus Vaccines: Protective Efficacy’, in *Poliomyelitis. Papers and Discussions Presented at the Fifth International Poliomyelitis Conference Copenhagen, Denmark, July 26–28, 1960*, ed. International Poliomyelitis Congress (Philadelphia and Montreal: J. B. Lippincott Company, 1961), 105–13, at 105.

At the same time, based on data collected through the National Poliomyelitis Surveillance Program, Langmuir determined the effectiveness of the Salk vaccine to be '80 per cent for 3 or more doses and 90 per cent or better for 4 or more doses'.¹⁰³ His Canadian colleague, F. P. Nagler, recounted similar experiences, with 85–90 per cent of the Canadian population being fully protected against paralytic poliomyelitis after three injections.¹⁰⁴ Czechoslovakian virologists were not so enthusiastic, however. In a report to the Fifth International Poliomyelitis Conference, they measured a 66–74 per cent efficacy rate following two intradermal injections in 1957, and, based on epidemiological data and serologic investigations, concluded: '[W]e do not feel justified in concluding that the inactivated vaccine . . . could ensure a long-term prevention of epidemics of poliomyelitis in our country.'¹⁰⁵

The Hungarian failure of epidemic prevention with the Salk vaccine was widely acknowledged and was taken into account when the WHO's Expert Committee on Poliomyelitis assessed polio vaccine efficacy and global applicability.

The review of national experiences with inactivated poliovirus shows that in most countries where this vaccine has been widely used the order of protection that it was originally expected to give on the basis of controlled field trials has been maintained. However, in the USA and Canada, localized outbreaks have occurred in which unvaccinated sections of the population were particularly affected. Failure to obtain protection on a satisfactory national basis appears only to have been experienced in Hungary and possibly in Israel.¹⁰⁶

Israel experienced a severe outbreak following Salk vaccination. In the outbreak of 1958 the main victims of the disease were children who had received two injections with the inactivated vaccine. However, Israeli virologists were reluctant to draw conclusions about efficacy; they found a number of factors that made the evaluation problematic, among them variations in the antigenicity of the vaccine, uneven geographic distribution of cases, difference in age-specific rates and the fluctuation of epidemic waves.¹⁰⁷

These accounts revealed that differences between efficacies as measured in various locales could be significant. As renowned polio expert Herdis von

¹⁰³ Ibid. 106.

¹⁰⁴ F. P. Nagler, 'Protective Efficacy of Inactivated Poliovirus Vaccines in Canada', *ibid.* 122.

¹⁰⁵ V. Skovranek, 'Investigations of the Effectiveness of Inactivated Vaccine against Poliomyelitis in Czechoslovakia', *ibid.* 136.

¹⁰⁶ Expert Committee on Poliomyelitis, 'Expert Committee on Poliomyelitis. Third Report', 51.

¹⁰⁷ Natan Goldblum, 'Efficacy of Poliomyelitis Vaccine in Israel during the 3-Year Period 1957–1959', in *Poliomyelitis. Papers and Discussions Presented at the Fifth International Poliomyelitis Conference, Copenhagen, Denmark, July 26–28, 1960*, ed. International Poliomyelitis Congress (Philadelphia: J.B. Lippincott Company, 1961), 138–42.

Magnus pointed out, '[M]any countries have made observations which indicate that the inactivated polio vaccine has yielded a 60 to 90 per cent protection against paralytic disease.'¹⁰⁸ For some, an important factor in the varying efficacy rate of the Salk vaccine was to be found in the lack of standardisation. There was no 'universally available reference vaccine' and several countries set different requirements for the type of test to be used when determining vaccine potency.¹⁰⁹ Standardisation of this procedure was seen as urgent, in order to find 'a reliable basis for any comparison to be made between vaccines'.¹¹⁰

Other sources reveal that vaccines were not necessarily at hand when needed, which could have interfered with vaccination campaigns and their results. Britain, for instance, had to put vaccinations on hold between the second and third injections, owing to 'an unhappy chapter of accidents' in procuring a Canadian vaccine: monkeys needed for the vaccine production fell sick, live virus was found in one of the vaccine batches, another batch failed the antigenic potency test and, finally, a sudden increase in local demand reduced the available vaccine export supplies.¹¹¹

Of course the accounts and measurements, and their representations by the leading public health officials and virologists of the respective nations, cannot be divorced from professional and political agendas. The United States had invested significantly in the Salk vaccine, which had been heralded as one of the most important medical interventions of the time. Canada was one of the largest suppliers of Salk vaccine to the global market. Both nations had much to lose if the Salk vaccine was not as efficient as initial laboratory results and field trials showed. Conversely, Czechoslovakia was already heavily invested in the development and testing of the live polio vaccine by the end of the decade and had pitted the low results of the Salk vaccination against the preliminary data from the Sabin trials. Hungary's efficacy evaluation was formed in this context of interests and justifications, as well as a moment of transition as virologists and public health decision-makers tried to make sense of the 1959 epidemic.

