The Socialist World in Global Polio Eradication

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While global polio eradication is most often associated with "philanthrocapitalism", the program has its roots in the Cold War East. This paper shifts the beginnings of polio eradication by three decades, and argues that the vaccine developed in the nexus of liberal internationalism and socialist international networks. The result of a collaboration between Albert Sabin, Soviet and Eastern European virologists and public health officials, the live polio vaccine used today in polio eradication programs began its global journey in the Soviet Union, Czechoslovakia, Hungary and Cuba. The article argues that socialist ideas and practices of health provided fertile ground for a disease elimination program that rested on a combination of primary health structures and top-down initiatives. Taking the case of the Sabin vaccine, it considers the role of political systems in disease eradication.

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Introduction: constraints and possibilities

The global polio eradication campaign, still going strong at the time of writing this article, is often regarded as a flagship project of what has been termed "philanthrocapitalism" (Birn, 2012). Spearheaded by the Bill and Melinda Gates Foundation, Rotary, UNICEF and the World Health Organization, the Global Polio Eradication Initiative has been widely heralded as the success of capitalist interventions. Funded by billions of dollars over the past decades, the argument of the eradication campaign is often framed in financial terms (Kickbush, 2016; McKinsey & Co., 2016). At the same time, the eradication program had also been heavily criticized and held up as evidence of how private monies and interests can derail health priorities and practices (McGoey, 2015; Muraskin, 2012).

Polio eradication, I argue, is in good part the product of a very different political and economic model. Some of the most important technologies and eradication techniques used in this endeavor and the initial diffusion and success of polio control with live polio vaccine took place in Eastern Europe. Eastern European countries played a signal role in the development of the Sabin vaccine and the mass vaccination methods with the oral vaccine that became the basis of the global polio eradication program, as did socialist approaches to public health and welfare.

The idea of polio eradication as a socialist project is certainly at odds with how eradication efforts have been presented in mainstream historiography. The history of eradication has generally been told from an American perspective and has been embedded in the framework of Cold War rivalry (Paul, 1971; Oshinsky, 2005). For some, that telling has been joined with a criticism of imperialist ambitions; for others that telling has been the ground for triumphalism.

Histories of malaria, smallpox and polio eradication have mostly featured American scientists and key actors in public health, such as Fred Soper, Donald A. Henderson and the Rockefeller Foundation (Packard, 1998; Seytre, 2005; Smallman-Raynor, 2006; Stepan 2011). That perspective is now being modified thanks to groundbreaking works, such as the research of Sanjoy Bhattacharya and Paul Greenough on smallpox eradication in Southeast Asia, and Marcos Cueto's study on malaria eradication efforts in Mexico (Greenough, 1995; Cueto, 2007; Bhattacharya, 2013).

Historians such as Nancy L. Stepan acknowledge that "we cannot reduce the post-war attraction of disease eradication entirely to [the Cold War] context (which some people want to do). After all, both the Soviet Union and post-revolutionary China organized their own, vertical disease eradication campaigns outside of the WHO framework (for example, against smallpox and other diseases); such targeted projects produced rapid results and were highly suited to command economies and highly centralized governments" (Stepan, 2011, p.122). More relevant to this essay, the standard ~~of~~ Cold War narrative of Western innovations and interventions in global health presents an impoverished idea of what was going on in the "East." There has been little attention to the role in the eradication of polio of scientific networks that spanned the countries of Eastern Europe~~.~~, and of the practices of socialist health care systems. This essay, which is based on extensive archival research, will give pride of place to these neglected features of the story and considers the role of socialist states in the history of disease eradication.

Eastern European polio control: scientific networks across borders

The mid-1950s saw a turn in the international engagement of the Soviet Union, which had significant effect on 20th century eradication campaigns. Diseases that did not respect borders and political boundaries and the common threat of epidemics made viruses and bacteria ideal vehicles for international engagement in the opening up of the Soviet Union in the post-Stalinist era. Moreover, the control of infectious diseases was an issue that transcended the Soviet policy of avoiding international organizations from the early post-revolutionary days. For instance, long before joining the League of Nations, the Soviet Union cooperated with international organizations in typhus control (Manela, 2010). Epidemic management, from a local to global scale served again as a bridge into a broadening Soviet internationalism in health in the late 1950s, both towards the West and within the East.

