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vaccination decisions as a perpetual compulsory democratic programme for society and individuals

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Infectious agents, which can spread rapidly within large groups of people, have always been a threat to human health. Hygiene and vaccination measures have played a crucial role in reducing diseases on a large scale. Globally, however, infectious diseases continue to affect the differences in life expectancy between the populations of different countries. In societies with a high standard of living and well-trained health care systems, the threat posed by infectious diseases has been comprehensively suppressed through successes in prevention. This can lead to individuals deciding against immunization because they do not perceive an individual threat from the disease. Global pandemics such as HIV and currently SARS-CoV-2, make it clear however, that many infectious diseases cannot be regulated without the presence of vaccines, or can only be regulated by accepting considerable consequences for society. A single vaccination protects the individual; high vaccination rates protect the population as a whole and particularly those at risk. Vaccination decisions must, therefore, be made on the basis of a public consensus-oriented discussion. Against this background, the vaccination idea should be a permanent part of educational canons.

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What Keeps a Society Healthy?

The average life expectancy of a population is a relevant indicator of the health of the population of a state or a world region. In 2014, the average life expectancy at birth of European Union residents differed from that of the population of the Central Asian Republics by about eight years (81 vs 73 years) (WHO, n.d.). If we compare corresponding countries with other regional structural data, such as the gross domestic product and the distribution of ownership between individual groups of the population, we generally find the following correlation: the higher the productivity of an economy and the smaller the differences between “rich and poor”, the higher the life expectancy. Similarly, there are correlations between average health indicators of the population and the quality of social security systems, the degree of freedom and participation rights, and the quality and binding nature of a public education system.

Social Consensus Determines Individual Health Chances

The above correlations are not always comprehensible to the individual. Epidemiologically there is support for the thesis “poverty makes ill”, but there is also support for the opposite thesis, “illness makes poor”. Historically however, it can be shown that life expectancy in individual countries is generally positively correlated with social and economic development. In the territory of the Federal Republic of Germany (with pre-1990 borders), life expectancy almost doubled between 1870 and

1970 from around 37 years to 75 years (Hradil, 2012). The reasons for this considerable improvement in the health of an entire population are manifold. In Central Europe, for example, health and illness were largely misunderstood until the late Middle Ages and were predominantly regarded as fateful or even God-given. Medicine provided few effective and reliable approaches to maintaining health or treating illness. High birth rates and a high infant mortality rate statistically balanced each other out. A lack of social security systems meant that illness and death of parents often plunged whole families into deep and lasting poverty. Regularly occurring epidemics, natural disasters and crop failures could depopulate entire regions through mass death or emigration.

Modern Society and Vaccination Have a Common History

From the end of the 19th century onwards, large parts of Central Europe underwent a change from an agrarian and village lifestyle to an industrial society with the increasing development of urban agglomerations. The associated challenges, including those posed by the increasing and repeated spread of infectious diseases, led to decisive advances in the natural sciences and at the same time to rapid developments in the fields of hygiene, microbiology and bacteriology. Public efforts to create healthy living conditions (clean air, hygienic food, clean drinking water, sewage disposal) together with progress in the development of vaccines, led to significant improvements in the health and living conditions of the population. These successes would have been inconceivable without a gradual and far-reaching transformation of society in Europe, not least because of the French Revolution. After the experience of two world wars, this transformation was decisively reflected in the United Nations Declaration of Universal Human Rights in December 1948 (United Nations, 1948). Subsequently, systems of occupational health and safety, and access to health care and disease prevention (including vaccination) developed in all Central European countries.

The experience of the world wars showed the importance of permanent and reliable hygiene measures in public spaces, in the workplace and in the living environment. Such measures were seen to be effective in permanently reducing the incidence of infectious diseases such as typhoid fever, typhus and cholera. However, it was only the expansion and comprehensive implementation of the vaccination system that ultimately made a decisive and lasting contribution to reducing infectious diseases and thus mortality, especially in childhood. The consistent use of existing vaccinations alone made it possible to globally eradicate smallpox as early as 1970. Polio now occurs in only a few regions of the world and is on the verge of elimination. There is also the possibility of permanently eradicating measles globally. For this, however, a sustained high vaccination rate is essential both regionally and globally.

The Success of Vaccination Is Also Its Strongest Opponent: The Myth of the End of Infectious Diseases

At the end of the 19th century, infectious diseases led the statistics of illness and death, especially in childhood. By the middle of the 20th century, these diseases had largely disappeared from the statistics due to improvements in hygiene, medicine and vaccination, as well as general living conditions. At the same time, however, this great success implicated that knowledge of the significance of these infectious diseases largely disappeared from the society's collective memory. Diseases such as smallpox, polio, diphtheria, tuberculosis and measles seriously endangered children and were still a real horror for all parents around 1900. Today these diseases only play a role for parents in Central European countries and in some cases their names still appear on vaccination schedules. While diseases such as these can still spread fear and terror, especially in countries of the

Global South, they are no longer perceived as a threat in post-industrial societies due to the success of prevention. This effect is also known as the prevention paradox. At the same time, comprehensive access to the health care system with seemingly unlimited access to antibiotic drugs, has created the powerful narrative of the enduring "victory over infectious diseases". In relation to vaccination, this myth has often led to a fatal change in risk perception. Thus, even the most minimal risk of vaccination side effects, when weighed up against the apparently negligible danger of the disease, can be decisive in a vaccination decision. Ensuring consistently high vaccination rates therefore requires sustained and targeted group-specific persuasion and vaccination programmes. Serious diseases are often perceived by the population as harmless if they occur only rarely, even if the reduction was only possible through successful vaccination.

