4/72/2021

ISSN 17338662

ACADEMIA

THE MAGAZINE OF THE POLISH ACADEMY OF SCIENCES

Chronicles of a Pandemic

2020–2021

JERZY DUSZYŃSKI
BIOCHEMIST

ANETA AFELT
GEOGRAPHER

MAŁGORZATA KOSSOWSKA
PSYCHOLOGIST

ANNA OCHAB-MARCINEK
PHYSICIST

RADOSŁAW OWCZUK
ANESTHESIOLOGIST

WOJCIECH PACZOS
ECONOMIST

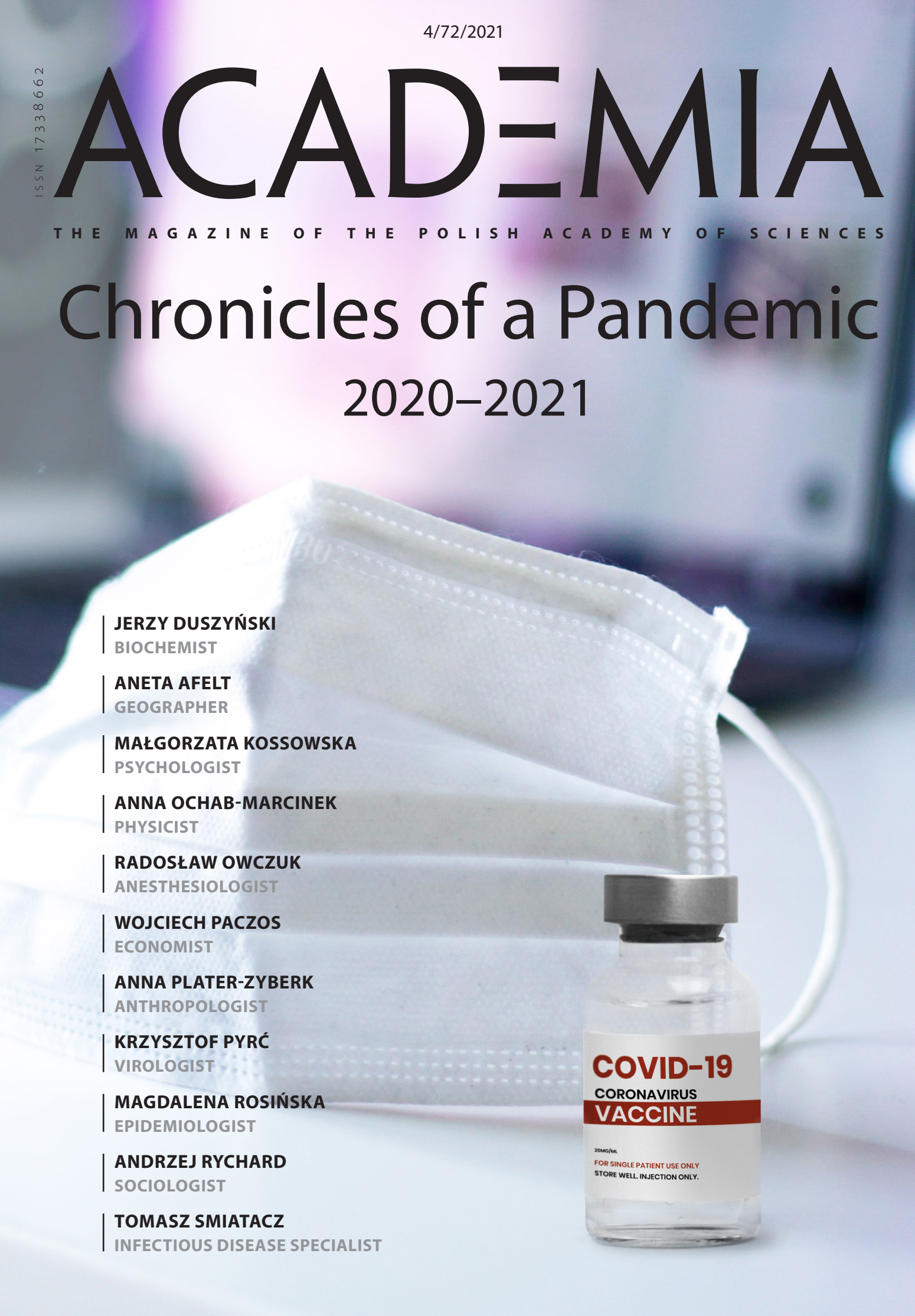
ANNA PLATER-ZYBERK
ANTHROPOLOGIST

KRZYSZTOF PYRĆ
VIROLOGIST

MAGDALENA ROSIŃSKA
EPIDEMIOLOGIST

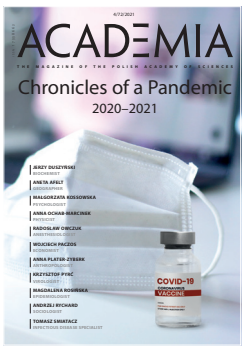
ANDRZEJ RYCHARD
SOCIOLOGIST

TOMASZ SMIATACZ
INFECTIOUS DISEASE SPECIALIST



 DOI: 10.24425/academiaPAS.2022.140620

Contents



THE MAGAZINE OF THE POLISH ACADEMY OF SCIENCES
nr 4/72/2021
Quarterly
ISSN 1733-8662
500 copies printed

Polish Academy of Sciences, Office for Popularizing and Promoting Science
PKiN, pl. Defilad 1
00-901 Warsaw, Poland
www.pan.pl
www.academia.pan.pl
academia@pan.pl

About the Authors

president@pan.pl

Prof. Jerzy Duszyński, PhD, DSc

is a biochemist, Ordinary Member of the Polish Academy of Sciences (PAS), President of the Academy since 2015. Affiliated since 1971 with the Nencki Institute of Experimental Biology. His research work deals with bioenergy, the role of the mitochondria in cell function, mitochondrial and neurodegenerative diseases, and aging. In 2008–2009 he served as Poland's Deputy Minister of Science and Higher Education responsible for science.

akafelt@uw.edu.pl

Aneta Afelt, PhD

is a geographer, with a master's from the Faculty of Biology and Earth Science at the University of Łódź and a doctorate from the Faculty of Geography and Regional Studies at the University of Warsaw. She currently works for the Interdisciplinary Center for Mathematical and Computer Modelling at the University of Warsaw, and is now located at Espace-DEV, IRD (*Institut de Recherche pour le Développement*), Montpellier, France.

malgorzata.kossowska@uj.edu.pl

Prof. Małgorzata Kossowska, PhD, DSc

is a psychologist and head of the Department of Social Psychology and the Centre for Social Cognitive Studies at the Institute of Psychology, Jagiellonian University. She studies cognitive and motivational underpinnings of complex social phenomena (radical ideological beliefs, prejudice, and social conflicts). She co-authored the book *Człowiek w obliczu pandemii* [People Facing a Pandemic] (2020).

aochabmarcinek@ichf.edu.pl

Anna Ochab-Marcinek, PhD, DSc

is a theoretical physicist, a graduate of the Jagiellonian University in Kraków. She has worked at the Jagiellonian University and the University of Augsburg (Germany), and is currently employed at the Institute of Physical Chemistry, Polish Academy of Sciences, where she leads the "Biophysical Chemistry" research group. She works on modeling biological evolution and stochastic gene expression.

r.owczuk@gumed.edu.pl

Prof. Radosław Owczuk, MD, PhD, DSc

is a medical doctor, a graduate of the Medical University of Gdańsk, where he has been head of the Department of Anesthesiology & Intensive Care since 2018 and Dean of the Faculty of Medicine since 2020. Since October 2016 he has served as a national consultant on anesthesiology and intensive care. Since 2012 he has been editor-in-chief of the journal *Anaesthesiology Intensive Therapy*. He is a reviewer for numerous Polish and foreign research journals.

paczosw@cardiff.ac.uk

Wojciech Paczos, PhD

is an economist, Assistant Professor at the Institute of Economics, Polish Academy of Sciences, Assistant Professor at Cardiff University (UK), former visiting academic at the Bank of England, member of Concilium Civitas, and founder of the expert group *Dobrobyt na pokolenia* (Prosperity for Generations).

anna.plater@pan.pl

Anna Plater-Zyberk, PhD

is a linguist and an anthropologist. She is an expert on international research collaboration. She created the National Science Center's team and first international programs. Since 2017, she has been coordinating international collaboration at the Academy. She wrote her doctoral dissertation on conceptual metaphor theory at the Jagiellonian University and at the Metaphor Lab in Amsterdam.

k.a.pyrc@uj.edu.pl

Prof. Krzysztof Pyrć, PhD, DSc

is a virologist and biologist. A graduate of the Jagiellonian University in Kraków and the University of Amsterdam. Leader of the Virogenetics team at the Małopolska Center of Biotechnology (Jagiellonian University), head of the Laboratory of Virology and Infectious Animal Facility at the Jagiellonian University. He studies the biology of infection and pathogenesis of coronaviruses and flaviviruses, developing new antiviral drugs, and creating and validating new diagnostic methods.

mrosinska@pzh.gov.pl

Prof. Magdalena Rosińska, MD, PhD, DSc

is a medical doctor and biostatistician, affiliated since 2002 with Poland's National Institute of Public Health – National Institute of Hygiene (NIZP-PZH), where she deals with the epidemiology of parenterally and sexually transmitted diseases, especially HIV and HCV. Chair of the Coordination Committee for the European viral hepatitis surveillance program and of the crisis panel for forecasting the epidemic situation in Poland appointed by the Minister of Health.

arychard@ifispan.edu.pl

Prof. Andrzej Rychard, PhD, DSc

is a sociologist, Corresponding Member of the Polish Academy of Sciences, acting Director of the PAS Institute of Philosophy and Sociology, Chairman of the Council of the Stefan Batory Foundation. A member of the PAS Committee on Sociology, he has been a lecturer and visiting professor at a number of foreign universities. His research work deals with the sociology of institutions, the sociology of politics and the economy, and the sociology of the postcommunist transformation. A commentator in the Polish and foreign media.

tomasz.smiatacz@gumed.edu.pl

Tomasz Smiatacz, MD, PhD, DSc

is a medical doctor, a graduate of the Medical University of Gdańsk. An internist and a specialist on infectious diseases, head of the Infectious Diseases Clinic at the Medical University of Gdańsk and since 2016 its Vice-Rector for Students' Affairs. Winner of a grant from the American Foundation for AIDS Research, he has attended courses and training at CDC in Atlanta, the Yale University AIDS Programme, the Virology Institute of La Sapienza University in Rome.

