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POLICIES , 1945-1980**

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EXECUTIVE SUMMARY

The recent rise in morbidity and mortality from vaccine-preventable diseases in the former Soviet Union is a source of much concern. The increase in the incidence of diphtheria, a disease which by its nature serves as an early warning sign of a possible broad failure in a national immunization program, is in all likelihood soon to be followed by an increase in both pertussis (whooping cough) and measles, the latter of which has never really been under control in the former Soviet Union. But why is there not a public demanding vaccination in the post-Soviet era? Why has this, of all failures, been allowed? Was public acceptance of immunization programs in the Soviet period passive rather than active? Was the population used to an activist and benevolent state, which itself took on the prime responsibility for the welfare of its citizens in this regard, rather than entrusting it to parents? The answers lie in the actual policies and administration of mass vaccination campaigns which were used by the Soviet state both for preventive-health care goals and for the purposes of political legitimization.

It needs to be recognized that the current decline in the ability of the successor states to control vaccine-preventable infectious diseases is not merely the result of technical problems affecting the production, distribution, and storage of vaccine or other supplies necessary to support an effective vaccination program. Neither is it simply a lack of political will, an administrative failure in the management of health care, nor insufficient funds. It is important to understand the historical context in which mass vaccination campaigns emerged in the Soviet Union in the 1950s as the political leadership used immunization programs to redefine political legitimacy and state authority in society. These policies, in turn, continue to have a major impact on the public understanding of immunization campaigns and subsequent demand for effective preventive health care.

Soviet society used coercive immunization campaigns to demonstrate the superiority of an administrative order over a legal one. The state mandated compliance with a public good and in the process demonstrated the benefits of vigorous state control in the public realm. The public was to be passive in this process. Vaccination campaigns were used to show that if a good was truly important the state would do it, indeed, the state must do it. And, it must be recognized that in spite of all the abuses of Soviet power, the political leadership in the former Soviet Union repeatedly pointed to immunization campaigns to illustrate the success of its administrative order. The economic costs of maintaining the current system, especially the labor intensive and thus highly visible state coercive pressure, is no longer possible as the economy shifts to one that values labor more. The post-Soviet health care system in all the former Republics will have to establish a new delivery system which involves more parental initiative in the implementation of preventive health care. The State can no

longer afford to come to the patient. The current political leadership is also at a loss. The old political justifications for immunization policies were intimately tied to the goals of post-Stalinist socialism and the state's responsibility to maintain the labor supply. These old economic arguments no longer hold, and the state has lost its rationale and financial capacity to support immunization campaigns in the manner they were conducted in the past--in a highly coercive, highly labor intensive manner.

How will post-Soviet states ensure the control of infectious disease if the population is passive, the delivery system is too costly, the economic benefits no longer clear, and the need for political legitimacy no longer dependent on the maintenance of public health? These are the social dimensions of the current problem which must be overcome if effective national immunization programs in the successor states to the former Soviet Union are to be maintained.

THE SOCIAL CONSEQUENCES OF SOVIET IMMUNIZATION POLICIES, 1945-1980

This paper is a preliminary examination and survey of the political, economic, and social dimensions of Soviet immunization policy between 1945 and 1980, though the implications for the present will be made clear. From the outset, it needs to be noted that examination of these issues is greatly complicated by the inadequacy of the source materials. First, public health policies were not public issues in the Soviet Union, and what is available from the Soviet perspective largely consists of testimonials to the achievements of the Soviet health care system. Second, reports of western delegations to the Soviet Union during the period under consideration or western assessments of Soviet practices are deeply rooted in Cold War politics. Thus, in Soviet and, at times, Western sources, what information is available is often problematic.

The recent rise in morbidity and mortality from vaccine-preventable diseases in the former Soviet Union is a source of much concern. The increase in the incidence of diphtheria, a disease which by its nature serves as an early warning sign of a possible broad failure in a national immunization program, is in all likelihood soon to be followed by an increase in both pertussis (whooping cough) and measles, the latter of which has never really been under control in the former Soviet Union. But why is there not a public demanding vaccination in the post-Soviet era? Why has this, of all failures, been allowed? Was public acceptance of immunization programs in the Soviet period passive rather than active? Was the population used to an activist and benevolent state, which itself took on the prime responsibility for the welfare of its citizens in this regard, rather than entrusting it to parents? The answers lie in the actual policies and administration of mass vaccination campaigns which were used by the Soviet state both for preventive-health care goals and for the purposes of political legitimization.

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Western surveys of the Soviet health-care service rarely make mention of immunization policies and practices, although this aspect of preventive medicine was a major achievement of the system. (Hyde, 1974, pp. 226, 323) Generally, Soviet scholarship on public health and the control of infectious diseases begins with an obligatory description of the unfavorable infectious disease profile

which prevailed in Russia in the late tsarist period. "Pre-revolutionary Russia represented quite a favourable breeding ground for many highly contagious human diseases with a considerable level of mortality... The unending epidemics of natural smallpox, cholera, plague, intestinal infections, exanthematous fever and recurrent typhus, malaria and many other diseases did tremendous harm to the health of the people of Russia." (O. V. Baroian, *Results*, pp. 1-2) It is repeatedly noted that in Imperial Russia there was no single public health agency. In contrast, from the very inception of Bolshevik power, it is argued, the Soviet government was strongly committed to preventive health-care with immunization programs a central focus of these efforts. Administratively, this meant the establishment of a Commissariat of Public Health in July, 1918. In terms of preventive care, the following year the new Soviet government passed a decree on mandatory smallpox vaccination, and active vaccination campaigns against smallpox and typhoid fever were conducted in the Red Army.