Shortly after the establishment of the WHO, the Soviet Union left the organization in 1949, followed in 1950 by the rest of Eastern Europe. After almost a decade of absence, the Soviet Union rejoined the WHO in 1957 (Siddiqi, 1995, p.109). The same year Viktor Zhdanov's tract on the Control of Communicable Diseases in the U.S.S.R. was published in English. In this short work, virologist and Deputy Minister of Health Zhdanov gave a concise medical and historical overview of the Soviet Union's efforts and successes in public health and epidemic control, and went on to describe the ways in which Soviet experiences and methods could ~~can~~ be applicable worldwide in eradication efforts. Zhdanov demonstrated the efficacy of the combination of the Soviet public health system, science and dedication to prophylaxis on the success in the control of three diseases: smallpox, plague and malaria.[1] "Each of these victories, the result of strenuous effort of scientists and practical workers, was

[1] V. Zhdanov, *Control of Communicable Diseases in the U.S.S.R.* (Moscow: Foreign Languages Publishing House, 1957).

possible only in Soviet time when the economic conditions needed for the solution of many problems were set up and Soviet public health services were built" Zhdanov argued.[2]

Smallpox eradication was featured perhaps most prominently ~~the strongest~~ in the discussion, as compulsory vaccination introduced by the revolutionary government in 1919 had led to the elimination of the disease by 1936, and continuous vaccination protected the population from the reintroduction of the disease. However, threats from beyond the Soviet border had kept costs of continuous vaccination and containment up. The successful control of plague aimed to demonstrate the complex operations that entwined physicians, microbiologists, zoologists, parasitologists, exterminators, epidemiologists, and aviators in mobile anti-plague institutions. Finally, the description of success in malaria control demonstrated the strength of the Soviet economy~~'s~~ and health organization~~'s strength~~ in comparison to its ~~the~~ main adversary. The major, United States-led malaria eradication campaign had been already running for two years, and the use of DDT gave much hope of ~~in~~ reducing and eventually eliminating the disease (Packard, 1998; Cueto, 2007). Zhdanov therefore placed the success of smallpox eradication in the Soviet Union in a broader context of successful and globally competitive approaches to public health and disease elimination.

A year later, in 1958, upon the return of the Soviet Union to the 11th World Health Assembly, it was Zhdanov who proposed the global smallpox eradication programme. Quoting Thomas Jefferson in his report,[3] Zhdanov ~~once~~ pointed to the common goal of epidemic control, the Soviet Union's success and leadership in public health, and addressed the eradicationist trend of international health in the 1950s (Humphreys, 1999; Stepan, 2011).

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[2] Ibid, 57-58.
[3] F. Fenner et al., *Smallpox and Its Eradication* (Geneva: World Health Organization, 1988), 367.

I have argued elsewhere that the common, global goal of epidemic control created spaces where the two opposing sides waging a Cold War could collaborate, bringing to life unlikely alliances. This was particularly true in the case of polio, which in the 1950s posed an equal threat to East and West, North and South (Vargha, 2014). The early days of polio eradication drew as much on East-West collaboration as on socialist international health. While Zhdanov's take on communicable diseases – the perceived superiority of Soviet methods and the need for global collaboration in eradicating disease – can be used as a starting point when considering the case of polio, it is important to look beyond the Soviet Union and track how practices and ideas of polio eradication were formed throughout the so-called socialist world, as this was as much a broader project of the Cold War East than a personal victory for the American Albert Sabin.

The story of Eastern European polio elimination begins in early 1956, when a Soviet medical mission, led by virologist Mikhail Chumakov, studied the production of the Salk vaccine and ongoing research in epidemiology in the United States. During their trip, the mission also visited the laboratory of Albert Sabin in Cincinnati. This visit turned out to be the beginning of a decade-long exchange. Scientists, specimens and vaccine vials crossed the Iron Curtain in both directions as collaboration intensified between American and Soviet virologists. East-West scientific collaboration in the post-Stalinist era had come a long way to result in meaningful, mutually produced results. Less than a decade earlier one such attempt in cancer research, namely the so-called "KR affair" cut American-Soviet scientific relations short in a show trial and patriotic campaign in 1947 (Krementsov, 1995).

As Kliueva and Roskin resumed their work in 1956 and began to build new international links to France (Krementsov, 1995 pp.200-201), Chumakov and Sabin's cooperation led to the largest field trial in the history of polio in 1959, involving over 16.5 million people across the

Soviet Union, with the World Health Organization acting as validator of the trial's results.[4] While the Soviet trials were by far the largest, other Eastern European trials were equally important in establishing the safety and efficacy of the vaccine. Both Czechoslovakia and Hungary ~~countries~~ had seen severe epidemics in the 1950s and were following the development of the live poliovirus vaccine closely. The Sabin trials in those two countries became reference points in subsequent scientific discussions on the live vaccine, their results and data were drawn upon to establish national vaccination campaigns and eventually, global eradication programs.