The Illusion of Invulnerability to Infectious Diseases Is Over: HIV and SARS-CoV-2

Until the 1970s, even scientific actors in the health care system were in danger of succumbing to the narrative of "end of infectious diseases". This myth was clearly refuted by the global pandemic caused by the HI virus (HIV). To this day, HIV infection cannot be cured and only a lifelong course of antiviral drugs prevents this virus being fatal. A vaccine against HIV is still not available. It is noteworthy that a relevant prevention paradox has also developed for HIV. Since the infection has lost its deadly terror through the availability of antiviral drugs, there is a danger that effective prevention through behavioural changes (safer sex) will increasingly disappear from collective knowledge. As a result, the number of infections could rise again, not only regionally but also in different population groups. People will be at risk, especially those who do not have access to comprehensive medical care or who are generally more vulnerable to infection and disease. According to current understanding, a lasting and sustainable control of the HIV pandemic would be possible only through the availability and widespread use of an effective vaccine. However, despite all efforts, such a vaccine could not be developed until today.

Even if HIV infection is no longer perceived as a pandemic, the fundamental global vulnerability caused by a pandemic is permanently real. For a long time, the influenza virus with its annual global waves of infection was the most prominent candidate for such a global occurrence of infections. The last time the virus had shown its destructive power was during the so-called "Spanish flu" around the year 1918 with an estimated 50,000,000 deaths worldwide within a few months. In the past, epidemiologists and infectiologists primarily focused on classical human viruses as candidates for pandemic events. In the current millennium, with the appearance of SARS (2003), MERS (2011) and finally Ebola (2014), the focus of pandemic research has increasingly shifted to pathogens primarily of animal origin. If these pathogens succeed in switching host species to humans, then in contrast to our response to known human pathogens, our largely naive immune system will have no specific immunity to counteract the pathogen. In this case, the combination of lethality (proportion of infections that are fatal in humans), transmissibility from person to person and the genetic stability of the virus, determines whether a relevant pandemic event can occur.

While the occurrence of SARS, MERS and Ebola were locally restricted, since the isolation and description at the end of 2019 in Wuhan in the People's Republic of China and the global spread since then, the novel coronavirus SARS-CoV-2 is the first pandemic caused by a virus of animal origin. It is true that in the vast majority of SARS-CoV-2-cases the infection appears to proceed with few or no symptoms. However, under certain "favourable" conditions, there is an extremely high risk of infection from person to person. Within a very short period of time, this has led to

chains of infection worldwide that are difficult to control, with exponential outbreaks and high mortality rates at certain points, especially within particularly vulnerable groups. The worldwide experience of the first six months with SARS-CoV-2 shows that it is the quality of emergency reserves and the general availability of a comprehensive modern health care system (including broadly developed intensive care units), that can counteract a pandemic from the medical side. However, neither specific medical treatment that can positively influence the course of an individual disease nor measures for medical prevention are available. Solely drastic cuts worldwide in social, public and private life appear to be sustainably effective in influencing the occurrence of infections. In many places, only comprehensive social restrictions or even the virtual cessation of social and economic life have ultimately led to a halt in the incidence of infection. Since the basic susceptibility of individuals to the infection does not change and the potential for transmission of the virus cannot be modified, it must be assumed that as lockdown measures are withdrawn, the incidence of infection will increase again.

As a consequence, humanity is ultimately as helpless in the face of infection by SARS-CoV-2 today as it was in the face of the classical epidemics of the Middle Ages some 500 years ago. Even if the immediate and individual risk of contracting the disease may seem low at present, it is the behaviour of the individual, based on a social consensus, that ultimately determines the speed and lethality of the epidemic. It can be expected that during the course of the pandemic, medical treatment will gradually lead to higher cure rates and less consequential damage. However, the incidence of infection as such will only weaken significantly when the proportion of susceptible persons in a population is small. Above a certain immunity rate, the speed at which the virus spreads will fall as the probability of an infected person having contact with a susceptible person decreases. Such a state of so-called herd immunity can be expected from an immunity rate of at least two thirds of the population. Finally, such high immunity rates also protect people who are particularly at risk from the disease and who, for various reasons, cannot ensure their own protection themselves.