In reality, Soviet portrayals of tsarist policies are misleading. In the pre-revolutionary period, the organization of smallpox vaccination was decentralized, largely under the authority of local organs of self-government. In Soviet parlance, decentralized systems of management are inherently inefficient and inadequate. But, in fact, the establishment of these local agencies (*zemstvos*) in the 1860s had resulted in a substantial reduction in the incidence of smallpox. The last major outbreak in European Russia occurred in the early 1870s. Moreover, it must be noted that, with the exception of the smallpox vaccine, until the twentieth century the ability of any government to control infectious diseases was largely limited to improving public sanitation, personal hygiene, diet, and the quality of milk.

The disease history of the newly formed Soviet Union resulted in preventive medicine being given a very high priority in the society, a practice which then persisted for the next seventy years. The early years of the Soviet regime, 1917-1921, witnessed some of the worst epidemics in Russian history. In response, Lenin would write in 1920: "All of our determination and all of our experience of the Civil War we must apply to combating epidemics." (Lenin, *Sochinenie*, vol. 30, 4th edition, p. 375.) In the long term, this was the beginning of a sustained commitment to controlling infectious diseases, especially vaccine-preventable diseases. In addition, this early infectious disease experience determined the subsequent willingness of the Soviet Union to participate in international health organizations and international health-care campaigns and had a major impact on Soviet foreign relations generally. Domestically, this commitment reflected the best and the worst of Soviet society. On the one hand, in a society in which public well-being, especially regarding diet and housing, often mattered little, the Soviet government mounted repeated preventive health-care campaigns reflecting a deep concern for the welfare of its citizens. On the other hand, these campaigns, especially vaccination efforts, were often carried out in a highly coercive manner, even though the population had a high degree of health-care consciousness and was largely compliant. (*Report*, 1959, p. 19)

Soviet experts are particularly proud of their government's early efforts at vaccinating the population. By 1920, seven research institutes were reorganized or established to focus on infectious disease control, including the well-known Institute for the Control of Serums and Vaccines in Moscow. O. V. Baroian, an epidemiologist, leading Soviet polio expert, and later assistant director of WHO, has written that these institutes "did a tremendous job of supplying the country with preventive preparations ... In 1920, they produced 30,000 liters of cholera vaccine, and in 1921, 27 million doses of the cholera and typhoid vaccines, and 2,144,000 doses of the diphtheria serum." (Baroian, pp. 32-33) The evidence of the propagandistic value of Soviet vaccination programs can be seen in Baroian's statement that "after the Great October Socialist Revolution, when the preventive trend in Soviet medicine was stressed, vaccination against typhoid became widespread also among the civilian population". (Baroian, *The Results of Half a Century*, p. 162) However, no numbers are cited, and the extent of the campaign and, of course, the efficacy of the vaccine are both seriously in doubt. In fact, when Baroian wrote these words in the late 1960s, he was well aware of the negligible medical impact of these vaccination programs. (Baroian, *The Results of Half a Century*, pp.182-4.) Similarly, Baroian writes: "the use of diphtheria anatoxin in the thirties in Leningrad in the first mass experiment of the compulsory immunization of children resulted in a tenfold reduction of the disease rate among children and a complete elimination of deaths from diphtheria among those inoculated." (Baroian, *The Results of a Half Century*, pp. 37-38) But he fails to explain that, if true, why it took another two decades for immunization against diphtheria to become widespread. Throughout the 1950s the number of diphtheria cases fluctuated between 100,000 and 120,000 per year. (Baroian, *The Results of a Half Century*, p. 42) A large scale campaign for the reduction of diphtheria was started only in 1955. The reason given by Baroian for this delay is ascribed to the general difficulties suffered by the country during the Second World War. An alternative explanation is given below. Nevertheless, it does seem that very early in the life of the new Soviet government efforts to provision the population with vaccines became a prominent measure of its political success regardless of the actual efficacy of these vaccines. What was important was the effort, the show of a commitment of the Soviet state to the public well-being of its citizens, for with the exception of smallpox, no vaccine anywhere was of substantial benefit.

To go back for a moment, in the 1930s, evidence mounted that in spite of early Soviet public health measures, including vaccination campaigns, the Soviet Union continued to lag behind western Europe and the United States in the control of infectious disease. This was a source of considerable embarrassment to the regime which had invested so much politically, medically, and emotionally in its preventive health efforts.

Since the thirties of this century, the publication of extensive surveys on the dynamics of infectious diseases in various countries has decreased considerably, or even stopped completely. No such information was published for the Soviet Union. This is explained by the fact that even such a noble goal as the control of epidemics started to be used for

propaganda purposes by a number of large capitalist countries... Naturally, under these conditions, information on the disease rate in the USSR was discontinued (Baroian, pp. 9-10).