Introduction

This issue, *Chronicles of a Pandemic*, is a collection of 27 position statements published by the Interdisciplinary COVID-19 Advisory Team to the President of the Polish Academy of Sciences, set up in July 2020. This publication is our team's second comprehensive compilation (after *Understanding COVID-19*) of information about SARS-CoV-2 and COVID-19. Published in September 2020, *Understanding COVID-19* aimed to sum up the first months of the pandemic and prepare the public in Poland for the difficult fall and winter 2020–2021. The present study, in turn, was written after two years of the pandemic, which first began in Wuhan in December 2019. We hope that ongoing reports on the course of the pandemic and the dilemmas faced by the public will help us learn from those difficult and important experiences, should similar challenges arise in the future.

We have worked out and published the position statements contained in these chronicles on a regular basis since the team was established, and we have addressed them primarily to the public. Confronted with hundreds of thousands of what were often contradictory news reports and millions of social media posts, members of the public have been very confused and therefore susceptible to irrational, false theories about the epidemic. For this reason, our intention has been to guide non-expert readers through the intricacies of knowledge about COVID-19 until good methods are developed to treat the disease and combat the pandemic. The texts collected here therefore pertain to the biology of the virus itself, methods of testing for the presence of SARS-CoV-2 in infected persons and treating the disease caused by the virus, epidemic prevention and control recommendations such as the use of masks, social distancing, disinfection, ventilation, as well as vaccinations, which are crucially important. We also discuss in detail the systemic problems hindering the combat against the pandemic, including unreliable and irresponsible communication, lack of access to data, and the severely underfunded health care system. We also write about the economic, psychological, and social effects of the epidemic, which will continue to affect us even after its end.

The collection of texts ends with the timeline of the pandemic in Poland and in the world, or a record of the most important events. It helps readers to follow the course of the pandemic, and makes it easier for foreign readers to understand the situation in Poland.

Position Statement 1 7 August 2020

Pandemic Denial Is Shameful and Unethical

In recent days, we have seen an increase in confirmed cases of SARS-CoV-2 infection. It can be expected that the consequence of this will be growing numbers of patients with severe COVID-19 requiring hospital or ICU treatment. Some of these cases will unfortunately result in the patient's death. As we approach autumn, the situation is likely to become worse with every week. With this in mind, we are greatly concerned about the growing amount of misinformation being spread in the public sphere, especially via social media and the press, denying the existence of the virus and the seriousness of the pandemic it has caused. The growing denial of the real, serious threat to individual and public health, in particular in the context of increasing numbers of individuals disregarding recommendations which aim to prevent the spread of the virus, may significantly contribute to a continuing rise in the infection rate and the serious consequences thereof.

There is absolutely no scientific basis for denying the existence of the virus, its pathogenicity or the consequences of infection. The most reputable international medical journals have published statements by some of the leading authorities in medicine, virology and epidemiology discussing the matter. As of 7 August 2020, there have been 1774 confirmed deaths caused by COVID-19 in Poland. During the same period, there have been 65 deaths caused by influenza. To date, there have been over 700,000 deaths caused by COVID-19 worldwide. Denying the existence of the virus and the pandemic is highly unethical, and it is disrespectful to those victims and their families. We urge the public to not fall for misinformation and to continue adhering to simple recommendations which have a real effect towards curbing the pandemic and reducing the risk of infection: maintaining social distancing of at least 1.5 meters, washing and disinfecting the hands regularly and wearing a mask covering the nose and mouth when indoors.

We urge caution when interacting with others, especially elderly and high-risk individuals. Following these simple recommendations may prevent further restrictions from being imposed on public life.

Travelers on Warsaw's Metro (underground railway) wear face masks and maintain social distance. Warsaw, 16 April 2020, the first day of the requirement to cover the mouth and nose in public spaces in Poland

MACIEJGILLERT/SHUTTERSTOCK.COM

Position Statement 2 19 August 2020

On Students Returning to Schools in September 2020

No one knows what the COVID-19 pandemic in Poland will look like in a few months' time. However, we need to posit forecasts based on experiences of other countries in order to prepare for possible scenarios depending on the rate of spread of the pandemic, known as the effective reproduction number R_0. [In simplified terms, we can say that it shows how contagious the virus is by telling us how many people are infected by one patient diagnosed with the disease – editor's note.]

Three scenarios

We should assume three possible scenarios of how the situation may play out:

1) **Good**, when R_0 does not exceed 1.1;
2) **Moderate**, when R_0 falls between 1.1 and 1.7;
3) **Worst-case**, when R_0 exceeds 1.7.

In the worst-case scenario, even though we are currently accustomed to R_0 remaining around 1.1, in a matter of weeks the value will start exceeding 1.7 and the pandemic will reach dramatic levels. It is possible that we are already seeing the first symptoms of this process, given that recent estimates show that R_0 has increased to around 1.3.

Considerations which encourage us to take this scenario seriously are as follows:

- **The demands on the healthcare system** show seasonal variation, and typically in winter.
- Given that **adherence to sanitary precautions is likely to have relaxed** over the summer months, we can expect a significant increase in COVID-19 cases with local and even regional hotspots.
- **The demand on medical professionals to focus on COVID-19** hampers their ability to care for patients with other health problems. This is likely to result in an increased number of cases of chronic or undiagnosed illnesses. Additionally, the difficulty indistinguishing between infection with SARS-CoV-2 and other viruses means that many people will be completely unable to access basic medical care. Research shows clearly that patients with comorbidities experience more severe symptoms of COVID-19, which leads to an increased number of patients requiring intensive care.
- It is likely that **seasonal influenza epidemics**, typical in our region, **and high rates of other viral and bacterial infections** in autumn and winter (the co-infection effect),combined with other factors such as lowered immunity and increased air pollution, will make the course of the disease more severe in many patients.

ELZBIETA KRZYSZTOF/SHUTTERSTOCK.COM

This is why all three scenarios outlined above must be taken into consideration when planning social policies for the coming months.

On students returning to schools

When it comes to students returning to schools, it is important to recognize that the situation will not be the same as before the outbreak of the pandemic anywhere in the country, and that schools will not be able function the same way or with only minor adaptations.

We are fully aware that the disadvantages of children not returning to school are significant, not only

On 1 September 2020, all students returned to in-person learning. On 24 October, however, the government announced remote learning for primary school students in grades four to eight and high school students for reasons related to high infection rates. From 9 November 2020 to 17 January 2021, remote learning was also extended to primary school students in grades one to three

JANBEZIEMI/SHUTTERSTOCK.COM

in terms of the economy (parents unable to return to work to care for younger children),but also in terms of health (increased incidence of obesity, depression and anxiety)and children's development. This is why are approaching the issue of children returning to school with great care.

However, even in the most optimistic scenario (R0 remaining below1.1 in the coming months), which would mean the pandemic is maintained at a relatively low level, we recommend introducing mandatory mask-wearing for staff and at least older children in all schools.

- In the event of the moderate scenario, we also recommend:
- introducing **increased distances** between desks,
- **creating bubbles of students** who can be in contact with one another but not with those in other bubbles,
- **delegating teachers to specific classes** to prevent extensive transmission if the teacher becomes infected,
- limiting movement in common spaces (such as by introducing **asynchronous breaks**),
- **airing** all rooms during the day, and
- **disinfecting** desks, door handles and any common items between all lessons.

Group tests are needed

Additionally, we recommend that the health situation in families of all students, teachers and other staff be closely monitored, and any confirmed COVID-19 infection in a given school should trigger carefully prepared sanitary procedures. Since testing all individuals may not be possible, we recommend using group and environmental testing methods which are currently under development by the PAS and associated researchers.

In the event of the worst-case scenario, schools in areas with relatively high pandemic levels which cannot maintain the strict sanitary regimes outlined above should return to remote teaching.

We should prepare for various scenarios

Education authorities should be working on recommendations for all schools in the event of all the scenarios outlined above, whereas schools, parents and students, sanitary institutions and local authorities need to make preparations for all cases. This will help head teachers make decisions based on clear guidelines, which should take the form of an algorithm for action in each given case to help maintain the highest possible functionality and ensure fast response times to local or regional events.

Position Statement 3 12 October 2020

Urgent Appeal on the Ongoing COVID-19 Crisis

The first wave of COVID-19 affected Poland somewhat less severely than other countries due to the extensive, promptly implemented restrictions. However, as autumn progresses, we are seeing a rapid increase in SARS-CoV-2 infections, and, sadly, in deaths of patients suffering from COVID-19 caused by the virus. Many undiagnosed or asymptomatic people are infecting others, and the situation is starting to spiral out of control. We must realize that unless we all alter our dismissive attitudes and behaviors, on individual and collective levels, Poland's healthcare system will become completely overwhelmed within a month. We are already seeing shortages in hospital vacancies.

The danger this entails is that in the near future, people unable to access help and support may die at home or even on the streets. Forecasts indicate that the situation will worsen in the coming days. Even a complete lockdown would only start showing results in around two weeks' time. However, medicine and the economy are deeply intertwined; the costs of another lockdown would be enormous, and we should avoid this as much as possible. Government decrees or even declaring a state of emergency will not be sufficient to prevent the worst; it is up to us citizens to take action, to change our behavior to protect the most vulnerable members of society. You and I can take steps right now to protect ourselves and our families and friends, by adhering to the following recommendations.

Recommendations for all individuals:

1. Do not spit on or sneeze at the fate of your family, friends, acquaintances and strangers. Every breath exhaled through the nose and mouth releases tiny droplets of saliva and nasal secretions. They usually fall to the ground within about 1.5 meters of the individual. When someone speaks in a normal tone, the number of aerosol droplets and their range increase slightly. When they raise their voice, the range increases again, and when they are shouting or singing loudly, the volume of droplets and their range are significantly greater. Aerosol droplets emitted by an infected person contain the SARS-CoV-2 virus, and they are the main route of

MINISTERSTWO ZDROWIA

The Polish Ministry of Health assigned the counties in Poland to green, yellow, and red zones, with each zone having different restrictions. The maps show the situation as at 27 August 2020 and 10 October 2020. Detailed rules for the division of Poland's territory into these zones are regulated by the Regulation of the Council of Ministers of 19 June 2020 on the establishment of certain limitations, orders, and prohibitions with respect to the occurrence of the state of the epidemic

infection. This is why perhaps the most important recommendation is to maintain a distance of at least 1.5 meters from other people and to wear a mask covering the nose and the mouth. If possible, any meetings in person should be held out in the open air, and travel should be avoided unless strictly necessary.