The use of live polio vaccine and its potential to eliminate the wild virus from the environment fitted well with socialist medicine's emphasis on prevention and an interventionist approach to the environmental causes of illness and disease, as heralded by Czechoslovakian and Hungarian[5] public health professionals (Moore, 2014; Vargha, 2017). However, the archival documents make it clear that collaboration in the trials and mass vaccination with the Sabin strain, while influenced by the Soviet Union, did not come from that country. Sabin had been in touch with Hungarian and Czechoslovakian scientists from the mid-1950s, sharing views, data and methods, mostly on vaccine production and efficacy. Sabin's extensive correspondence shows him to have been ~~be~~ at the centre of a wide-reaching professional network, which spanned continents and political dividing lines, extending well beyond the Iron Curtain. Eastern European virologists were also not unknown to their Western colleagues, they met at international conferences, collaborated in laboratory work, participated in academic study trips. The collaboration and the personal connections between virologists in the East and West reached back to interwar scientific

[4] M.P. Chumakov et al., "Some Results of the Work on Mass Immunization in the Soviet Union with Live Poliovirus Vaccine Prepared from Sabin Strains," *Bulletin of the World Health Organization* 25, no. 1 (1961).
[5] László Cserba, "Az Egészségügy Gazdasági Helyzete 1957. Évben (The Economic Situation of Healthcare in 1957)," *Népegészségügy* 38, no. 4 (1957).

networks that both sides fostered in the postwar era (Vargha, 2014). Sabin's own research no doubt benefited from this intensive exchange, as he had direct and instant access to work conducted in laboratories across Eastern Europe. Conversely, Hungarian and Czechoslovakian virologists gained easier access to publication opportunities in international journals via personal introductions, editing advice and even copy-editing,[6] and later received help, through invitations and scholarships, in facilitating study trips to the United States.[7]

Countries within the Eastern Bloc, unsurprisingly, also collaborated with one another in matters of health, medicine and scientific research. This collaboration, which we might term socialist international health, was not only facilitated by geopolitical concerns, but also by the fact that the region fell outside of the World Health Organization for much of the 1950s. Being out of the World Health Organization did not mean that the Socialist Bloc ceased to participate in international public health. On the contrary, the time spent apart from the international organization strengthened ties among the members of the Socialist Bloc, and laid the foundations for socialist internationalism in public health (for socialist internationalism see e.g. Mehilli, 2017; Babiracki & Jersild, 2016; Applebaum, 2015; Mark & Apor, 2015; Rupprecht, 2015. For socialist international health, see Birn & Brown, 2013; Solomon, 2017).

Collaboration among Eastern European countries was based on bilateral agreements. Individually negotiated and signed throughout the 1950s, these agreements of cooperation served as the foundation for an international network within the Bloc and were wider in scope than any official legal relationship would be with countries outside of the Bloc. The goals were extensive: the parties would share their expertise in disease prevention and

[6] Albert B. Sabin, "Letter from Sabin, Albert B. To Clegg, H.A. Dated 1961-02-01," in *Sabin Archives. Correspondence, OPV International* (Cincinnati: Hauck Center for the Albert B. Sabin Archives, 1961).
[7] see e.g. Albert B. Sabin, "Letter from Sabin, Albert B. To Vaczi, L. Dated 1963-10-16," in *Sabin Archives. Correspondence, Individual.* (Cincinnati: Hauck Center for the Albert B. Sabin Archives, 1963).

treatment, epidemic disease control, experiences with new pharmaceuticals, would exchange statistical methods and planning strategies, provide medical treatment for patients in the event that it was unavailable in their home country and would launch exchange programs for researchers and health professionals. The financial burden of the latter two points would be based on reciprocal basis and would be borne by the host states.[8]

The collaboration was not always flawless, nor were all participants equally enthusiastic. Some medical and public health professionals gave in to socialist internationalism rather reluctantly. A report by a Hungarian physician exploring the structure of healthcare in Czechoslovakia in 1960 remarked that while some colleagues were welcoming and excited by the visit, some Czechoslovak researchers were indifferent, cold and not at all interested in the Hungarian state of affairs.[9] Other collaborations went more smoothly, with reports of friendly encounters and scientific exchange.

Health ministries negotiated plans for collaboration annually. The decrees outlined in detail the information to be shared, such as ~~like~~ public health legislation and research plans, and also identified research areas in which results should be exchanged. Although there was room for improvement, the unfolding socialist internationalism in public health opened possibilities for pursuing personal, institutional and national agendas in health. Countless scientific conferences and research trips framed scientific collaboration within the region that gave space for the exchange of ideas, the flow of vaccines and vaccination practices.