By 1950, tensions were such that the Soviet Union withdrew from the World Health Organization and from a variety of bilateral exchanges. Moreover, Soviet scholars during this period began to argue that indexes of infectious disease rates that attempted to compare success in the control of infectious diseases between the USSR and “economically developed capitalist countries” were flawed. Developed nations, it was argued, by exploiting colonial countries, in effect, exported their epidemics, not biologically, but socially and economically. As a consequence, “for the results of infection control in the USSR in the course of the last fifty years, that is, the results of the epidemiological effectiveness of the implemented measures, it is necessary to have different parameters for their effective evaluation; it is necessary to have *historical comparisons* and a thorough analysis of the objective reasons determining all achieved results.” (Baroian, pp. 13-14. Emphasis added.)

It was only the development of new and highly effective vaccines in the 1950s which encouraged or forced the Soviet Union into renewed international cooperation with developed nations. Until this point, success in Soviet efforts at controlling infectious diseases had resulted from improvements in public sanitation. A powerful Sanitary-Epidemiological Service (SES) had been created in the 1920s with direct responsibility for matters related to public health. Achievements in this area were very considerable, as a 1957 report of the *United States Public Health Mission to the Union of Soviet Socialist Republics Including Impressions of Medicine and Public Health in Several Soviet Republics admitted*: “One of the dramatic accomplishments in the health in recent times has been the almost explosive extension of disease prevention and medical care over the vast extent of the Soviet Union.” (*Report*, 1957, p. v). The incidence of epidemics of typhoid, cholera, and plague and the number of cases of endemic malaria was greatly reduced by improved public sanitation. Vaccination efforts had virtually eliminated smallpox by 1936.

But as the focus for improved control of epidemic diseases shifted from administrative efforts and organizational measures largely in the area of hygiene and sanitation toward knowledge gained from the biological sciences, the Soviet Union in the early 1950s found itself in a disadvantageous situation. Assessments of Soviet research, training, and facilities in the medical sciences at this time suggest they lagged behind considerably. Clearly, Soviet scientific research efforts were being directed elsewhere. Soviet medical research efforts were generally directed to applied areas. The 1957 US Public Health Mission noted that it saw “no research of a profound nature underway.” (*Report*, 1957, p. 59). Although this comment must be taken in the context of the Cold War, it was based upon a detailed analysis of Soviet publications in the fields of biological science. American delegations visiting the Soviet Union at this time often reported that hospitals were poorly equipped

and “medical research institutes were crowded, archaic and obviously underprivileged.” (*Report*, 1957, p. v).

The untimely withdrawal of the Soviet Union from the World Health Organization in 1950, only two years after its establishment, meant that Soviet medical researchers were not participants in a variety of international immunization projects. As a result, the most recent research on the development of new vaccines and, most particularly, research on problems associated with the mass production of vaccines were less accessible to Soviet specialists. It was the Sabin polio vaccine, formally approved by the WHO Expert Committee on Poliomyelitis in 1957, and the development of improved, combined diphtheria, pertussis, and tetanus vaccines that rekindled Soviet interest in the organization. In 1958, the Soviet Union rejoined WHO, a year which in Soviet parlance, marked the beginning of “its active participation in the organization.” (*70 let sovetskogo zdavookhraneniia, 1917-1987*, p. 501)

In 1958, at the annual assembly of WHO, the Soviet Union proposed the eradication of smallpox and pledged 25 million doses of vaccine (*70 let sovetskogo zdavookhraneniia, 1917-1987* (Moscow, 19870, pp. 349-350). In one sense, the Soviet call for the eradication of smallpox was recognition of the need to remove vaccine research and campaigns from the politics of the Cold War and to begin a new period of international cooperation in public health and preventive medicine. But, in another sense, this afforded the Soviet Union the opportunity to re-enter the international medical community and derive benefit from new and highly successful vaccination programs in the West. The Soviets offered their existing capability to mass produce smallpox vaccine in exchange for access to research and sample strains of polio, measles, and DPT- combination vaccines. In other words, it is highly likely that Soviet authorities were aware by the late 1950s of the long-term economic and military benefits which would accrue to a society with lower infant and child mortality rates as a result of successful vaccination programs. The costs of continued non-participation in WHO, given the significant gains in biological research at this time, would be quite high.

But the introduction of mass vaccination campaigns in the mid- to late 1950s also coincided with major shifts in the political legitimization of Soviet society and the exercise of state authority. Mass vaccination campaigns were to become a central feature in the establishment of a popular basis for newly emerging forms of political authority in the Soviet Union. This, in turn, would have long term consequences for programs of preventive health care as immunization campaigns became intimately linked to a specific set values in the administration of public authority.