2. Make sure you wash your hands frequently, and use disinfectant when this is impossible.
3. If you feel unwell and think you may have a cold or flu, stay at home and do not meet others. Wait until all symptoms have passed, and ideally leave it a day or two longer. Contact your GP to check whether you should have a COVID-19 test.
4. If you have tested positive for COVID-19 or you have lost your sense of smell and/or taste, inform everyone you have had contact with between now and two days before the onset of symptoms. Although this is the duty of the public health & safety inspectorate, its highly overworked and exhausted staff may not be able to respond sufficiently fast.
5. If any of your child's schoolfriends or their parents have tested positive for COVID-19 (for example, if you have been so informed by their school or kindergarten), stay at home unless absolutely necessary, maintain strict social distancing at work, wear a mask, and wash and disinfect your hands frequently. If you or your child start experiencing even the mildest symptoms, contact your GP immediately. Avoid contact with vulnerable people.
6. If any of your friends or colleagues test positive for COVID-19, follow the advice given above.
7. Make an effort to help and support your friends and neighbors, especially those in difficult circumstances, while maintaining safety precautions. Act with a sense of solidarity!

Recommendations for employers or people responsible for others:

8. If any of your employees has a cold or has been in contact with a person infected with SARS-CoV-2, take the initiative to allow them to work remotely. This may help delay official quarantine measures.
9. Start introducing remote working as soon as possible. Don't forget that commuting to and from work on crowded public transport puts your employees at high risk of contracting SARS-CoV-2 or flu. Remote working will help reduce overcrowding on public transport, especially at peak times.
10. At the same time, remember only to follow restrictions and rules which are grounded in the latest scientific information, rather than in your own personal beliefs or emotions.
11. Make sure any restrictions are communicated clearly and are simple to follow.
12. Excessive or incomprehensible restrictions are generally ignored, and may have the opposite effect to that intended.
13. It is key that you set a good example to your employees. If you fail to follow health & safety precautions or quarantine rules, your staff will follow your lead.

Recommendations for senior citizens and vulnerable individuals:

14. Avoid crowded places and try to keep contact with others to minimum, even your children and grandchildren.
15. Limit your social interactions.

Recommendations for all healthcare professionals:

16. Always remember that your job as a doctor, nurse, or other healthcare professional carries a certain responsibility. Never assume that the fight against COVID-19 does not concern you. By using personal protective equipment, you can continue caring for your patients. Whenever possible, promptly attend to any patients seeking care.

Remember: by following these recommendations, you are protecting yourself, your family and friends. If we all strictly adhere to them, we will be able to significantly lower the number of infections within two weeks. This will allow the healthcare system to cope more smoothly in the coming weeks and months, and will help prevent the avoidable deaths of COVID-19 patients and help avoid another lockdown.

However, if we do not follow these recommendations, we are endangering the lives of our families, friends and strangers, and risking an economic and social crisis in Poland. In turn, this means our irresponsible actions today will leave our children and coming generations with an unenviable future.

Leaflet prepared by the Polish government with instructions on proper hand washing

ROBSON90/SHUTTERSTOCK.COM

Position Statement 4 27 October 2020

On the Dangers of Trusting in Herd Immunity

SIA FOOTAGE/SHUTTERSTOCK.COM

In the period of 1 April 2020 to 18 May 2020, all hair salons in Poland were closed. Since they reopened, they have had to comply with numerous restrictions, such as the necessity to keep one's face and mouth covered

We are all exhausted by our continual battle against the COVID-19 pandemic, on both the individual and social level, therefore the prospect of achieving herd immunity seems like an attractive goal. However, experts agree that in the long term, the only way of bringing the pandemic under control is to develop an effective vaccine or treatment for severe symptoms of COVID-19.

Herd immunity can be achieved by vaccinating a sufficiently large proportion of the population.

According to the most optimistic scenarios this could happen as early as 2021. The threshold for herd immunity is currently estimated based on theoretical calculations. Most mathematical models indicate that between 50 and 70% of the population will have to be immune before the pandemic can be said to be under control.[1] This number could be lower – 10–20%[2] – if the infection were mainly spread by unusually contagious individuals known as super-spreaders. However, according to the latest data, the role played by super-spreaders seems to have been overestimated. Many studies into the structure of interpersonal relationships show that there are simply not sufficiently high numbers of people with such extensive networks of contacts in the population.[3] Additionally, although in certain regions, e.g. Lombardy[4] and Madrid,[5] around 15–20% of the population had been infected with SARS-CoV-2 in spring 2020, current infection levels in those regions do not indicate herd immunity. This means that either the percentage of the population who have developed immunity needs to be higher to achieve herd immunity, or individuals who had already been ill with COVID-9 have lost their immunity.

[1] Omer S.B., Yildirim I., Forman H.P. *Herd Immunity and Implications for SARS-CoV-2 Control*. JAMA. https://jamanetwork.com/journals/jama/fullarticle/2772167 doi: 10.1001/jama.2020.20892

[2] Gomes M.G.M., Corder R.M., King J.G., et al. *Individual variation in susceptibility or exposure to SARS-CoV-2 lowers the herd immunity threshold*. Preprint. medRxiv. 2020; Published 2020 May 2. doi: 10.1101/2020.04.27.20081893

[3] Prem K. et al. *Projecting contact matrices in 177 geographical regions: an update and comparison with empirical data for the COVID-19 era*. medRxiv 2020.07.22.20159772; doi: 10.1101/2020.07.22.20159772

[4] Pagani G. et al. *Seroprevalence of SARS-CoV-2 significantly varies with age: results from a mass population screening*. medRxiv; doi: 10.1101/2020.06.24.20138875

[5] Pollan M. et al. *Prevalence of SARS-CoV-2 in Spain (ENE-COVID): a nationwide, population-based seroepidemiological study*. Lancet. 2020; 396 (10250): 535–544. doi: 10.1016/S0140-6736(20)31483-5

So should we simply allow the virus to spread freely and then, once herd immunity reaches around 60%, go back to normal? The answer lies in numbers. If we were to follow this scenario, over 22 million people in Poland would become infected over the course of a few months. According to data on the clinical course of COVID-19,[6] between 0.4 and 4.7% of patients aged under 40 require hospitalization for at least ten days and the number increases to between 6.1 and 36.4% in patients aged 80 and above. Deaths of COVID-19 are rare in patients aged 40 and below, rising to 2.1% in patients aged between 60 and 80 and 8% in those aged over 80. If the virus is allowed to spread freely among older people, many will not survive, hence the idea that people aged 60 and above should isolate so to allow the population to reach herd immunity without major health consequences.

However, even if only younger people were getting infected, the number of patients would still likely exceed a million in the coming months. This vastly exceeds the capacity of the healthcare system, which in turn constitutes a major threat to other patients. It would mean people with chronic illnesses or those requiring emergency treatment would be denied medical care. Such cases are also victims of the pandemic, even though they are not included in the statistics. Therefore, according to research conducted in the UK, if the strategy of achieving herd immunity were to have any chance of succeeding, the spread of the virus must be halted among younger people by enforcing social distancing, mask wearing and potentially closing schools and workplaces.[7] According to estimates, this would mean periodically tightening then loosening restrictions over a period of between seven and 12 months, with older people remaining in isolation throughout and not seeing their children and grandchildren.

What would this mean? It would mean no access to hospitals and medical care and a lack of daily help and support. It would entail complete isolation at home for people who are frequently excluded from the digital world. It would mean high numbers of preventable deaths due to chronic conditions or simply due to no access to healthcare and medication. Empirical experience of countries such as Sweden and the UK shows that isolating large social groups is simply impossible.

Let us briefly assume that we made such a decision, to bear these terrible costs in our struggle against the pandemic. Unfortunately any victory would be entirely pyrrhic. How long natural immunity to SARS-CoV-2 persists remains unclear, but we do know that antibody levels drop with time. We also know that for other coronaviruses, immunity is maintained for between a few months to two years, therefore it is not out of the question that some people who were ill with COVID-19 back in the spring could already be infected again. Reports of reinfection, so far sporadic, may confirm this. Although it is likely that subsequent infections would result in milder symptoms, individuals who have been ill with COVID-19 continue to spread the infection, meaning that all the sacrifices and victims would have been in vain. This would result in recurrent epidemics, as was the case with numerous infectious diseases before the advent of vaccination. We also do not know the long-term effects of COVID-19. Recent reports indicate that many patients, including young people, experience long COVID-19 and post-COVID syndrome which can severely affect their social and professional lives and leave an indelible mark on society as a whole.[8]

The stance adopted by international scientific circles leaves no room for interpretation. Currently, pursuing strategies of natural immunity is described as a "dangerous fallacy unsupported by scientific evidence."[9]

Why do we believe that a vaccine will be more effective? Vaccination can be followed by booster doses with no risk to the patient, in order to train our immune systems to remember the SARS-CoV-2 virus for longer. We would therefore like to stress that any ongoing discussions should abandon the idea of natural herd immunity and focus on future measures, such as developing a vaccine against COVID-19 and defining the priorities and logistics for mass vaccination programs taking into account the complex international demographic situation.

In the meantime, we must continue to strictly adhere to social distancing (at least 1.5 m), wear a mask covering the nose and the mouth, maintain high levels of hygiene (washing our hands regularly with soap and hot water) and avoid crowds and spending time with other people in enclosed surroundings.

[6] Adamik B. et al. *Estimation of the Severeness Rate, Death Rate, Household Attack Rate and the Total Number of COVID-19 Cases Based on 16115 Polish Surveillance Records*. doi: 10.2139/ssrn.3696786

[7] Brett T.S., Rohani P. *Transmission dynamics reveal the impracticality of COVID-19 herd immunity strategies*. Proc Natl Acad Sci USA. 2020 Oct 13; 117 (41): 25897–25903. doi: 10.1073/pnas.2008087117. Epub 2020 Sep 22. PMID: 32963094

[8] *Long COVID: let patients help define long-lasting COVID symptoms*. Nature. 2020 Oct; 586 (7828): 170. doi: 10.1038/d41586-020-02796-2. PMID: 33029005

[9] Alwan N.A., Burgess R.A., Ashworth S., Beale R., Bhadelia N., Bogaert D., Dowd J., Eckerle I., Goldman L.R., Greenhalgh T., Gurdasani D., Hamdy A., Hanage W.P., Hodcroft E.B., Hyde Z., Kellam P., Kelly-Irving M., Krammer F., Lipsitch M., McNally A., McKee M., Nouri A., Pimenta D., Priesemann V., Rutter H., Silver J., Sridhar D., Swanton C. *Scientific consensus on the COVID-19 pandemic: we need to act now*, Lancet. 2020 Oct 31; 396 (10260): e71-e72

Position Statement 5 3 November 2020

On the Need for a Strategy for Managing the Pandemic in Times of Social Unrest

We are still some way off from reaching a scientific breakthrough – such as a vaccine or effective treatment – which would help us combat the COVID-19 pandemic. In fact, the pandemic is becoming increasingly widespread, and infections are spreading locally during our everyday activities rather than through travel. As a result, the pandemic is increasingly becoming a social problem, while of course remaining a major medical challenge. And it is a social problem not just because it is affecting growing numbers of the population; it is also becoming less abstract as we are increasingly seeing it affecting our friends and family.