It is no wonder, then, that mass vaccination with live polio vaccine quickly spread in Eastern Europe. In Bulgaria in 1960, around two million children between two months and 14

[8] "Egyezmény a Magyar Népköztársaság Forradalmi Munkás-Paraszt Kormánya És a Német Demokratikus Köztársaság Kormánya Között Az Egészségügyi Együttműködés Tárgyában," in *XIX-C-2*, ed. Egészségügyi Minisztérium (Budapest: National Archives of Hungarz, 1958).
[9] Tamás Fülöp, "Jelentés 2 Hetes Csehszlovákiai Tanulmányútról (Report on the Two-week Study Trip to Czechoslovakia),"ibid. (National Archives of Hungary, 1960).

years of age were immunized;[10] in Romania in 1961 the vaccine was administered to some ten million people under 30 years of age.[11] Yugoslavia, which carried out a small field trial with the Sabin vaccine from January to May in 1960, began mass vaccination in 1961.[12] East Germany conducted a trial in April 1960, citing the favourable results of the Soviet Union, Czechoslovakia, Hungary and Poland as the basis for their own trial. Vaccination with the oral vaccine became compulsory in 1961.[13] Other European countries started using the live vaccine in the years 1962 and 1963.[14]

The Sabin vaccination thus became a socialist project. It was through collaboration with Soviet, Czechoslovak and Hungarian virologists and public health officials that the vaccine became a powerful tool for polio prevention. These countries were not only sites of scientific and technological innovation; just like in the West, virological work was embedded in a particular political ideology of what health was, who was responsible for it and how access to it should be distributed. Similarly to the ways in which particular American ideas played a substantive part in the development of and trials with the Salk vaccine (Oshinsky, 2015), the Sabin vaccine itself is inseparable from the political, social and cultural context in which it was developed and tested in Eastern Europe. Political decisions and scientific assessments regarding disease prevention shaped the development and introduction of the Sabin vaccine, and were based on experiences on a very local level. For example, the Hungarian trials and

[10] St. Rangelova et al., "Epidemiological and Serological Evaluation of Results of Mass Vaccination with Live Vacine in Bulgaria," in *Vaccination and epidemiology of poliomyelitis and allied diseases, new developments in the programmes of vaccination, virological and serological studies, clinical problems. VIIIth symposium of the European Association against Poliomyelitis and Allied Diseases*, ed. H.C.A. Lassen (Prague: Europ. Assoc. Poliomyelitis and Allied Diseases, 1963).
[11] I. Spinu, Sanda Biberi Moroianu, and S. Popa, "Considérations Épidémiologiques Et La Vaccination Contre La Poliomyélite En Roumanie," (Epidemiological Considerations and the Vaccination against Poliomyelitis in Romania) ibid.
[12] M.V. Milovanovic, "Poliomyelitis in Yugoslavia,"ibid.
[13] T. Kima and WA Belian, "National Report of Immunisation Program of German Democratic Republic," in *Programs of Vaccination, encephalitis and meningitis in enteroviral infections, virological and clinical problems. VIIth symposium of the European Association Against Poliomyeliti*, ed. H.C.A. Lassen (Oxford: Europ. Assoc. Poliomyelitis and Allied Diseases, 1962).
[14] S.G. Drozdov, "The Contemporary Poliomyelitis Situation in Europe," in *European Symposium on Virus Diseases Control* (Geneva: World Health Organization, 1966).

the Sabin vaccine's quick introduction had much to do with the Hungarian government's precarious domestic and international standing after the 1956 revolution, which coincided with renewed polio epidemics despite national vaccination campaigns with the Salk vaccine (Vargha, 2014).

Socialist countries in polio eradication: a story of socialist international health

These socialist political and social structures had a tremendous effect on the global polio eradication programme of the later 20th and 21st century. The contemporary international scientific community took the successful Eastern European trials and vaccination campaigns seriously and built upon them. Hungarian serological analyses and studies on vaccine-derived poliomyelitis in the decades following the end of polio in Hungary contributed to the understanding of the vaccine's risks and the refinement of its composition (Fine and Carneiro, 1999; Cáceres and Sutter, 2001). Moreover, successful mass vaccination campaigns with the Sabin vaccine, such as the Hungarian one and Cuba's campaigns in the 1960s came to serve as models for the current polio eradication programme (Hull et al., 1997).

The Hungarian government conducted the vaccination campaigns with monovalent vaccines (containing one strain each, Type I, followed by Types III, then II), each administered within a week at a time on a national scale to children between two months and three years of age, each strain given four to six weeks apart. The mass campaigns were organized in the winter months to avoid conflict with wild enteroviruses, which might interfere with immunity (Estívariz et al., 2014). The Hungarian mass vaccination based its method on previous field trials, most importantly the Soviet and Czechoslovakian trials. While in the former, Soviet virologists used both monovalent and trivalent vaccines (containing all three strains) in the

trial campaigns, their Czechoslovakian colleagues applied monovalent vaccines exclusively, each four weeks apart.[15] By 1960, Albert Sabin referred to the monovalent vaccination at intervals of four to six weeks as being "regarded as optimum during the cold months of the year in temperate zones."[16]

The model of national mass vaccination with the Sabin vaccine was adopted in Cuba in 1962, with active Eastern European participation. The ideas underpinning the new revolutionary government's ~~healthcare~~ health care system and attitude to disease prevention were well in line with Soviet and Eastern European concepts of public health. Furthemore, the wholesale transfer of polio vaccination methods (and the subsequent, early eradication of the disease from Cuba) built on previous engagement with Eastern Europe: the Cuban Sistema Nacional de Salud was based on a Czechoslovakian model of health planning, while Soviet physicians and health professionals from socialist countries compensated for ~~redressed~~ Cuba's shortage of doctors, as the island had lost roughly half of its medical professionals after the revolution (Brotherton, 2012, pp.67-68).