In a society in which providing the population with adequate food and housing was problematic at best and in which crash industrialization programs brought few consumer goods, immunization efforts and mass immunization campaigns were highly visible and relatively inexpensive efforts to obtain legitimacy for the regime. This is in sharp contrast to the image of Soviet health-care practices as portrayed by Feshbach: “For a long time, health issues were ignored in the Soviet

Union, since it was a planned economy in which production was emphasized before everything else regardless of cost, whether it be cost of inputs, cost of manpower, or the cost of the health of the population.”(Feshbach, p. 6) Rather, I would like to argue that immunization campaigns brought social discipline in a clear and progressive way. Such efforts readily assured Soviet citizens of the benefits of administrative order over a legal order, of the fundamental good embodied in the Soviet state and in its exercise of authority. This was especially true from the mid-1950s onward with the development of a new social basis of state authority in Soviet society and the substantial reduction in the use of terror as a method of control. The new vaccines which became available in the 1950s and the mass immunization campaigns of that time coincided with the process of de-Stalinization and proved to be a key component in the Soviet state’s new legitimacy and new political relationship with society. They also entailed little risk for the regime. If these campaigns brought results, they would be visible immediately. The public opinion and public health benefits would be enormous. If they failed, the effort could still be touted and the failure explained by the limitations of science. In other words, one can hardly imagine more desirable programs. Thus, the actual implementation of vaccination campaigns and the public aspects of these efforts took on quite unique forms in the Soviet Union.

One of the main appeals to the Soviet public in launching vaccination campaigns from the 1950s onward was the social good of the construction of socialism. Such campaigns were to a significantly less degree identified as an individual or familial good, as was the case in the United States and Western Europe. Even more subtly, appeal was for the need to prevent epidemics, a social event, and less directed to parents to protect their individual child. Immunization efforts were portrayed as evidence of an activist, benevolent state, seeking loyalty and legitimization by conducting such campaigns. To Baroian: “No one can deny that these achievements (the controlling of infectious diseases, including poliomyelitis, diphtheria and others) were, first of all, the direct result of the State system...” (Baroian, *Resulting in Controlling*, 1969, p. 7).

It is clear that the nature and structure of the Soviet health-care system which was put in place in the 1930s greatly facilitated later implementation of immunization policies. Highly centralized and extremely labor intensive, the Soviet medical establishment found few problems in including new immunization programs into existing child care practices. In most of the Soviet Union, each baby was to be visited at home by a pediatrician and nurse every ten days during the first month, then once a month for the first year. Thus, the administering of vaccines was relatively easy, and coverage was rather thorough. (*Report*, 1962, p. 38) An American immunology delegation visiting the Soviet Union in 1962 concluded that “the mass vaccination with Sabine vaccine has worked out very well in the USSR.” (*Report*, 1962, p. 45) In fact, overall, the delegation concluded: “Prophylactic vaccination is considered a very important part of Public Health Practice.” (*Report*, 1962, p. 82)

Regular responsibility for immunizations was entrusted to the Sanitary-Epidemiological Service (SES), known in colloquial parlance as the SS, which gives, albeit anecdotally, some impression of the scope of its authority and public perception of the organization. Although some of this impression came from the traditional tasks associated with a public health service, much of the same attitude prevailed in SES as it administered immunization policies, as has been suggested above. Local and regional sanitary-epidemiological stations under central control were established throughout the Soviet Union. In the 1950s, each local station was manned by one physician for 10,000 population. These stations were concerned with all local aspects of sanitation, immunization, medical statistics, and health education. Thus, they had considerably broader authority than most public health services elsewhere in the developed world. Nevertheless, it is clear that in the 1960s, local stations had considerable difficulty in implementing adequate vaccination registration procedures. Thus, local SES officials often encountered difficulties in controlling local epidemic outbreaks.

The actual administration of vaccines, once field tested and mass produced, proved to be comparatively easy in Soviet society. Once a vaccine was developed in the West, Soviet researchers focused their efforts on obtaining sample strains, reproducing them, conducting field tests, and then mass producing them. The labor costs of medical personnel were quite low meaning that vaccination campaigns could be highly labor intensive. In contrast, as the cost of such labor has greatly increased since the collapse of the Soviet Union, new less labor intensive and more voluntary delivery systems will have to be developed.

M. P. Chumakov, the leading Soviet expert on polio in the early 1960s, has described the conduct of mass oral vaccination campaigns. "The vaccine was given through local medical institutions on a strictly voluntary basis, with maximum enlisting of public cooperation through broad sanitary propaganda (press, radio, television, news-reels, public lectures, leaflets, etc.)." (M. P. Chumakov, *On Mass Oral Immunization of the Population in the Soviet Union Against Poliomyelitis with the Live Vaccine from A. B. Sabin's Attenuated Strains* (Moscow, 1960) pp. 7-8). "Vaccination of organized children (children attending some state institution--SH) is done in children's institutions, but children not going to such institutions should be vaccinated at children's polyclinics or at home when vaccination teams make rounds of every house and flat... On the coming Sunday, it is necessary to visit all apartments and give the vaccine to all unorganized children and other persons who by chance received no vaccine in their institutions." (Chumakov, p. 76). In other words, the Soviet health-care system, given the low costs of labor, especially in the case of medical personnel, was able to mount house to house mass vaccination campaigns against polio in the early 1960s. Whatever the seeming inefficiencies of such campaigns, they are certainly testimony to the strong commitment of the Soviet government to the provision of preventive health-care to its citizens. And, one can only imagine that this was not lost on the citizens themselves.

American delegation reports are not significantly different. The delivery system of Clinic No. 50 in the Kiev district was described as follows in 1962:

The Polyclinic ... serves 17,000 children, from birth to sixteen years of age. They have 800 children under one year of age, under their care now. All services are free.