We are entering the next stage of the pandemic: we are no longer perceiving it as something dangerous yet intangible, but rather as a direct threat. We are seeing an overlap of two spheres of experience – the somewhat abstract news pouring in from all over the globe, and our very real, personal situations. This new stage, with its accompanying restrictions and uncertainty as to the future of the pandemic, is stirring powerful social emotions.

In Poland, the situation is further complicated by the mass protests following the Constitutional Tribunal's ruling of 22 October 2020 outlawing abortion in almost all cases. The reopening of this controversial topic, which had already caused mass protests in the past, has driven a major portion of the population to decide that the potential risk of coronavirus infection poses a lower risk than the loss of freedom of choice – involving a decision as important and personal as aborting a pregnancy which would otherwise result in the birth of a baby with fatal deformities or health problems.

Understanding social phenomena accompanying the current phase of the COVID-19 pandemic is essential if we are to gain control of how things play out in the coming days and weeks, which in turn is essential if we are to prevent the collapse of the healthcare system and the tragic consequences if this were to happen. It is absolutely essential for society to have input from sociologists, social psychologists, geographers and economists as well as physicians, virologists, epidemiologists, molecular biologists and other healthcare experts. Only a multidisciplinary team can provide comprehensive, competent advice to meet the current challenges. The alternative would potentially mean dealing with several conflicting opinions based purely on the scope and requirements of a given discipline rather than driven by the common good.

The signatories of this Position Statement form just such a multidisciplinary team, and our goal is to formulate advice benefitting the entire society. We know that as individuals we are not helpless in the face of the COVID-19 pandemic, even without great support from the public authorities. Our behavior affects whether the next wave of the pandemic will pass without unnecessary deaths. There are many measures each and every one of us can take to minimize the risk of infection. The simplest ways of protecting

JUSTYNA M-S/SHUTTERSTOCK.COM

Thousands of people took to the streets in protest against a ruling by Poland's constitutional court. Warsaw, 30 October 2020, a demonstration against more restrictive abortion regulations

Wrocław, 28 October 2020, a protest against more restrictive abortion regulations

LENA IVANOVA/SHUTTERSTOCK.COM

ourselves and those around us are maintaining social distancing, wearing masks and washing/disinfecting our hands regularly.

However, if these recommendations are to be widely followed, they must be built on reliability and trust, which in turn must come from at least two important circles. First, the message sent by political leaders must be strong and consistent. Inconsistent, incoherent messages – or, worse still, contradicting decisions – are extremely unhelpful when it comes to controlling the pandemic. The second group consists of scientific circles and the media, whose message must also be clear and consistent.

The reliability and dependability of the message is one thing, but even the sincerest communication may not be sufficiently convincing. It seems that facts no longer speak for themselves, and they are losing out to "narratives." We are lacking a powerful, rational narration or "story" about the pandemic – a story explaining where we are and where we want to be and how. Such a campaign should be prepared by the authorities on the national and regional levels and by non-governmental organizations. Any information campaigns should be led by representatives of scientific and cultural centers and leaders of acclaimed social organizations. They could even feature leading experts such as Professors Anthony Fauci and Christian Drosten. The COVID-19 pandemic is not just a local problem affecting a single country; we are a part of the European and global communities. It is clear to us that the pandemic is spreading regardless of political or any other boundaries. Given the major threat posed to our health as individuals and communities, it is high time to propose a united strategy for managing the pandemic.

The reliability of any messages promoting rational behavior in the face of the pandemic is diluted by those originating from groups questioning the very existence of the pandemic. Such groups are increasingly well organized and able to play on social fears and fatigue with the continuing restrictions, and their narratives are not being publicly refuted. This should be the role of the authorities, the media and scientific circles.

Rational social behavior must be promoted clearly and consistently on several levels. Decision-makers and experts must be in agreement, and their decisions must be consistent with the nature of the pandemic (e.g. promoting understanding of what's happening, explaining how we can protect ourselves and highlighting the benefits of our actions). Additionally, it is extremely important that the narrative concerning the pandemic is consistent with the nature of our society: a society which values freedom but is willing to follow restrictions as long as they are understood to protect the society as a whole.

Position Statement 6 17 November 2020

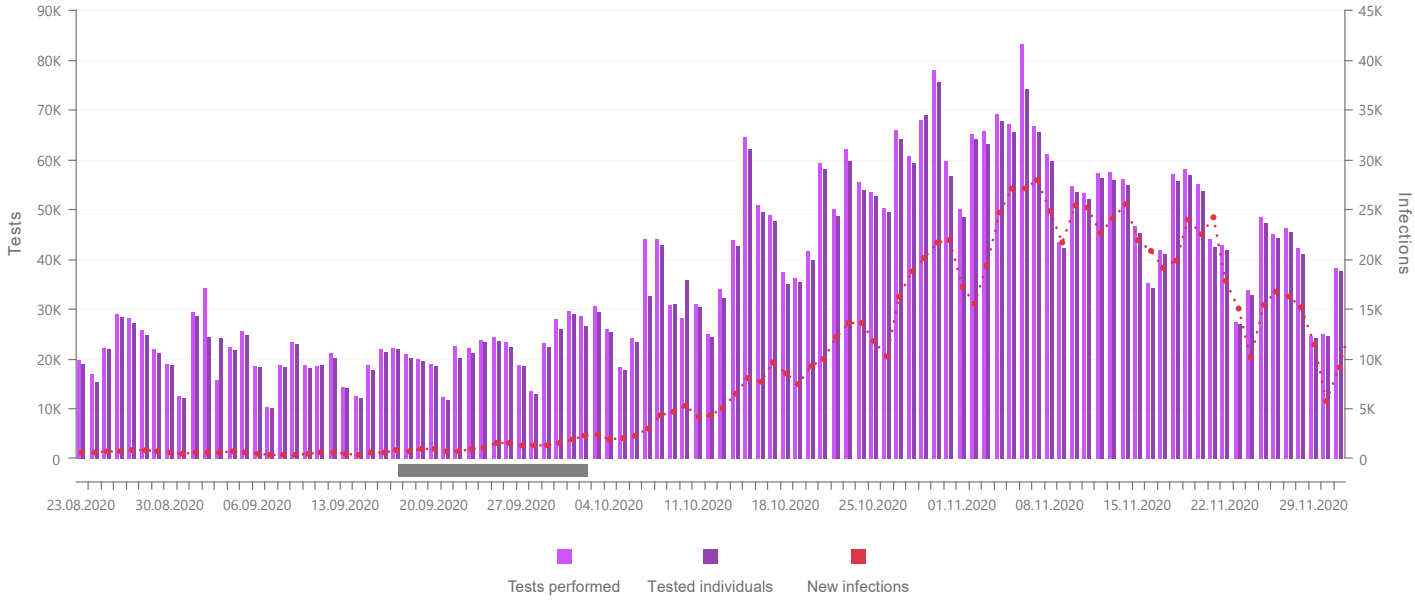
On the Need to Change the Testing Strategy

Testing for SARS-CoV-2 is one of the fundamental tools in fighting the current pandemic. However, it should be borne in mind that the aims of testing shift depending on the stage of the pandemic. At the early stages, back in spring of this year, the spread of the COVID-19 pandemic in Poland was greatly slowed. This was undoubtedly the result of lockdown measures, imposing severe restrictions on social behavior and the economy. At the time, the rational goal of testing was to detect and control chains of infection and any sources of outbreaks. However, as the spread of the pandemic slowed in May and June, we became collectively less vigilant about the virus. There were even rumors that the threat posed by the pandemic had been exaggerated. As a result, the testing system – used at the early stages of the pandemic to identify infected individuals and trace those they had been in contact with – became essentially ineffective. In late August and early September, as people returned from holiday to their homes, offices, schools and universities, the daily number of recorded infections began to rise dramatically. This could have been prevented back in the summer through the introduction of strict rules aiming to prevent the spread of the virus, such as maintaining social distancing, washing or disinfecting hands and surfaces regularly and wearing masks. Additionally, while the numbers of infections of the upper respiratory tract remained low, the capacity of the testing system should have been expanded and updated to cope with the increased numbers of infections forecast for the autumn.

However, appeals by experts remained largely ignored. As a result, by early November over 20,000 new cases were being recorded every day, with the number of deaths also rising rapidly (at the highest rate in Europe). The capacity of the testing system quickly became overwhelmed, and imposing quarantine on patients became virtually impossible. As the number of reported daily infections was increasing by 50-fold, the number of people placed in isolation rose only fivefold, to stabilize at around 450,000. The situation is reaching critical levels, and a change to our healthcare policy, including testing strategy, is essential.

ELŻBIETA KRZYSZTOF/SHUTTERSTOCK.COM

Pop-up PCR testing site. Kraków, April 2020



Source: https://koronawirusunas.pl/

In the meantime, the testing system currently in use in Poland is mainly limited to testing individuals with clear upper respiratory system symptoms. This means that asymptomatic individuals or those whose symptoms are mild or atypical are not being identified. According to estimates, their numbers may be up to ten times higher than the official daily reports, and there are also indications that they are most likely to spread the virus. This means that on the population scale, this testing system does not provide accurate information on the stage of the pandemic in the country. Such information would be extremely valuable and it would help us develop a rational plan for dealing with the pandemic. Therefore, we recommend changing the testing strategy so that this key information becomes available at the next stages of the pandemic. Let us start by addressing three questions.

Why do we test?