In the vaccination campaign, Karel Zacek, a Czechoslovakian polio expert, provided support on-site in serological studies and in establishing the surveillance system (Más Lago, 1999). The Czechoslovak expert assessed incident rates in different age groups, and studied the seasonality of the disease. The vaccination program was then designed with his recommendations in mind, immunizing the population between the age of one month and 15 years, with the Sabin trivalent vaccine. Zacek also participated in the organization of the vaccination campaign. He held national and regional lectures on the disease and the oral

[15] M. P. Chumakov et al., "Preliminary Report on Mass Oral Immunization of Population against Poliomyelitis with Live Virus Vaccine from A.B. Sabin's Attenutated Strains," in *Live Poliovirus Vaccines: Papers Presented and Discussions Held at the First International Conference on Live Poliovirus Vaccines* (Washington, D.C.: Pan American Sanitary Bureau, 1959); V. Skovránek et al., "Field Trial with Sabin's Live Poliovirus Vaccine in Czechoslovakia 1958-1959," ibid.

[16] Albert B. Sabin et al., "Live, Orally Given Poliovirus Vaccine. Effects of Rapid Mass Immunization on Popluation under Conditions of Massive Enteric Infection with Other Viruses," *JAMA*, no. 173 (1960).1521.

polio vaccine for health professionals and zone directors, who in turn trained vaccinators, health brigade members and social organization members (Beldarraín, 2013, p.34).

Zacek's figure reveals how international health practices crossed borders during the Cold War. Zacek ~~He~~ was at once a renowned scientist in Eastern Europe and a key epidemiologist and microbiologist in Czechoslovak polio elimination, and a member of the WHO Expert Committee on Virology. The movement of key techniques, technologies and people in the epidemic management of polio took place at this intersection of liberal and socialist international health (for discussions on liberal and alternative internationalisms, see Mazower, 2012; Antic, Conterio & Vargha, 2016).

Cuba became the first populous country to eradicate wild poliovirus in the Western Hemisphere (Smallman-Raynor et al, 2006), and the socialist path of polio vaccination from Eastern Europe to Latin America broadened to include a wide range of regimes and public health systems. The Cuban experience became the basis on which Latin American National Immunisation Days were organized in the subsequent decades. One of the notable case in Latin American polio eradication, which drew on the Cuban model was the National Immunisation Days (NIDs) in Brazil, which influenced global strategies significantly. NIDs as tools of polio control soon spread to Nicaragua, the Dominican Republic and other parts of Latin America. The method of mass vaccination with the Sabin vaccine was then adopted by China in the early 1990s and, based on the campaign's success there, was extended to the Western Pacific region of the WHO (Stepan, 2011, p.238).

If the development of the Sabin vaccine and its mass vaccination techniques in national programs were a result of a continuous scientific relationship between East and West and simultaneously, the intra-Bloc networks established during the years spent outside the WHO, the Cuban case was part of a broader trend in socialist internationalism of the late 1950s. In

his book *Soviet Internationalism after Stalin,* Tobias Rupprecht explores the ways in which the opening up of socialist internationalism in the late 1950s created contacts and relationships with Latin America that ebbed and flowed for decades. Rupprecht argues that more than geopolitical concerns, it was the home-grown socialism that provided most of the appeal to the region. Engagement with Latin American countries in a socialist international project was a source of legitimation for the Soviet State (and I would add, for the Eastern Bloc), and was taken on by intellectuals, cultural actors, politicians, and ordinary citizens alike (Rupprecht, 2015).

Hungary was, likewise, an enthusiast for developing and demonstrating international collaboration, especially as a counter-measure to its international isolation after the 1956 revolution. Hungarian news coverage of the global journey of the Sabin vaccine in the 1960s at once demonstrates the importance assigned to this preventive measure, ownership and pride over the vaccine, and the significance of socialist internationalism in national propaganda. James Mark and Péter Apor argue that accounts of Third World revolutions, and the de-colonising world featured prominently in mass media in the late 1950s and 1960s (Mark & Apor, 2015). While the representation of the developing socialist world they analyse points to the role of news and magazine pieces in shaping the young, second generation socialist population, the coverage of the global benefits of the socialist project of polio prevention suggests a wider audience in target. Yet, the message, especially in the early 1960s was similar: a dissemination and reinforcement of socialism's increasingly global reach.