The head physician, Dr. M. Shurova, has three assistants, all of whom are pediatricians. The main work of the clinic is prophylactic. There are twenty pediatric areas in the district. The working day of a pediatrician is as follows: Three hours in the office, one hour for vaccinations, and the remainder for house calls. Each pediatrician has eight apartment houses in which he is responsible for care of the children. Each apartment house has 78 apartments and 60-70 children." (*Report*, 1962, p. 38).

Regarding the mass polio vaccination program, it was noted, both radio and television were used to explain to the population the necessity for their full cooperation if the program was to be successful. Newspaper and billboards also carried notices of where and when the vaccine was to be distributed (*Report*, 1959, p. 16, 48). For the conduct of a mass vaccination campaign, in towns, vaccination teams were set up in schools, nurseries, kindergartens, outpatient clinics and factories. In rural areas, teams of three persons, usually two nurses and a feldscher went out to cover an assigned area.

In July, 1959, a mass polio vaccination campaign was conducted in Tashkent. Teams consisted of a physician and 2 nurses (practical nurses (presumably feldshers)), who went from house to house, carrying the vaccine in thermos jugs... July 19 was a Sunday. All families with children were urged through television, radio and press to remain at home until visited by a vaccination team.... Although the vaccination was voluntary, considerable pressure was exerted in the course of radio and television propaganda, taking advantage of the fear of all parents in the face of a poliomyelitis epidemic. The response was thus close to 100 percent. This was largely the procedure followed throughout the Soviet Union between 1959 and 1962, when most mass polio campaigns were conducted. (*Report*, 1959, p. 58, 71, 73).

US Public Health officials, in assessing the success of large scale trials and mass polio vaccination programs in the USSR noted that this success "depends to some extent on having a population which might be termed 'amenable' as far as participation is concerned. Although vaccine programs in the Soviet Union have been carried out on a voluntary basis, in response to appeals from the central Public Health authority, it would seem that the Soviet people today are used to a mass response, more than is true of populations in some other countries... By comparison, it seems clear that such mass vaccination programmes would be difficult to carry out on a nationwide scale in the United States." (*Report*, 1959, pp. 99)

Though it is rather difficult to understand precisely what is meant in this heavily coded Cold War language, it seems to be an admission that in societies with a greater emphasis on individual rights than the collective good (or public well-being), compliance with immunization programs is more difficult to obtain. In other words, some societies were more likely to pay an infectious disease

price for their "freedoms." On the other hand, it is clear that American health care specialists found both surprising and incomprehensible the highly coercive nature of Soviet vaccination campaigns.

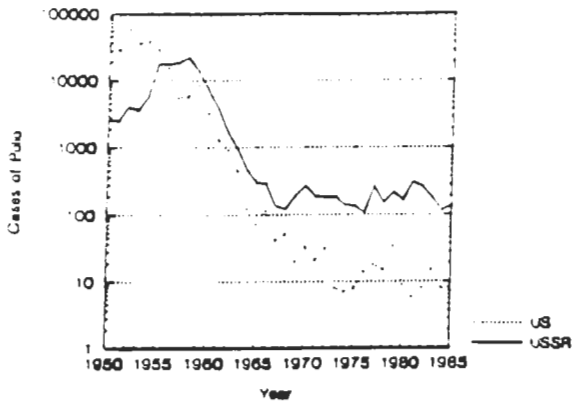
Perhaps in response, it seemed very important to Soviet public health officials to emphasize to outside observers that vaccinations were voluntary, though it is highly unlikely they were. Smallpox was the only vaccine required in the USSR in the early 1960s. All babies born in maternity hospitals received the BCG vaccine, and, although it was not compulsory, as was mentioned to a visiting delegation of American physicians, "the babies cannot object." Officially, diphtheria and tetanus toxoid and pertussis vaccine were elective, though in practice they were not. (*Report*, 1962-1963, p. 32). The voluntary nature of the administration of vaccines has been questioned by a number of western specialists over the years (*Report*, 1962-1963, p. 9).

During the 1950s and early 1960s progress was slow in the actual implementation of various immunization campaigns, in all likelihood, due to delays in the production of vaccine itself. By December 30, 1959 only 15.2 million persons had been vaccinated with the oral polio vaccine, and only in 1960 was an order issued to vaccinate all persons in the USSR aged 2 months to 20 years. By 1966, only 16 percent of the Soviet population had been vaccinated against tetanus. (Baroian, p. 156) As late as 1964, the USSR was reporting over 1,500 registered cases of tetanus per year.