The growing disillusionment with the Salk vaccine in 1959 is especially striking, since it was that year that Hungary finally managed to start experimental mass production of the vaccine. Newspapers had already announced

¹⁰⁸ Herdis von Magnus, 'Present Knowledge About Duration of Sero-Immunity after Vaccination with Inactivated Polio Vaccines', in *Poliomyelitis. Papers and Discussions Presented at the Fifth International Poliomyelitis Conference Copenhagen, Denmark, July 26–28, 1960*, ed. International Poliomyelitis Congress (Philadelphia and Montreal: J. B. Lippincott Company, 1961), 155.

¹⁰⁹ Roderick Murray, 'The Standardization of Potency of Poliomyelitis Vaccine', *ibid.*

¹¹⁰ P. L. Bazeley, 'Standardization of Polio Vaccine Potency', *ibid.* 186–95.

¹¹¹ 'Poliomyelitis Vaccine', *The British Medical Journal* 1, no. 5078 (1958): 1053.

the start of Salk vaccine production in 1958,¹¹² but mass production of the vaccine did not begin until a year later. Virologist Sándor Koch, a participant in the Danish study trip in 1956, headed the process at the State Institute of Hygiene.

We made the vaccine because it was an interesting technological task, but I was not excited about the routine production of it. A good friend of mine, Dr Pál László, head of department at László hospital, told me one day: ‘Come and see us.’ So I went. In several rooms, children with paralysed limbs were playing and laughing, and then, as if it was by accident, he took us to another room, where about twenty children from infant[s] to teenagers were lying in iron lungs. My good friend told me: ‘You know, these children will never be able to breathe spontaneously in their life, because their respiratory system is paralysed by polio . . . so tell me, are you going to produce the vaccine or not?’ It was this visit that made me realise that I have to keep on going and produce the vaccine.¹¹³

A batch of the domestically produced vaccine was then tested in Copenhagen at the Stetens Serumintitut before it was distributed to Hungarian children.¹¹⁴ Following Danish approval of the vaccine, the fourth, booster injections administered during the 1959 epidemic were partly covered by domestic vaccine production.¹¹⁵

The lack of an epidemic in 1958 was also re-evaluated. While prior to the 1959 epidemic, the quiet year of 1958 was considered to be the clear result of immunisation with the Salk vaccine, by 1960 a virological coincidence was named as the reason for the lack of a polio epidemic that year. Apparently in 1958 there had been an outbreak of Bornholm disease (named after the Danish island where it was first reported), a Coxsackie B virus, which most probably interfered with the poliovirus and, as Bakács argued on the pages of *Orvosi Hetilap*, obstructed the spread of polio.¹¹⁶

Similar to polio, Coxsackie B viruses are enteroviruses. The interaction between the two groups of viruses began to be explored in the early 1950s,

¹¹² Moldován, ‘Aki Még Nem Kapott – Áprilisban Jelentkezzék Gyermekebénulás Elleni Védőoltásra’, *Népszava*, 1958; ‘Dr. Doleschall Frigyes Miniszter Nyilatkozata a Népszavának az Egészségügy Hároméves Tervéről, a Salk-Oltásokról és a Gyógyszerfogyasztásról’, *ibid.*, 17 June 1958, 1–2.

¹¹³ Mezei, ‘. . .Isten Van, Az Ember Történi.’ *Koch Sándor Viroológussal Beszélget Mezei Károly*, 24.

¹¹⁴ Sándor Koch, ‘Szubjektív Virologia’, *Természet Világa* 130, no. 2 (1999): 60–62.

¹¹⁵ Aladár Kátay, ‘The Active Immunization against Poliomyelitis in Hungary and Its Three Years’ Results’, in *The Control of Poliomyelitis by Live Poliovirus Vaccine. Studies on Mass Vaccinations in Hungary, in the USSR, in Czechoslovakia and the German Democratic Republic. Papers Presented at the Hungarian-Soviet Medical Conference September 24–30, 1960*, ed. J. Weissfeiler (Budapest: Publishing House of the Hungarian Academy of Sciences, 1961), 71–84.

¹¹⁶ Dr. Tibor Bakács, ‘Az Eddigi Poliomyelitis Vaccinatio Eredményeinek Értékelése’, *Orvosi Hetilap* 101, no. 20 (1960): 685–91.

when it was unclear whether they mitigated or exacerbated each other's effects.¹¹⁷ Soon, the interference of the two viruses and Coxsackie's 'sparing effect' on polio became a theory represented quite well in international medical literature.¹¹⁸ This meant that people who caught the much milder Coxsackie B virus could not be super-infected with polio at the same time. Bakács argued that the outbreak of Bornholm disease coincided with the usual time of polio in the summer and that this greatly contributed to the lack of a polio epidemic in 1958.