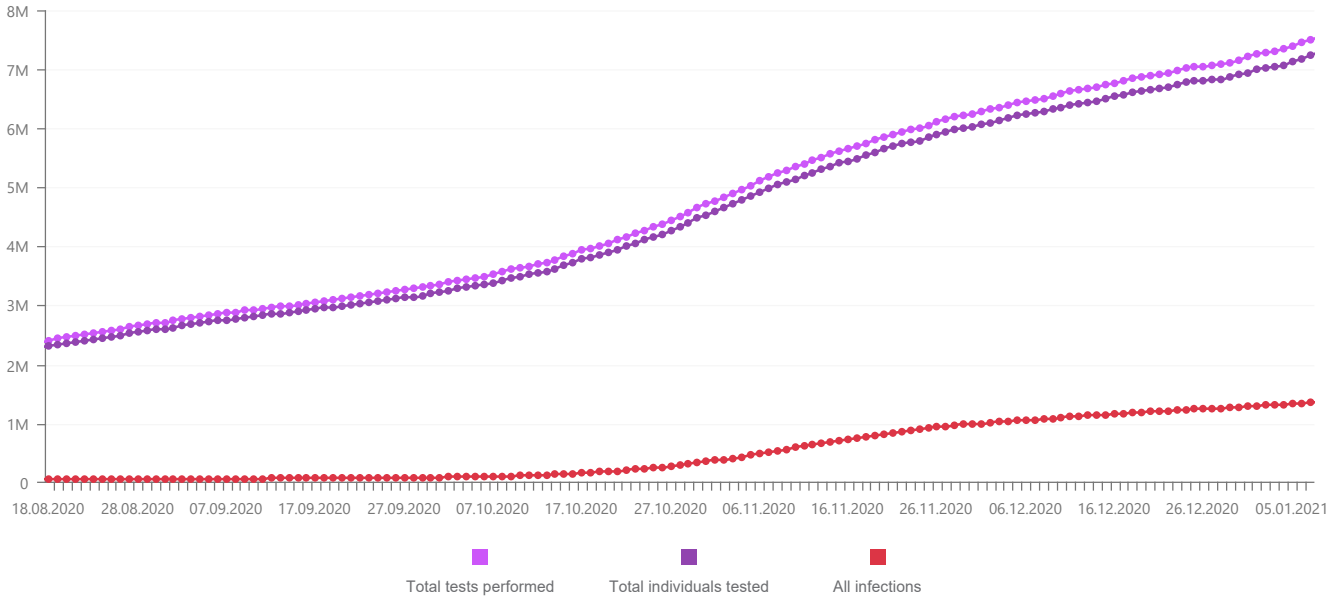
Testing has three main goals: 1) to provide information on the spread of the pandemic by monitoring a defined population, 2) to quickly identify individuals who may be responsible for spreading the infection, thus accelerating the spread of the pandemic, and 3) to quickly detect infection in individuals at high risk of developing severe symptoms, so as to provide them with optimal care and thus limit the number of excess deaths.

Who should be tested?

We need to change our strategy to focus on testing those individuals whose jobs involve interacting with many people and who therefore may contribute to a significant spread of infection. These include healthcare workers, teachers, uniformed services, municipal service workers and all individuals providing essential services. All such individuals should have easy access to rapid testing; this will make it easier for them to continue working and self-isolate quickly in the event of a positive result, so as to prevent them from spreading the infection. There are also individuals for whom infection with SARS-CoV-2 poses a particularly great health risk. If there is even the slightest chance that they might have been exposed, they should also have rapid access to individual testing.

Given the current epidemiological situation, all individuals who feel unwell or are experiencing any respiratory symptoms should strictly adopt the assumption that they are infected with COVID-19. We should introduce a universal policy that if anyone is feeling unwell, they should stay at home and avoid contact with others. Only once they have been free of any symptoms for three continuous days should they resume their previous activities. Implementing such standards would not pose negative consequences to the economy or public health, since many professions have already adopted remote working on a wide scale. If a patient's symptoms worsen during isolation, or they are in a high risk group, they should consult a doctor who will advise whether they should seek further help. However, hospitals should only admit individuals who require urgent specialist attention. Additionally, adopting such a strategy would also significantly limit the spread of seasonal cold, flu and other airborne infectious diseases.

Testing with the aim of determining the true scale of the pandemic in Poland is a separate issue. It is impossible to test the entire Polish population, therefore we must focus on monitoring a selected subgroup. Many countries monitor the spread of respiratory viruses by testing all individuals showing symptoms in a given population. This system has



Source: https://koronawirusunas.pl/

been used successfully to track flu for many years (SENTINEL), although it is not as effective when it comes to COVID-19. This is due to the fact that the course of infection with COVID-19 depends on age; we could use the existing system to monitor the spread of disease among adults while completely missing how it is disseminated among children and young people. As such, it seems that the only viable option is systematic testing for SARS-CoV-2 in a representative sample (individuals selected at random from the national ID database and tested periodically). Given how widespread the pandemic currently is, the sample group should be as large as possible. Only such widespread testing will help us in our fight against the pandemic. It will help us answer questions such as whether reopening schools will result in a rapid growth in the number of infections, or whether reopening theatres, cinemas, museums, gyms and swimming pools will have a significant effect on the spread of the pandemic. Such a testing strategy will allow for a more nuanced course of action than "slamming on the breaks." In short, we postulate that at this stage of the pandemic the main aims of testing should be monitoring the level of penetration of SARS-CoV-2 in high-risk groups and population testing on a randomly selected sample.

How does the test work?

In order to detect the virus, we apply a test able to detect the presence of RNA specific to the SARS-CoV-2 virus (genetic testing) or a protein specific to the virus (antigen testing). Genetic testing has been the gold standard in diagnostics of viral infections for many years. When conducted correctly, it is a reliable diagnostic tool. However, it is relatively expensive and in most cases results take up to a few days to arrive.

The first-generation antigen tests currently seem to be worthless, but the second-generation tests are proving to be relatively reliable. While they offer lover sensitivity and specificity than genetic testing, they are sufficiently effective to detect infection with the SARS-CoV-2 virus in the early days of COVID-19 symptoms. After five to seven days from the onset of symptoms, the reliability of antigen tests rapidly diminishes. Antigen tests are significantly cheaper than genetic tests and results are available in around an hour. However, it should be noted that many such tests currently on the market do not meet even the most basic standards, and only tests recommended by the National Institute of Public Health – National Institute of Hygiene or a specialist virologist should be used.

In summary, there are two tools available for detecting the SARS-CoV-2 virus. One is antigen tests, which should be used systematically in individuals experiencing symptoms indicating COVID-19 who want to make sure they don't pose an infection risk. In turn, genetic tests should be used exclusively in patients who may not be experiencing typical COVID-19 symptoms but who may have been exposed to the virus (up to a week previously), and whose jobs (healthcare, education or uniformed services) require highly accurate information on infection rates and rapid isolation in case of infection.

In each given country, the testing strategy should be adapted to the changing pandemic situation. The strategy outlined here will also need to be modified as the situation in Poland changes. If and when we return to low numbers of new daily cases, it may be advisable to return to a test-and-trace system. This should be decided by epidemiologists alongside economists.

Position Statement 7 15 December 2020

Vaccination Is the Only Rational Solution Which Will Help Us Defeat the Pandemic

COVID-19 has been devastating the health of millions of people around the globe and causing untold damage to the economy for many months. Teams of researchers have been working tirelessly on developing an effective vaccine since the outbreak of the pandemic, and we are on the threshold of a breakthrough. However, a large proportion of our society has been expressing concerns about the vaccine. In this statement, we discuss the possible risks and explain why vaccination is the only rational choice which will help us emerge from the pandemic, save the lives and health of countless people and limit the damage already inflicted on the economy.

A year of the COVID-19 pandemic without effective treatment or vaccines

So far this year, over 72 million people around the globe have been infected with the coronavirus, with over a million cases in Poland. According to official data, the virus has taken over 1.6 million lives so far, with over 23,000 deaths in Poland. However, real figures are very likely to be higher.

Since the new disease was first identified in January 2020, scientists all over the globe have been engaged in intensive research into COVID-19 and its pathogen the SARS-CoV-2 virus. The rapid rate and meticulousness of the research and the results of the hard work are impressive: scientists have identified the pathogen responsible for COVID-19, determined its genetic material, developed genetic and serological tests for SARS-CoV-2 and studied the epidemic parameters of the disease. Work on developing a vaccine started immediately after the genetic material of SARS-CoV-2 was recognized on 11 January 2020.

As has been the case for many other infectious diseases, it is likely that an effective vaccine will help us combat this highly dangerous disease. The seriousness of the pandemic is shown by the number of excess deaths in 2020. During the first week of November 2020, the number of deaths recorded was 86% higher than the average of the previous five years combined. In individuals aged 65 an over, mortality was over 100% greater.

Due to an absence of a vaccine or effective treatment, the main ways of preventing the spread of COVID-19 have so far been wearing masks, regular hand-washing, maintaining social distance and limiting social contact. The latter involves closing down major sections of the economy, which leads to a reduced availability of goods and services as well as driving up unemployment levels, leaving growing numbers of people with no means of supporting themselves.

All this and the unease which naturally goes with the pandemic and uncertainty over the future have also led to reduced investment and consumption levels. As a result, at the end of 2020 we will see a reduced GDP, estimated at around 8% with respect to the pre-pandemic level in Poland; in turn, this results in increasing unemployment (estimated at between 5% and 9%, depending on sources). The economic crisis and the need to rescue the economy lead to growing levels of public debt (from 48% of GDP in 2019 to around 65% in 2020 in Poland).

The recent announcements of the development of vaccines against COVID-19 have stirred a range of

Poster prepared by the government to encourage people to get vaccinated

TOMASZKUDALA/SHUTTERSTOCK.COM

Katowice, 25 January 2021, a COVID-19 vaccination point at a hospital. The first vaccination against COVID-19 was administered in Poland on 27 December 2020

emotions, from joy and hope for a quick end of the pandemic to fears of supposed adverse side effects, fed by widespread misinformation. This position statement is mainly aimed at people who are uncertain about the vaccine and who would like to learn more about the scientific consensus on the COVID-19 vaccine.

What do we know about vaccination?

Vaccination is undoubtedly one of the greatest achievements of modern medicine, and vaccines are the most effective protection we have against numerous dangerous infectious diseases. Their current effectiveness, as measured by the reduction in the number of cases of measles, tetanus, whooping cough, polio, mumps, rubella and hepatitis B, is between 95% and 99%. In terms of smallpox, the global vaccination program has led to a complete eradication of the disease.

Contemporary vaccines are safe and effective, while the rare complications are well studied and treatable. In case of the most dangerous vaccine developed thus far (against smallpox), the death rate following vaccination was one in a million – a lower risk than the danger of being struck by lightning in a given year. It should be added that even this risk was fully justified, given that the death rate for smallpox was 30% in unvaccinated individuals. Prior to the development of the vaccine, smallpox epidemics devastated entire cities and regions.

Other vaccines available today have extremely high safety profiles. The risk of a life-threatening anaphylactic reaction to a vaccine is approx. 1.3 in a million. However, even when such reactions occur, they come immediately after vaccination, while the patient is still under the care of medical professionals who are trained to respond.

Other serious side-effects are rare (a rate below 1/40,000 in Poland), while mild reactions (a rate below 1/100 in Poland) usually clear up without treatment. In practice, no deaths are noted following vaccination. According to data available thus far, we can expect the COVID-19 vaccine to have a similar safety profile.