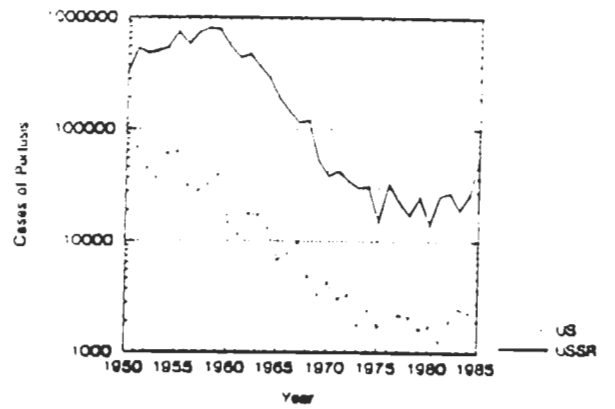
It is important to note that in all instances the Soviet Union was unwillingly to purchase mass produced vaccines from the West. It insisted on developing its own domestic production capacity. Burgasov writes with pride: "Our country not only is entirely independent of imported vaccines and serums, but it regularly exports domestic vaccines and serums to many nations of the world, which testifies to the high quality of the preparations produced and to their ability to compete on the international market" (*Sostoiane i perspektivy*, 1987, p. 29) But, as a consequence, implementation of polio, measles, diphtheria, and pertussis vaccination campaigns lagged five or more years behind the United States. In other words, Soviet citizens suffered continued high rates of infection until domestic production was sufficient to launch effective campaigns. This was clearly a conscious policy on the part of the Soviet government, one that would have been hard to sustain politically elsewhere. On the other hand, development of a domestic vaccine production capacity meant that the Soviet Union was in a far better position to provide vaccines to so-called "friendly socialist countries" and to the Third World. In fact, as will be discussed below, providing vaccines to a number of Third World countries was a key aspect of Soviet foreign policy and foreign aid from the 1960s onward.

The pattern in the decline of four key vaccine-preventable diseases in comparison with similar developments in the United States reveals this lag in the Soviet Union. (See tables, page 10). In addition, in the 1970s, the number of cases of pertussis, measles, polio, and to a certain extent diphtheria were well in excess of those in the United States. The Soviet Union's understanding of control of these infectious diseases meant it was annually willing to tolerate 2,000-5,000 cases of

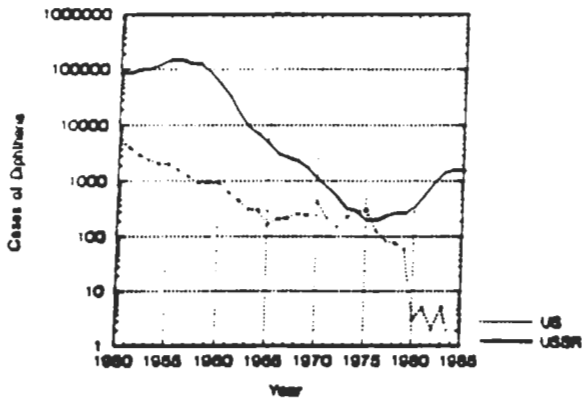
Annual Reported Cases of Polio



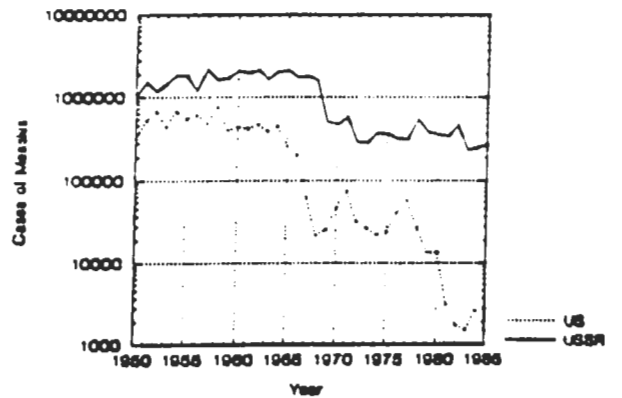
Annual Reported Cases of Pertussis



Annual Reported Cases of Diphtheria



Annual Reported Cases of Measles



pertussis, over half a million cases of measles, over 100 cases of polio, and an increase in diphtheria following a low in 1975. On the one hand, it must be noted, that with the exception of measles, the campaigns against polio, diphtheria, and pertussis were great successes. It is, of course, eradicating the last few cases of a disease which is the most costly. However, it does remain clear that the Soviet Union, for whatever reasons, was either unwilling to pay that cost or was incapable of putting into place administrative mechanisms to reduce further the incidence of these diseases. Finally, it is of interest to note that data presented by Baroian reveal that the three Baltic republics, the Russian Federation and the Ukraine show earlier declines in the frequency of these diseases. Reductions came on average three to four years earlier than elsewhere in the USSR. This suggests a distinct ethnic preference in the launching of Soviet vaccination campaigns. But little other information of this sort is available. (Baroian, *Results of Half a Century*, p. 130) Nevertheless, the effects of these policies, even the failure of the Soviet's measles immunization efforts, do not support the views of Feshbach. Regarding the World Health Organization's Expanded Program of Immunization, Feshbach has written: "Why don't they (the Soviets) apply it? The reasons are lack of syringes, lack of refrigeration, but also sheer indifference, not giving a damn--and I mean those words." (Feshbach, p. 11).