While the Hungarian public was constantly reminded of the benefits of the Sabin vaccine (oftentimes called the Sabin-Chumakov vaccine)[17] and the disappearance of outbreaks in the

[17] "Százmillió Gyermeket Immunizáltak Eddig a Sabin-Csumakov Élő Vakcinával (Onehundred Million Children have been Immunized with the Sabin-Chumakov Live Vaccine So Far)," *Népszabadság*, July 18 1961.

early 1960s, they could also keep an eye on the rest of the world and the spread of this vaccination method. Newspapers stressed that the vaccine, used in increasing numbers around the world was produced in and distributed by the Soviet Union, while staying vague about the existence of any financial transaction involved. The list pieced together from the news coverage is as impressive as it was intended to be: vaccinations in Albania, Bulgaria, Vietnam, Korea and China by 1961;[18] 10 million doses sent to Japan;[19] the Soviet Union gave the gift of 100,000 doses of vaccine to India;[20] the first shipment of polio vaccine – a gift from the Soviet Union – arrived to Cairo;[21] 12 million vaccinated in Mexico in 1962 with Sabin vaccine received from the Soviet Union.[22]

It was not only the Soviet Union that featured prominently in these stories; socialist international health and collaboration in polio control was not exclusively a Soviet project. East Germany, for instance, supplied the Sabin vaccine to Mali in 1961.[23] Two cases stand out significantly in this global story: the East and West German interaction in the question of Sabin vaccination and the introduction of the live virus vaccine to Cuba.

In July 1961 party newspaper *Népszabadság* informed the public that a major polio outbreak in North Rhine-Westphalia has affected over 700 people, leaving 42 dead. The newspaper described panic in West Berlin over the news, and pointed out that every citizen under 40 years of age had been immunized with the Sabin vaccine, and the whole country had had only one case of polio since. In response, the East German government offered 3

[18] "Az Élő Oltóanyag Megszünteti a Járványos Gyermekbénulást," *Népszava*, October 5.
[19] "Százmillió Gyermeket Immunizáltak Eddig a Sabin-Csumakov Élő Vakcinával."
[20] "Külföldi Események - Néhány Sorban (Foreign News)," *Népszabadság*, April 22 1961. "Gyermekbénulás Elleni Vakcinát Ajándékozott a Szovjetunió Indiának (The Soviet Union Gifted Polio Vaccine to India)," *Népszabadság*, July 7 1961.
[21] "Hírek (News)," *Népszabadság*, April 23 1961.
[22] "Hírek (News) ," *Népszabadság*, January 8 1963.
[23] "Megérkezett Bamakoba a Gyermebénulás Elleni Első Oltóanyagszállítmány (The First Shipment of Polio Vaccine has Arrived to Bamako)," *Népszabadság*, December 10 1961.

million doses of the Sabin vaccine for West Germany. [24] However, West Germany eventually declined the offer, which, of course, was represented to Hungarians as a heartless move.[25]

Hungarian newspapers were not the only one to frame the inequality of polio control in the two Germanies along Cold War arguments. The perceived Eastern superiority in polio vaccination had very real consequences on the ground. As Stuart Blume and Ulrike Lindner point out, the growing embarrassment in West Germany over the fact that there were still significant outbreaks stood in sharp contrast with the expressions of pride in ~~pride of~~ East Germany and Eastern Europe more broadly, especially after the successes ~~results~~ of the Bloc were widely acknowledged at the 1960 International Poliomyelitis Conference. This eventually propelled West Germany to roll out a federal vaccination program with the Sabin vaccine in 1961 with the quick and efficient cooperation of the German states that were previously slow and reluctant to act with the Salk vaccine (Lindner & Blume, 2006).

Equally prominent was the coverage of the Cuban vaccination campaign. Hungarians could ~~can~~ learn about the planned Cuban polio vaccination campaign and the Czechoslovak involvement directly from three Cuban doctors who visited Hungary in September 1961, three months before Che Guevara's visit to Budapest. The three leaders of Cuban healthcare and the Cuban Red Cross were on a tour in socialist countries to gain experience in health organization and the work of Red Cross societies.[26] A few months later newspapers congratulated the revolutionary government for its ~~their~~ decision to launch a campaign against polio, pointing out that such significant and effective measures in the interest of the

[24] "Gyermekbénulási Járvány Nyugat-Németországban. Az NDK 3 Millió Egységnyi Oltóanyagot Ajánlott Fel (Polio Epidemic in West Germany. GDR has Offered 3 Million Doses of Vaccine)," *Népszabadság* 1961. See also "Az NDK Hárommillió Egységnyi Sabin-Védőanyagot Ajánlott Fel Az NSZK-nak (GDR has offered Three Million Doses of Sabin Vaccine for the FGR)," *Népszava*, July 4 1961.
[25] H.S., "Nyaralás – Alkotmányellenesen (Holiday – Unconstitutionally)," *Népszabadság* 1961.
[26] "Új "Statisztika" Készül Kubában: Beszélgetés Három Kubai Orvosvendégünkkel (New 'Statistics' in the Making: Conversation With our Three Cuban Physician Guests)," *Népszava* 1961.