In light of the 1959 epidemic, the vaccine was quickly transformed from the saviour of Hungarian children to an imperfect technology. This process was further sped up by the appearance of a new vaccine in the Soviet Union. As early as August 1959, newspapers were starting to write about the coming of the new vaccine, claiming it would be even more effective than the Salk vaccine: 'a vaccine that was developed based on research by the American Sabin and the Pole Koprowski'.¹¹⁹

In 1960, the *Orvosi Hetilap* published the translation of Chumakov's article on the mass immunisation of the population of the Soviet Union with the Sabin vaccine.

Today we cannot consider the Salk vaccine, despite all its advantages, to be a tool in liquidating polio in a range of countries . . . Post-vaccinated immunity is not complete either . . . The virus keeps circulating in the population and the danger of poliomyelitis epidemics remains . . . Neither the intracutaneous nor the intramuscular methods are suitable for immunising tens of millions of children, which would be needed to build immunity against poliomyelitis in the whole of the population.¹²⁰

Scarcely six months had passed between the unquestionable celebration of the Salk vaccine and the publication of such a statement as a valid view in Hungary. A few months later, Bakács, leading virologist of the State Institute

¹¹⁷ Gilbert Dalldorf, 'The Sparing Effect of Coxsackie Virus Infection on Experimental Poliomyelitis', *Journal of Experimental Medicine* 94, no. 1 (1951): 65–71.

¹¹⁸ See e.g. Erik Lycke, 'Interference between Poliomyelitis Virus and Coxsackie B or Echo Viruses', *Archives of Virology* 8, no. 3 (1958): 351–59; N. F. Stanley, 'Attempts to Demonstrate Interference between Coxsackie and Poliomyelitis Viruses in Mice and Monkeys', *Proceedings of the Society for Experimental Biology and Medicine*, no. 81 (1952): 430–33; Gilbert Dalldorf and Robert Albrecht, 'Chronologic Association of Poliomyelitis and Coxsackie Virus Infections', *Proceedings of the National Academy of Sciences USA* 41, no. 11 (1955): 978–82. The question of the virus interference of Coxsackie B and poliomyelitis, however, remained far from being settled until the 1960s. Richard L. Crowell, 'Specific Viral Interference in Hela Cell Cultures Chronically Infected with Coxsackie B5 Virus', *Journal of Bacteriology* 86, no. 3 (1963): 517–26.

¹¹⁹ Dr Bakács, 'A Fertőző Betegségek Elleni Küzdelem'.

¹²⁰ M. P. Csumakov et al., 'A Lakosság Poliomyelitis Elleni Tömeges Per Os Immunizálása a Szovjetunióban Sabin Attenuált Törzseiből Készített Élő Vakcinával', *Orvosi Hetilap* 101, no. 4 (1960): 109–17.

of Hygiene, reiterated this assertion as vaccination began with the new Sabin vaccine in Hungary.¹²¹

The Hungarian experience tells a peculiar story about polio prevention with the Salk vaccine. The overwhelming majority of polio histories, especially those on polio in the United States, follow the narrative of the introduction of the Salk vaccine as a watershed event in blocking the return of a major epidemic and marking the beginning of the end of polio. The 1959 epidemic in Hungary, however, shows that this story cannot be universally extended. Rather, the experience with Salk vaccination in this particular Eastern European state highlights how scientific uncertainties pertained to the disease throughout the 1950s. There was and still is no clear answer why the vaccination did not work. No clear standards guided the campaigns and, apart from the initial controlled trial in the United States in 1954, there was no proof of efficacy on the level of a population for a vaccine against an epidemic that did not occur every year.

The scientific uncertainties of the disease and the preventive technology magnified the political and social forces at work in the vaccination process. The expectations of researchers and their role in producing progressive scientific results, of the state and its role as provider and protector, and of the citizens and their role as compliant and grateful were challenged and contested. Inefficiencies in state and healthcare organisation became apparent, as haphazard reporting and data management made scientific and political evaluations and decision-making difficult. Physicians resisted the overruling of their professional judgement, while some parents defied the intervention of the state in their decisions about their children's health.

The Hungarian Salk vaccination also highlighted changes that took place in the two years between the epidemics. The coming of a new epidemic soured the initial enthusiasm for this Western technology and triggered changes in medical discourse, in the perception of citizens and the state, and in the technology itself. Medical data changed in meaning. The interpretations of statistics on vaccine efficacy in the population produced in the early autumn of 1957 changed drastically over the next two years: from being inadequate evidence in 1957, they became the ultimate proof of efficacy by 1958, only to turn into numbers signifying an epidemiological coincidence to explain away the new outbreak in 1959. In the eyes of the state, parents transformed from thankful beneficiaries in non-epidemic times to ungrateful and irresponsible citizens who neither appreciated nor deserved the sacrifices of the state,

¹²¹ Dr Tibor Bakács, 'Az Eddigi Poliomyelitis Vaccinatio Eredményeinek Értékelése', *ibid.*, no. 20: 685–91.

and who even brought the epidemic on themselves. Furthermore, the Salk vaccine of early 1959 was not the same as the Salk vaccine of six months later. The former was the saviour of children and a symbol of the state's commitment to the health of future generations, while the latter was an imperfect technology to which Hungary had temporarily reverted until a better option became available.