The extremely high priority given to preventive medicine in the Soviet Union is evidenced both by the sharp decline in the incidence of vaccine preventable diseases and the fact that American delegations were otherwise unfavorably impressed by the quality of Soviet medical care and medical establishments. (*Report*, 1957) The Soviet Union invested in percentage terms far more heavily in preventive measures than in therapeutic ones. In the latter case, the level of services acquired left much to be desired by western standards. But, in terms of broader measures such as infant mortality and life expectancy, the Soviet Union fared quite favorably and may have been making a more rational use of the limited resources available to it. In other words, the Soviet Union invested far less in medical education, facilities, and basic research. For new advances it relied heavily upon western countries, and thus Soviet participation in international health organizations and the establishment of bilateral research exchange agreements were vital to the success of Soviet immunizations campaigns. "In its quantitative approach to the problems of public health, the Soviet Union appears to have been highly successful in bringing infectious diseases under control." (*Report*, 1957, p. 26).

As was noted in the report, this was especially apparent in the training of great numbers of medical and auxiliary personnel. Indeed, though initially skeptical of published Soviet claims on medical staffing patterns, American observers in the 1950s found there to be a "plethora of staff." (*Report*, 1957, p. 22) Costs associated with delivering preventive care, with feldshers received half the pay of airline stewardesses and truck drivers, were far less than in the United States. Moreover, the delivery system also mandated an equitable geographic distribution of health-care by virtue of the

fact that until 1955, Soviet physicians were required to serve a minimum of three years in a place to which they had been assigned. This proved to be particularly effective in providing access to the rural population. Moreover, "all physicians have training in sanitation and health education, in addition to medicine, and thus fit into the current pattern of heavy emphasis on preventive medicine." (*Report*, 1957, p. 22) Indeed, a significant component of a physician's job in the Soviet Union involved the education of parents regarding matters of child care.

From the early 1960s onward, the Soviet health-care service was increasingly having to provide the political leadership with an economic rationale and an assessment of the cost-effectiveness of its vaccination efforts. In this regard, it ought to be noted that analyses undertaken of the cost-effectiveness of these programs, in spite of the centrally-planned aspect of the Soviet economy, were not significantly different methodologically or substantively from cost-benefits studies undertaken in capitalist societies. In other words, economic assessments of the effectiveness of immunology research and immunization campaigns were not uniquely determined by the socialist structure of the economy as other investment projects were.

In the Soviet Union throughout the 1950s and 1960s, justification for the high priority given to preventive health-care and vaccination programs, in particular, was invariably put in economic terms, the need to sustain human working power for the state and the construction of socialism. To P. N. Burgasov, head of the Soviet public health service, the principle goal of the Soviet health-care system was to maintain and improve "the productive capacity of society." (Burgasov, "Itogi i osnovnye zadachi", p. 7) This was also evident to outside observers. "The more important or productive the key worker or the future key workers, i.e., the children, the higher their value to the State, and the greater the necessity of keeping them in top operating form." (*Report*, 1959, p. 9-11). "A central goal of the Soviet Union is to mobilize a maximum of human power for production (the worker is recognized as "a fund of gold")." (*Report*, 1959, p. 42). In fact, in 1970, the USSR Ministry of Public Health in conjunction with the World Health Organization supported a number of studies which attempted to measure the economic efficiency of vaccination programs. These studies were to provide policy makers with information on "the economic profit of public health programs." (Roitman, p. 1) The goal was to measure the profits resulting from the fact that "persons whose health was preserved as a result of the eradication of a disease continue to participate in the production of material goods for the remaining period of their labor activities." (Roitman, p. 8) Methods were developed "for estimating the economic efficacy of the eradication of certain diseases," in this case polio and diphtheria. (Roitman, pp. 9-10). The study concluded, "the difference between the cost of the expenses for the eradication of polio in the USSR and the profits rising from the prevented loss in the case of this disease total 3.9 billion rubles, and in the case of diphtheria -- 2.1 billion rubles. ... Polio and diphtheria are the diseases which affect mainly children, i.e., those who will be engaged in labour activities in the future." (Roitman, pp. 16-17.) In the main

Soviet medical journal on epidemiology and immunology, an essay on Soviet achievements in the field noted: "The sharp drop in illness and death from infectious diseases to a large degree has provided for a lengthening of the working life of our citizens and has significantly reduced the frequency of temporary disability... For each ruble invested in antidiphtheria efforts (largely prophylactic vaccinations) the economic return was 39 rubles." (Sumarokov et al, p. 6). Finally, Burgasov wrote that for every ruble expended to lower the incidence of diphtheria between 1958 and 1966, the economic return was 39 rubles. (Burgasov, "Itogi," pp. 10-11) These studies allowed for rational calculations in which economic efficiencies and cost benefits were analyzed and coherent policies established. Though it is hard to establish with any degree of certitude, it appears that in launching mass vaccination campaigns Soviet policy makers were to a far greater extent than elsewhere motivated by the potential economic benefits and social good that would derive from increased levels of labor inputs and production. Such rationales were repeatedly used in the public rhetoric attendant to these campaigns.

Since the collapse of the Soviet Union in 1991, it must be noted, the former justifications for immunization policies are no longer valid and the old economic arguments do not hold. In particular, there is no means of assessing economic benefits in the confused state of the economy. Neither does the state have the same concern as before to maintain the future labor supply. Policy makers have lost their reasons for justifying these campaigns and have yet to articulate a new argument.