health of children could not be found ~~seen~~ anywhere in the West.[27] Hungarians could then learn that the Soviet Union supplied enough Sabin vaccines to immunise 2.5 million children in Cuba,[28] with newspapers stressing again that this campaign was the first of its kind in the Western Hemisphere.[29]

The fact that Hungarians could keep up to date on ~~with~~ the spread of the Sabin vaccine and its mass vaccination methods reveals the importance in domestic politics of such a socialist international venture. With the memory of the recent ~~years'~~ polio epidemics fresh in the minds of parents and children, the Hungarian public was quite aware of the success of the Sabin vaccine as outbreaks ceased completely. This was a rare moment of uncontested victory shared by the new Kádár government and citizens alike. As the vaccine and its method travelled, newspapers did not require much effort to ~~trumpet~~ convince anyone of the benefits of socialist international health – at least in this regard.

The coverage attests not only to a conscious representation of the vaccine being a socialist product, but an ownership over its global spread and the aim of eradicating the disease from the globe. In this sense, the development of the Sabin vaccine and its use in mass vaccination campaigns from an Eastern European and socialist perspective ~~then~~ shifts the conventional narrative of polio eradication back by almost three decades. The beginnings of polio eradication are usually placed in the early 1980s following the success of the global eradication of smallpox in 1978 (Muraskin, 2012; Stepan, 2011). In 1988, the World Health Assembly passed a resolution to globally eradicate polio by the year 2000.[30] The Global Polio Eradication Initiative has been an ongoing process, without a set end-date.

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[27] "Küzdelem Kubában a Gyermekbénulás Ellen (Fight against Polio in Cuba)," *Népszava*, March 3 1962.
[28] "Hírek (News)," *Népszabadság*, February 13 1962.
[29] "Intézkedések Kubában a Gyermekbénulás Megelőzésére (Action in Cuba to Prevent Polio)," *Népszabadság*, March 3 1962.
[30] The Forty-First World Health Assembly, "Wha 41.28 Global Eradication of Poliomyelitis by the Year 2000," (Geneva: World Health Organization, 1988).

However, the WHO had already considered the possibility of polio eradication in 1960. The Third Report of the Expert Committee on Poliomyelitis explicitly addressed eradication in a separate section and called on further studies to establish the feasibility, risks and efficacy of polio eradication. The exploration of the possibility of polio eradication through studies did, in fact, begin very soon after the publication of the report, but not in the West. In a paper presented at a WHO training course on poliomyelitis control held in Prague in 1961, Vilém Škovránek, Czechoslovakian Minister of Health, asserted that experiences with nationwide mass vaccination campaigns with the Sabin vaccine "justify the conclusion that in this way we shall also be able to approach most closely and most rapidly the ideal results of vaccination with live attenuated polioviruses, i.e. the eradication of poliomyelitis." In what followed, Škovránek gave a detailed description of what was required in terms of epidemiological data collection, virological examinations, rapid vaccine administration, health services and public communication for what he referred to as the "final success".[31] The idea of polio as a viable candidate for a world-wide eradication program, therefore, was seriously considered by Eastern European proponents of the oral polio vaccine two decades earlier than discussions in the wake of the successful smallpox eradication suggest.

Meanwhile, the elimination and possible eradication of polio took hold, if not in global policy, but in practice. This was also reinforced in the popular representation of Eastern European eradication efforts, as a newspaper article from 1962 points out: "The effect of the Hungarian and Czechoslovak success is becoming stronger… The European Association for Poliomyelitis will meet this year in Prague, to study on site the experiences that can help to

[31] Vilém Škovránek, "Principles of Organization of Vaccination with Live Vaccine with Particular Reference to the Experience Assembled in Czechoslovakia. In Letter from Skovranek, Vilem to Sabin, Albert B. Dated 1961-05-13.," in *Hauck Center for the Albert B. Sabin Archives* (Cincinnatti: Albert B. Sabin Archives, 1961).

once and for all get rid this epidemic, which caused so many tragedies over millennia, from the life of humanity."[32]

The success of certain national strategies in the 1960s and 1970s became blueprints for the global polio eradication programme later in the 20th century. Countries that had been among the first to eliminate polio and were consistently using and refining the same vaccination method were particularly suited for contributing to a model of polio eradication. Eastern Europe thus, in several ways, became one of the cornerstones in shaping global polio eradication.