Ensuring safety is a fundamental element of the vaccine development process involving specialists from all over the globe. Science undeniably rubs shoulders with big business here, since only major international companies have the financial and logistical resources to develop and introduce new vaccines. Safety concerns are equally important for pharmaceutical companies, since being forced to withdraw a product from the market due to serious side effects entails major financial losses and reputation damage.

Verification of the safety of all new drugs, including vaccines, is handled by independent agencies. The largest ones are the European Medicines Agency (EMA) headquartered in Amsterdam, the Federal Drugs Agency (FDA) in the US and the World Health Organization (WHO).

As a member of the EU, the most relevant agency for Poland is the EMA which evaluates and supervises medicinal products. The independent international agency works closely with experts in individual countries and analyzes data generated during preclinical and clinical trials. Vaccines and other drugs are only launched to market once the EMA approves all research, resolves all doubts and decides that the results show the product to be safe and effective.

In order to accelerate the approval of the COVID-19 vaccine, the EMA introduced the rolling-review process to appraise data as it becomes available. The EMA also conducts close observations of the takeup of vaccination and its safety and effectiveness. The agency must formerly approve any COVID-19 vaccine before it is launched to market.

Since Poland is a member of the EU, our access to the vaccine is guaranteed once it is approved. Currently, the main issue is the development of an effective

vaccination program. In the event of no vaccine being available, it is likely that at least 75% of our population will become infected, and the majority of those individuals will develop symptoms. This will result in hundreds of thousands of deaths and long-term effects (known as "long COVID"). The numbers seem abstract, yet they mean something very real: they mean that COVID-19 is likely to affect all families to some degree. We will all know someone who died of COVID-19, and we will all feel the effects of the crisis even more profoundly than before.

This is no longer a vague, distant risk it seemed just a few months ago. The extensive research and observations carried out over the last few months mean we now understand how fast the virus spreads and how many social restrictions are necessary to stop the rapid progress of the pandemic.

Tallying up the individual and social benefits clearly indicates that a vaccination program is necessary. The main risk, albeit low, is that there is currently no fool-proof guarantee that the vaccine will result in full individual immunity. However, when the entire population is vaccinated, the risk of infection in individuals who have not developed immunity or should not have the vaccine for medical reasons is extremely low.

Conclusions

In summary, getting vaccinated against COVID-19 will prevent infection with the virus or will mean a less severe course of disease. This last point is important, since individuals experiencing milder COVID-19 symptoms are less likely to infect others. Another aim of a mass vaccination program is to achieve herd immunity and eliminate the pandemic.

Assuming that vaccinated individuals are not infected and do not pass on the virus, it is sufficient to vaccinate between 60% and 70% of the population. However, in the less-likely event that vaccinated individuals do experience mild symptoms and spread the virus, this number must be higher.

As such, a vaccination program will mean the following:

- The vast majority of vaccinated individuals will not develop COVID-19 symptoms;
- Even if vaccinated individuals go on to become infected, their symptoms will be milder;
- Vaccinated individuals will not spread the infection; in the rare event that they do, the symptoms will be milder;
- When a mass vaccination program is implemented, the pandemic will be defeated.

What else do we not know?

The EMA has yet to issue an opinion on the safety and effectiveness of the recently-developed COVID-19 vaccines; the agency is in the process of reviewing the documentation of clinical trials. Preliminary results show that the effectiveness of the vaccines exceeds 90%, which is significantly higher than for the annual flu vaccine.

We still don't know how long the immunity will last and whether two doses of the vaccine will be effective for a single year or several. If the immunity turns out to be short-term, it will be necessary to modify the strategy and administer booster doses. However, in spite of these questions there can be no doubt that as soon as the vaccine is approved, the benefits of a vaccination program will vastly outweigh any drawbacks.

Who should get the vaccine?

As is the case for all other vaccines, prior to inoculation all individuals will be assessed by a specialist. At this stage, any patients with contraindications will be asked to return at a later date. The main contraindication against vaccination is a known severe allergy to any of the vaccine components. All manufacturers are obliged to provide full information on the components of their vaccine and list any contraindications. Severely ill patients will also be vaccinated at a later date; however, a mild cold or asymptomatic COVID-19 will not be a contraindication. Where exactly does the line lie? That will be determined by the specialist conducting the preliminary examination.

There is also the question of whether individuals who had previously been infected with COVID-19 can or should be vaccinated. In our opinion they indeed

OSP STRADUNIA

Firemen from the Voluntary Fire Department in Stradunia distribute leaflets with information about COVID-19 vaccinations

can and should, although not necessarily as a priority and vaccine availability permitting. According to current information, vaccinating individuals who have acquired immunity as a result of a natural infection will not have an adverse effect on their health. However, we do not know how long the immunity will be maintained following recovery. For other coronaviruses, in some individuals' immunity weakens to allow reinfection as early as within a few months; for the majority, immunity is maintained for up to two years. Vaccination is likely to significantly prolong immunity; it will also dramatically reduce the likelihood of severe symptoms and death from reinfection, in particular for at-risk individuals.

The vaccine will not be administered to pregnant women or children in the first instance. This does not mean that the vaccine poses a risk in those groups but rather that it is yet to undergo relevant clinical trials. Vaccinating pregnant women and children will not be recommended until we are 100% confident about safety.

How should we talk about vaccination?

We are aware that individual opinions on vaccination are influenced by many factors, including personal health. According to polls conducted by the Centre for Public Opinion Research, the willingness to take the vaccine is closely correlated with major concerns about infection. According to the same polls, 36% of people in Poland say they will have the vaccine vs. 47% declaring that they will not.

The main reason for rejecting the vaccine is concerns about side effects (69%), followed by a general aversion to vaccination (30%) and fears over effectiveness (25%). Analysis of social media reveals concerns such as a lack of trust in medical professionals and vaccine manufacturers, a lack of trust in politicians and a belief that pharmaceutical companies are simply in it for the money. This shows the importance of people's personal perception of danger, trust in information sources and trust in those who encourage vaccination.

The pandemic is a source of uncertainty, which in turn breeds fear. We are afraid of things we do not understand, which is precisely why the availability of clear, reliable explanations is so essential. However, uncertainty is also an integral part of science and scientific discovery. To the average listener, the language of science may appear to be filled with obscurities and contradictions. We all experience incomprehension, confusion and doubt at times, and they can lead us to seek apparently simple and convincing yet completely untrue explanations, such as conspiracy theories spread by members of the anti-vaccination movement.

People need information that can explain for their rational and irrational fears. The way scientific information is disseminated will affect whether people take their answers from experts or from those who consciously spread misinformation and undermine scientific evidence.

DANIEL GNAP/KPRM

The government launched a campaign that involved celebrities in the promotion of vaccination. The well-known actor Cezary Pazura is photographed receiving a COVID-19 vaccine

Scientists provide reliable data from verified sources and recommendations formulated by multidisciplinary teams of independent experts. However, science is not enough; it needs to be supported by trusted individuals who are able to reach out to millions of people. Since Poland is highly polarized politically, it would be ideal if politicians from all parties came together in support of vaccination. Each would be more likely to get the message across to their own electorate.

A universal campaign promoting vaccination should also involve individuals from outside political circles, such as trusted and popular representatives of the worlds of science, sport, the arts and the media. This would go some way towards reducing the currently high levels of distrust. We should show by example that we are not afraid of the vaccine: our entire COVID-19 Advisory Team would like to state that all members will be vaccinated as soon as the vaccine is approved by the EMA and as soon as they are eligible.

Research shows that Polish citizens regard their close family and friends as the most reliable source of information on COVID-19. This means we should all speak out in support of vaccination, therefore we encourage you to disseminate accurate information about the vaccine among your friends and family. The attitude "since everyone else is getting vaccinated, there is no need for me to" leads down a dangerous path – if other people were also to adopt this strategy, we will simply not defeat the pandemic. We appeal to all members of the public to make the only rational decision, which is to have the vaccine as soon as it is approved by the EMA.

Position Statement 8 22 December 2021

On 21 December 2020, the European Medicines Agency (EMA) Announced Its Evaluation of the Vaccine from Pfizer and BioNTech – Called Comirnaty – as Safe for Humans and Effective in Preventing COVID-19

The vaccine was created based on the mRNA technology developed by the German company BioNTech, which it had already began working on in January 2020, immediately after the publication of the genetic sequence of the SARS-CoV-2 virus.

Preclinical studies and animal tests allowed the first preparations to be developed within a short time. Soon after BioNTech began working with Pfizer in March, phase one and phase two clinical trials began. This means that the first several hundred people received the preparation as long as 8 months ago.

Then, in July, the third phase of the study was launched, with over 43,000 people participating. Half of them received the vaccine, the other half a placebo. The study showed that the vaccine is 95% effective against COVID-19. The protective effect was observed regardless of gender, race, age, or comorbidities. The full effectiveness of the vaccine is achieved after it is administered intramuscularly in two doses, 3 weeks apart. However, the body starts acquiring immunity after the administration of the first dose. It is estimated that maximum protection is attained approximately one week after receiving the second dose.

Moderna vaccine

MARIA KAMINSKA/SHUTTERSTOCK.COM

In the case of the Comirnaty vaccine, no side effects have been observed that could have lasting consequences for people's health or life. The most severe symptoms that have been associated with the administration of the vaccine were one case of a shoulder injury around the injection site and one case of lymph node swelling in the groin, on the opposite side of the body to the injection site. However, it should be borne in mind that the administration of the vaccine may be associated in some people with local symptoms and flu-like symptoms – fever, muscle pain and general malaise – which improve spontaneously within a few days.

Because isolated cases of anaphylactic reaction have been reported, as with other drugs and intramuscular preparations, each patient should remain under observation for at least 15 minutes after vaccination. Cooccurrence of flu-like diseases or respiratory diseases is not a contraindication to vaccination. The results of the phase-three clinical trial indicate that there is likewise no reason to delay vaccination in individuals who have recovered. Care should be taken with patients with blood clotting disorders, who may experience bruising and bleeding associated with the puncture itself. Comirnaty should not be administered to children under 16 years of age or to pregnant women, as studies have not yet been carried out with these groups of patients. In people with impaired immunity, the vaccine may have a reduced effect, but is not contraindicated.

Based on the presented data, it can be concluded that we now have the first highly effective vaccine, which we can and should use to get vaccinated.

Position Statement 9

5 January 2021

Scenarios for 2021

YUGANOV KONSTANTIN/SHUTTERSTOCK.COM

At the end of 2021, 20,922,571 Poles were fully vaccinated. Data from 27 December 2021. Source: https://www.gov.pl/web/szczepimysie/raportszczepien-przeciwkocovid-19

The year 2020 has just drawn to a close. This is a good time to take stock and to plan for the new year we are now entering. Herein we present hypothetical scenarios for the development of the COVID-19 pandemic in 2021 and beyond. From a scientific point of view, each of them could become a reality, so we should be prepared for them all.