Social Consensus and Altruistic Action as Keys to Sustainable Health Protection

There is, however, one major difference between the current pandemic and the Middle Ages: as soon as sufficient disinfectants and effective protective materials are available, those persons who are responsible for the medical and nursing care of infected people, can be effectively protected. This ultimately prevents the social exclusion and ostracism of the sick, which was typical in the Middle Ages. Otherwise, the same applies as 500 years ago: if possible chains of infection are not prevented by authoritatively decreed and enforced restrictions regarding social contact, then only social consensus with a voluntary restriction of each individual's own freedom and rights can limit the number of infections and deaths. Not only does the individual's concern about his or her own illness play a decisive role, but also the intrinsic motivation to protect third parties from infection through their own actions. Thus, in free democratic societies, effective control of a pandemic is hardly conceivable without the altruistic attitude of a large part of the population.

It should be noted that approaches of individual contact restriction and social shutdown will not lead to the disappearance of the virus, only to a slowing down of its spread. Therefore, there is currently a scientific and political consensus that these measures will be necessary on an adapted scale until an effective and tolerable vaccine against SARS-CoV-2 is available. Once this is the case, the altruistic and societal approach is likely to face further challenges: a globally sustainable, lasting and largely inconsequential return to pre-pandemic lifestyles and societies will ultimately only succeed if as

many people as possible are vaccinated not only for self-protection, but also with the active aim of herd immunity. Ultimately, it will not only be a question of individuals being vaccinated as quickly as possible for a targeted and orderly control and eventual termination of global infection, ethical and moral questions will also have to be asked. For example, how will regions or states with a pronounced infection rate but limited reserves for vaccine development and procurement be supplied with the vaccine as a priority? Furthermore, even in countries with their own vaccine development and sufficient economic resources, a priority vaccine supply will make sense primarily for persons in the medical and nursing profession as well as for occupational groups that are particularly important for restoring and maintaining a largely normalized social life. Until sufficient quantities of vaccine are available, such a prioritized and staged vaccination programme will be necessary to prevent infections and deaths and to normalize social life as quickly as possible. To behave altruistically during this time can therefore also mean temporarily postponing one's own vaccination in favour of a third party.

Vaccination Decisions as Democratic Duty and the Need for Education

Although vaccinations are usually administered by doctors, they are not a traditional medical service. Vaccinations are not usually used to cure the sick. Rather, healthy people are usually vaccinated so that they themselves do not become ill and thus cannot infect others. In principle, the individual vaccination process can be understood as a health decision based on an individual risk assessment. However, the potential for vaccinations to come significantly closer to the goal of "Health for All" (United Nations, 1978) can only be exploited if the vaccination concept is implemented comprehensively at the level of society. In a democratically constituted state, this requires a number of joint, long-term social decisions. In the light of the coronavirus SARS-CoV-2 pandemic, it is clear that the individual must not only have his/her own or of his/her child's health in mind but must also be prepared to restrict his/her own freedom of choice in favour of third parties. Only then will it be possible to provide comprehensive protection for all in the long term by means of hygiene measures and vaccination.

To a certain extent, altruism always plays a role in publicly recommended vaccination. This requires a broad understanding of the medical profession's own responsibility, not only for individuals, but also for general public health. It must therefore be a matter of course for every doctor to stand up for common health concepts and hygiene measures, as well as comprehensive and constant advertising for the vaccination concept. At the same time, it is particularly important to ensure that the highest possible vaccination rates are achieved through joint efforts, especially in places where large numbers of people congregate and which are visited by particularly vulnerable people. This will be all the more likely to succeed if a corresponding broad social discussion is conducted.

Against the background of the above-mentioned prevention paradox–the success of vaccination is at the same time its greatest enemy–, it is necessary to permanently anchor the vaccination idea in the educational canon and thereby ensure broad-based health education through intensive, active and conscious participation of the educational system. In the examples of HIV and SARS-CoV-2, the possibility of a vaccination decision lies in the future. This should not obscure the fact that such a weighing up must be made by everyone of us today. Diseases such as measles and poliomyelitis can only be permanently controlled globally if the altruistic vaccination concept and, thus, high vaccination rates are maintained worldwide. A democratic society has to do everything possible to ensure that the individual is always able to make a conscious positive vaccination decision on the basis of comprehensive knowledge and science-based vaccination recommendations, and a general

social consensus.

References

Hradil, S. (2012, March 31). Historischer Rückblick. In Bundeszentrale für Politische Bildung (Ed.), *Deutsche Verhältnisse. Eine Sozialkunde*. https://www.bpb.de/politik/grundfragen/deutsche-verhaeltnisse-eine-sozialkunde/138003/historischer-rueckblick?p=all

United Nations. (1948). *The Universal Declaration of Human Rights*. https://www.un.org/en/universal-declaration-human-rights/

United Nations. (1978). *Declaration of Alma-Ata*. https://www.who.int/publications/almaata_declaration_en.pdf

Word Health Organization [WHO]. (n.d.). *Life expectancy [Infographic]*. European Health Information Gateway. https://gateway.euro.who.int/en/indicators/h2020_17-life-expectancy/visualizations/#id=17088

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