Conclusion: the socialist horizontal and the modernist vertical intervention

One crucial element seems to stand out from the models used in the Global Polio Eradication Initiative well into the 21st century: all were implemented by so-called authoritarian regimes. The relevance of the regime type for the success of the measures needed to prevent or treat disease became a recurrent issue in the history of polio. It played a crucial part in virologist Dorothy Horstmann's evaluation of the Sabin vaccine's potency and safety based on the early and massive trials conducted in the Soviet Union. Demonstrating the efficacy of the vaccine and the validity of the trials, Horstmann argued[33] that the autocratic political system and the top-down, military-like health organization served as a guarantee for the capability of the Soviet state to be able to execute a reliable mass trial involving millions of people. (Vargha, 2014)

[32] "Száműzzük a Járványos Gyermekbénulást (Ridding Epidemic Polio)," *Népszava* 1962.
[33] Dorothy Horstmann, "Report on Live Poliovirus Vaccination in the Union of Soviet Socialist Republics, Poland and Czechoslovakia," (World Health Organization, 1959).

If states like the Soviet Union, Czechoslovakia, Hungary and Cuba were pioneers and models in a global eradication program, we may well ask whether the success of eradication programs in these countries could be attributed solely to authoritarian governance? To what extent was the success of polio eradication technologies, methods and models mainly a function of coercive state structures? What role was played by socialist principles and practices of public health?

In her analysis of plague and malaria control in the Soviet Union, historian of science Elena Izmailova argues that the success of the USSR's ability to control and eradicate infectious diseases was the combination of both: "the political priority given by the Soviet government and the strong state apparatus to the suppression of the infectious diseases tightly related with Soviet state order expansion. This system allowed degrees of surveillance, intervention and control that Western public health could only dream about." Notably, Izmailova points out that compulsory measures of prophylaxis and treatment, and the network of epidemiological research stations contributed especially to the control of infectious diseases, even in areas with heavy transmission (Izmailova, 1996, p.115).

The extent to which the ideas of a highly organized and repressive state map on practices and experience on the ground in terms of healthcare and welfare, is much discussed in current historiography of state socialist states. However, as the sudden disappearance of polio outbreaks in much of Eastern Europe show, in the epidemic management of polio with the Sabin vaccine, state socialist countries were especially well equipped for success. They were certainly seen that way by virologists such as Horstmann, and by contemporary WHO officials, such as Leonard Jan Bruce-Chwatt from the Expert Panel on Malaria, who applauded both the Soviet anti-malaria campaign organization and the system of medical centers (Izmailova, 1996. p.115).

National health priorities, the development of an extensive surveillance system in epidemiology and the highly centralized state healthcare system fitted in the broader context of how responsibility for health was constructed between the state and citizens. Socialist ideas of health (the centrality of prevention in medicine, an emphasis on free and accessible healthcare and the pronounced role of the state in public health), were evident in the work of Eastern European virologists developing the final stages of the Sabin vaccine, Soviet Bloc states introducing mass vaccination methods and prevention strategies, along with early proponents striving to eradicate polio.

Quickly rolled out, mass vaccination campaigns were possible at least partly because they were seen – by the state and citizens alike – as part of the free and universal healthcare that was a cornerstone of state socialist identity.[34] Hungarian and Czechoslovak virologists and party members emphasized the importance of this particularly Eastern conceptualization of responsibility in the nation's health, in their evaluations of the Sabin vaccine campaigns (Vargha, 2017). Historian Enrique Beldarraín likewise points to what he sees as crucial steps in the success of polio control in Cuba: a shift to community-based health approach and the legal definition of public health as citizens' right and state responsibility (Beldarraín, 2013).

Authoritarianism and national health policies were not the only contributors to the prominent role of Eastern Europe and Cuba in early polio eradication. As we saw, a key component of the Sabin vaccine development and mass vaccination methods was the utilization of socialist networks. The decade spent outside the World Health Organization

[34] One could argue that similar priorities and ideas existed in the welfare states of the West. Subsidised or free access to healthcare and strong state intervention into matters of public health were championed in much of Western and Northern Europe. While facing challenges in the 21st century, countries like the United Kingdom, Sweden and France take pride in the healthcare system and ideals developed in the postwar era. The histories of welfare states in Europe are rarely connected with Eastern European socialist health and welfare histories, which makes a comparative analysis difficult. It is very much up for debate how much actually ideas of responsibility for health, healthcare provision and the role of the state in public health differed in East and West, if we peel away Cold War layers.

reinforced existing regional networks and created new ones across the socialist world. This socialist internationalism in health proved to be crucial in facilitating scientific collaboration and the transfer of technologies, models and people in polio control. Considering alternative international public health, in this case socialist networks, is therefore crucial in getting a complete picture of postwar international public health and its effect on modern global health.

The development of the vaccination method, the models used in eradication and the project's early advocates then came from a world very different not only from the one Bill and Melinda Gates inhabits, but from the usual suspects of 20th century eradication histories. These vertical and targeted campaigns were embedded in ideas of health that we might term horizontal – an emphasis on universal access to healthcare provided by the state. At the same time, they were similar to other Cold War eradication efforts in that oral polio vaccination campaigns were also part of modernist projects. A socialist modernism, which, in this endeavor, converged with and eventually mapped onto liberal modernist projects in the course of the late 20th century.

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