SCENARIO 1

Poland's National COVID-19 Vaccination Program will be successfully completed in 2021.

In this scenario, the year 2021 will see a large portion of Poland's population vaccinated against COVID-19 and we will achieve collective immunity during this year. Even those relatively few individuals who have not been vaccinated (due to serious medical counter-indications) will be able to function safely in society.

This will be achieved gradually. Through 2021, the number of people immune to COVID-19 will increase month by month, while the risk of healthcare system paralysis will systematically decrease. More and more age groups and occupational groups will return to normal functioning.

The two impeding factors that led to the severe economic slowdown in 2020 – the administrative restrictions and the fear and uncertainty that curbed the normal activity of households and companies – will gradually decline. The Polish economy will slowly begin to wake back up and return to activity. Facing a less uncertain tomorrow, the "postponed demand" of 2020 will be set into motion, becoming the most important growth factor in 2021.

The vaccine will maintain its protective effect for a long time, so in late 2021 and into 2022, COVID-19 cases will be sporadic, occurring mainly among people who come to Poland from countries that have failed to vaccinate the majority of the population. Other EU countries will be similarly successful in fighting the COVID-19 epidemic, thanks to which we will be able to travel freely both within the Schengen area and to those countries outside the EU which, like us, manage to bring the COVID-19 epidemic under control by means of vaccination.

SCENARIO 2

Poland's National COVID-19 Vaccination Program will not be successfully implemented in 2021

Vaccination against COVID-19 will proceed from the beginning of the year. A sizeable proportion of the Polish population will be afraid of the vaccine and will not want to be vaccinated. There are many reasons for this: fear of the unknown, not always consistent messaging from the authorities, a vocal anti-vaccination movement, and above all the low capital of social trust in Poland.

However, as the number of vaccinations grows, we can expect to see growing acceptance of them – the example set by others is crucial here. However, despite the availability of vaccinations, the number of people vaccinated will still be insufficient for collective immunity to be attained. This means that the epidemic in Poland will continue, perhaps slightly less intensely in the summer months and more intensely in the autumn-winter months. Poland will be on the list of high-risk countries – travel to and from Poland will be temporarily restricted or halted.

The social costs of this state of affairs will be vast. As a result of the stress associated with the prolonged pandemic, we will observe an intensification in clinical symptoms of phobia, social anxiety, depression, psychotic disorders and other mental illnesses. There will be an increase in suicides, self-harm, and other individually harmful behaviors such as alcohol and psychoactive substance abuse, as well as socially harmful behaviors such as aggression or violence.

The Polish economy will continue to stagnate. Although the administrative restrictions on economic activity in 2021 will be less painfully felt than in 2020, they will not disappear altogether, because the government will still have to introduce them temporarily. Due to outbreaks of the disease, it will remain significantly difficult to plan economic, educational, or cultural activities. In this scenario, exports will be the main driver of the Polish economy – especially in the event that the COVID-19 epidemic is brought under control in other European countries thanks to vaccination and their economies recover. As a result, foreign demand for Polish products will increase. However, fear and uncertainty will continue to hinder our activity and domestic demand – meaning that aggregate demand in the economy will still be low.

SCENARIO 3

Resistance to COVID-19, which will be commonly acquired through vaccination in 2021, will disappear after a short time

Most of the population in Poland will be vaccinated in 2021. The incidence of COVID-19 will therefore gradually decrease. However, before the incidence of COVID-19 falls to zero, the immunity acquired through vaccination during this year will start to fade.

What will be the consequence of this? The number of patients with COVID-19 will again start to gradually increase as a result. Then, mindful of the mistakes we made when the SARS-CoV-2 virus first appeared in Poland, we will have to act completely differently.

How? We will need to carefully monitor the situation, systematically testing a random representative sample of our population, with greater intensity among the most vulnerable groups. To be able to detect an increase in the number of infections early enough, even with a low number of cases, a control-test strategy should be introduced (with at least 300 tests per million people per day).

Measures limiting the scope of the epidemic, such as wearing masks, following rules of hygiene, and maintaining appropriate distancing, will still have to be promoted. It will be crucial to isolate people who

ASLYSUN/SHUTTERSTOCK.COM

In 2021, very few of the world's countries decided to close their borders. These countries included Morocco and Japan

have had contact with infected people. Local outbreaks will require a rapid and decisive response, including travel restrictions, targeted testing, and local economic closures to quickly reduce the numbers of new cases.

Despite the loss of immunity, however, we will not be completely defenseless – we will still have a vaccine against COVID-19, allowing us to launch a booster vaccination program. From the economic perspective, on the other hand, we already know the optimal policy to adopt in pandemic conditions. Research has shown that restrictions impede economic activity to a lesser extent than the uncontrolled spread of a pandemic. Economic restrictions should therefore be short-term, decisive and introduced at an early stage.

In this scenario, we will also be expectantly awaiting the creation of an effective, safe and easy-to-take oral medicine that can be used both in treatment and for post-exposure prevention at home.

SCENARIO 4

In 2021, a variety of SARS-CoV-2 will emerge which will not be fought by the immune responses caused by the COVID-19 vaccine

Another scenario involving renewed increases in the numbers of patients could result from the emergence of variants of the SARS-CoV-2 virus that are resistant to the vaccine. However, our immune system is equipped with a whole range of defense mechanisms and ways of remembering the threat, so before we face the threat of going back to square one, we will have plenty of time to develop a new variant of the vaccine, provided that we spot new variants early enough through monitoring.

In addition, we already have a new methodology for the rapid development and modification of the vaccine in response to emerging mutations. In addition, it can be expected that the virus itself will also change over time, growing less virulent, to eventually become a relatively harmless pathogen similar to seasonal coronaviruses.

SCENARIO 5

In the coming years, perhaps even in 2021, we will be attacked by a completely new pathogen

Not all viruses dangerous to humans have already been discovered; many diseases have not yet been revealed and many others are dormant. Some viruses, such as those causing avian flu, MERS (Middle East Respiratory Syndrome), hemorrhagic fevers, or encephalitis-causing flaviviruses, continue to occur among humans. Fortunately, so far they are relatively poorly transmitted from human to human. However, research has shown that over time they could also become pandemics. Due to the rapidly warming climate, the West Nile, Dengue, O'Nyong'Nyong, and Usutu viruses have already been reported in Europe. If another new disease manifests itself before the COVID-19 epidemic is suppressed, we will simultaneously have to fight on two fronts, against two completely different pathogens – and what is more, again without a vaccine for the new pathogen.

NECHAEVKON/SHUTTERSTOCK.COM

The West Nile Virus is usually spread to people by the bite of an infected mosquito

To be able to emerge victorious from future pandemics, the Polish economy needs two great investments: in healthcare and in anti-epidemic protection. Hospitals have to be ready to rapidly take in large numbers of patients with a new unknown pandemic disease, irrespective of its route of transmission, and epidemiological services need to be able to efficiently detect and eliminate outbreaks.

Conclusions

All the above scenarios are possible from the scientific standpoint and none of them can be ruled out. Therefore, we should draw the following conclusions from the year 2020, which will make it much easier for us to face developments in each of the scenarios presented above.

Number one: efficient institutions

We need to prepare ourselves institutionally for new epidemic threats. Poland should have a multidisciplinary expert institution (a National Health Organization) monitoring the global epidemic situation, closely cooperating with organizations such as the WHO (World Health Organization) or ECDC (European Centre for Disease Prevention and Control). It may be expedient for such national institutions to be established in all the EU countries, because without good and close international cooperation it is impossible to cope with serious challenges that by their nature stretch across national borders. By effectively coordinating the purchase of vaccines, the EU has shown that it is well-suited for this type of activity.

When the imminent danger of an epidemic is announced, previously developed procedures (domestic

testing and monitoring) and resources needed to fight the epidemic should be set into motion. For this to be done, it is necessary to significantly modernize, train and subsidize the sanitary and epidemiological services and implement a uniform, transparent, and reliable system of collecting data on epidemic threats and on vaccination procedures.

Doctors specialized in infectious diseases also have a great role to play here – a specialization that is currently highly underappreciated in Poland. Specialists should also be active from the very beginning, educating the public about the approaching threat and preparing the information campaign. Taiwan, for example, was thus prepared for the COVID-19 epidemic and it suffered very few fatalities in 2020, while continually maintaining its economy open.

Number two: science

We need to bolster science in Poland and public trust in it. It is fearful to think of how the COVID-19 pandemic would have gone without science – how many victims there would have been, how great the material and civilizational losses would have been in Poland and worldwide. Only by taking scientific knowledge into account are we able to act rationally in the face of such a threat.

Number three: cooperation and responsibility

Coping with an epidemiological threat requires all of us to cooperate and behave responsibly. This attitude should manifest itself, for example, in widespread vaccinations against COVID-19 in 2021. This is the only way to avoid unnecessary human and economic casualties.

Comments on Position Statement no. 9 "Scenarios for 2021"

Since the publication of our "Scenarios for 2021" we have received numerous questions about which of these scenarios is the most likely. However, it is not possible to provide a clear-cut answer. One of the reasons is that the probability of each of these scenarios becoming a reality depends not only on actions over which we have some influence (i.e. the efficiency of the vaccination system and people's behavior), but also on factors over which we have little influence.

We have the greatest influence over whether Scenario 1 (successful completion of the National Immunization Program in 2021) and Scenario 2 (failure of the National Immunization Program in 2021) come true.