The late 1960s and early 1970s witnessed a major shift in Soviet international health-care politics. Until this date, the Soviet Union had focussed its efforts on extracting the most from its participation in WHO--that is, obtaining specific information on vaccine development and mass production and then implementing mass campaigns in the USSR and in Eastern Europe. By the late 1960s the Soviet Union took on a more activist, leadership role in WHO--participating in a variety of studies and programs to expand vaccination efforts to those regions of the world which had yet to benefit, that is, primarily in the Third World. Here the Soviet experience of centralized health-care planning and administration was often more appropriate, given the lack of a private medical sector of any significance in these countries. Moreover, the Soviet Union itself served as an excellent example of a relatively undeveloped country in 1917 covering a lot of ground quickly. "Certain moments and facts which were characteristic of the Soviet health system, are very interesting to specialists in the developing countries... the epidemiological situation in Soviet Russia in the 20s may be in large measure compared to the present situation in many developing countries, which are on the road of independent political and economic development and often have to face problems similar to those that the Soviet health service had to solve in the first decade of Soviet power." (S. V. Nechaev, *General principles of planning, organizing and carrying out epidemic control measures in the developing countries*, Report 167 (1971) pp. 1-2). In other words, the Soviet path to the improvement of a

population's health was perceived to be, and rightly so, a more appropriate model for Third World countries than that presented by developed nations.

In particular, Soviet experts had in mind that "medical servicing of the population in the countries of Africa and Latin America should be built not on the basis of patients visiting medical institutions." Rather, medical workers themselves should be in constant and close contact with the residents of the towns and villages, should know their needs and their troubles and carry out all possible prophylactic measures. (Nechaev, p. 28) Thus, a health-care center approach with prophylactic treatment the main goal, rather than hospital treatment with therapy the main service, it was felt, better addressed the needs of developing countries. Moreover, much of the health center work, including "the carrying out of preventive vaccination," would take place in the homes of the people served and not in the health center itself. In other words, the health center would be the basic unit of the antiepidemic service..

In publications by the Novosti Press Agency on public health in the USSR, much was made of the fact that the Soviet Union provided 1.5 million doses of diphtheria antitoxin to the Cameroons (1966), one billion doses of polio vaccine to Uganda, one billion doses of smallpox vaccine to the governments India, Burma, Nepal, Afghanistan, the Sudan, Burundi, the Ivory Coast, Liberia, Guinea, Togo, Mali, Pakistan, Iraq, Zambia. (Boris Petrovsky (The USSR Minister of Health), *Public Health in the USSR* (Moscow, no date), pp.75-76).

Increasingly, in the early 1970s, the Soviets spoke of "the need to expand international medical cooperation, uncoloured by any shade of political or economic interests on the part of large economically developed powers, and aimed at the global elimination of certain infections." (Baroian, *Contemporary Views*, p. 24) In reality, although there was considerable cooperation on the technical side in the exchange of medical research regarding vaccine development, there was substantially less cooperation beyond this. In many instances, vaccine campaigns became a form of bilateral foreign aid, simply another dimension of the Cold War. The withdrawal of Soviet administrative and technical support and medical supplies, including vaccine, from many Third World countries will undoubtedly have an impact on subsequent levels of infectious disease, and efforts will have to be undertaken to address this problem which is only now beginning to emerge.

This essay illustrates the impact epidemics of infectious disease had on the early formation of the Soviet Union. Control of infectious diseases initially through public health measures and later through the use of vaccines became a vitally important measure of the success of the Soviet state. Soviet immunization campaigns proved to be of great significance in demonstrating the state's ability to improve the well-being of all its citizens. Immunization campaigns proved to be far more successful than the state's ability to provide substantial and permanent improvement in the society's material standard of living. But the considerable improvement in life expectancy that occurred in the USSR during the twentieth century from a reduction in deaths from infectious disease came about as

a result of very different public health policies, administrative practices, and health-care emphases from those found in the United States and western Europe.

Of great import, Soviet society used coercive immunization campaigns to demonstrate the superiority of an administrative order over a legal one. The state mandated compliance with a public good and in the process demonstrated the benefits of vigorous state control in the public realm. The public was to be passive in this process. Vaccination campaigns were used to show that if a good was truly important the state would do it, indeed, the state must do it. And, it must be recognized that in spite of all the abuses of Soviet power, the political leadership in the former Soviet Union repeatedly pointed to immunization campaigns to illustrate the success of its administrative order.

The economic costs of maintaining the current system, especially the labor intensive and thus highly visible state coercive pressure, are no longer possible as the economy shifts to one that values labor more. The post-Soviet health care system in all the former Republics will have to establish a new delivery system which involves more parental initiative in the implementation of preventive health care. The State can no longer afford to come to the patient. The current political leadership is also at a loss. The old political justifications for immunization policies were intimately tied to the goals of post-Stalinist socialism and the state's responsibility to maintain the labor supply. These old economic arguments no longer hold, and the state has lost its rationale and financial capacity to support immunization campaigns in the manner they were conducted in the past--in a highly coercive, highly labor intensive manner.

How will post-Soviet states ensure the control of infectious disease if the population is passive, the delivery system is too costly, the economic benefits no longer clear, and the need for political legitimacy no longer dependent on the maintenance of public health? These are the social dimensions of the current problem which must be overcome if effective national immunization programs in the successor states to the former Soviet Union are to be maintained.

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