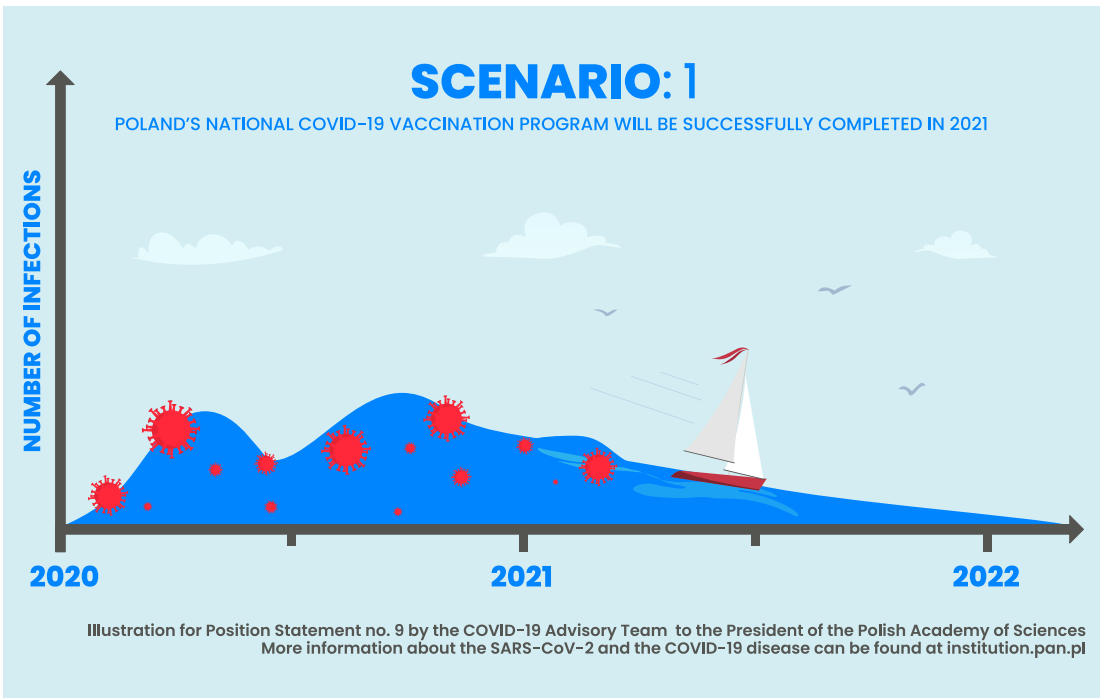
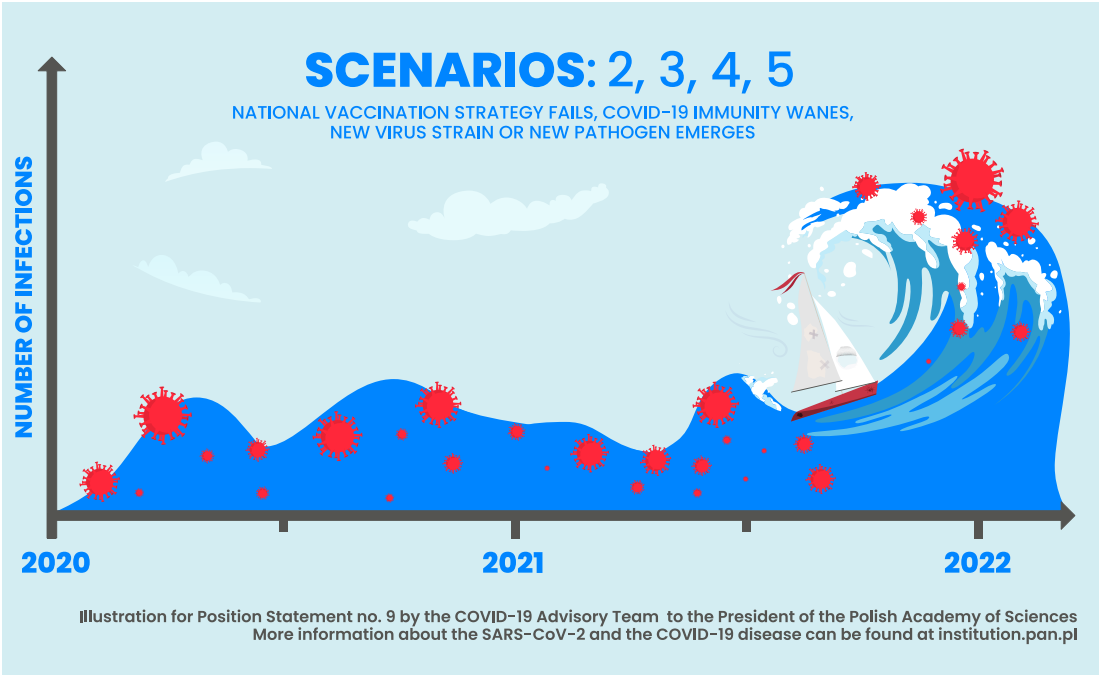


Illustration for Position Statement no. 9 by the COVID-19 Advisory Team to the President of the Polish Academy of Sciences
More information about the SARS-CoV-2 and the COVID-19 disease can be found at institution.pan.pl

BARTOSZ SUMOWSKI



Unfortunately, it seems that at the moment we are following Scenario 2. The current pace of the vaccination program will not allow for high-risk groups to become protected quickly, let alone the majority of the population. If this situation continues – with poor availability of vaccines and difficulties in their distribution – we will be drifting from lockdown to lockdown for a long time.

As the public's willingness to get vaccinated grows, the likelihood of shifting to Scenario 1 will depend largely on the efficiency of the vaccine delivery and distribution system, based on transparent prioritization and the involvement of numerous institutions in the vaccination process.

We have less influence over the potential occurrence of Scenario 3 (with post-infection or post-vaccination immunity unfortunately waning), Scenario 4 (involving the emergence of virus variants resistant to current vaccines), and Scenario 5 (the emergence of an entirely new pathogen). We do, however, have a certain influence over their potential course and consequences.

Depending on how quickly a majority of the population gets vaccinated, the potential effects of Scenarios 3, 4 and 5 could be trivial or very serious. The consequences of these scenarios could vary depending on government measures and people's behavior. The phenomenon whereby the immunity that people gain post-infection or post-vaccination proves to wane is not unknown for zoonotic diseases and many vaccines require the administration of booster doses. If people's immunity proves to decline gradually, or if resistant variants of the virus do not emerge until most of the population has been vaccinated and the outbreak subsides to individual cases of infection, there will be little consequence.

However, if immunity wanes before the vaccination campaign comes to completion, we can expect a repeat of the situation seen in autumn 2020. It is also worth bearing in mind that the longer a pandemic lasts, the greater the chance that resistant strains will emerge.

As for Scenario 5 (the emergence of a completely new pathogen), it is something that will happen for certain, although we do not know when. If a new, dangerous pathogen does emerge a few years from now and we manage by then to combat the current outbreak and to make preparations, the impact of its emergence on the functioning of society may be small. However, should this happen as early as in 2021, then the year 2020 could prove to have been just a prelude to the real catastrophe.

It is evident, therefore, that even the scenarios that are less dependent on the efficiency of the system and on people's behavior (Scenarios 3, 4, 5) can be influenced to some extent. Success in making Scenario 1 a reality facilitates potentially coping with Scenarios 3, 4, 5. On the one hand, such success would mean that, having overcome the previous pandemic, society would be better prepared to cope with subsequent threats; on the other hand, it would leave relatively greater resources within the healthcare system for coping with Scenarios 3, 4, and 5.

This is what makes urgent vaccination of society and development of institutions prepared to face new epidemic threats so important.

Position Statement 10 25 January 2021

Implications of the COVID-19 Pandemic for the Mental Health and Education of Children and Adolescents

One group that is particularly vulnerable to the impact of COVID-19 is children and adolescents. Although they are less susceptible to the severe physical manifestation of the disease caused by the SARS-CoV-2 virus, the psychological and educational effects of the pandemic can be very serious for them, sometimes lasting much longer than the pandemic itself.

Possible psychological consequences of the COVID-19 outbreak for children and adolescents

Studies show that forced home confinement has a particularly negative impact on the psychological well-being of young people because it not only condemns them to partial inactivity and isolation from their peers but also often deprives them of much-needed privacy and intimacy during adolescence

Research suggests that young people are being particularly affected by the stress of the COVID-19 epidemic. Contributing factors include the destabilization of family life, isolation from peers, the need to change habits, and loss of a safe routine. Anxiety and uncertainty are also increased, due to intense exposure to negative information about the pandemic and its consequences. All this adds to the stress normally associated with the developmental changes natural to these stages of life, in both the biological, social and psychological spheres, including qualitative changes in ways of experiencing and thinking.

MARIA SYMCHYCH/SHUTTERSTOCK.COM

Research shows that the psychological condition of young people is particularly negatively affected by enforced confinement at home, which not only relegates them to partial inactivity and isolation from their peers, but often deprives them of the privacy and intimacy that is so necessary at developmental age. Adolescents, especially those on the threshold of adulthood, may also be concerned about their poorer prospects for the future: the pandemic could thwart their dreams, aspirations, and hopes for success. In addition, with many parents and caregivers facing serious difficulties, young people may become victims of verbal, psychological, and physical abuse, experienced directly or indirectly. The confinement of children and adolescents in their homes causes them to spend more time online.

While the Internet does allow them to learn, play, and stay connected with their peers, unsupervised use of the Internet promotes exposure to harmful content. With many of life's activities moving online, peer-on-peer abuse is also following suit. A UNICEF paper points out that during the COVID-19 pandemic, an increasing number of young children are using a variety of online tools, including instant messaging and games. However, they have limited experience using the Internet and may be less resilient to adverse, including hurtful, behavior by others online. Parents and caregivers should remain alert to signs that suggest their charges may be experiencing online bullying. It is also important for them to make sure that the privacy settings on applications that children use (e.g. Facebook or Instagram) are set so as to make as little sensitive personal information publicly available as possible (date of birth, phone number, address, etc.). Keeping children and young people safe online is a huge challenge for many parents, caregivers and teachers, with respect to which they should have specialist advice and support.

The various forms of stress experienced by young people during a pandemic can lead to the onset or exacerbation of a range of mental illnesses, such as depression or psychotic disorders. In some, it can lead to behavioral disorders such as suicide and self-harm, eating disorders, sleep disorders, or violence against others. Experiencing direct or indirect acts of psychological and physical abuse at an early age can

PHOTOGRAPHEE.EU/SHUTTERSTOCK.COM

Talking about the pandemic is crucial for anxiety alleviation

permanently impair the development of cognitive, emotional, and social skills. It also may facilitate the future development of psychosomatic and psychiatric disorders, addictions, or suicidal thoughts.

Possible implications of the COVID-19 pandemic for the education of children and adolescents

The time of the pandemic and the related periodic school closures has clearly demonstrated the importance of universal schooling, not only in providing basic knowledge to young members of society, but also as an institution that fosters their proper development. The system of distance-learning causes many children to experience mounting educational problems and increasingly fall behind. Available empirical research indicates that the first wave of the epidemic in spring 2020 already worsened the educational outcomes of the year-groups affected by school closures, and augmented the inequalities among schools and among students. Based on research available even before the pandemic, in turn, we can attempt to estimate what the economic magnitude of the effects of these school interruptions and educational gaps might be. Exclusion from schooling equal to losing 1/3 of a school year leads on average to a 3% loss in future individual earnings over a lifetime. Given the already observed disparities in the impact of school closures on student educational outcomes, the future earnings of pandemic-affected year-groups can be expected to be not only lower, but also characterized by wider inequalities.

Due to the global nature of the school interruptions, economic losses my occur not only on the individual level, but also on the whole-economy level. In the optimistic scenario, with irregularities in the functioning of the school system lasting in total only about half of a single school year, the attendant losses in the national economy may still amount to more than 1.5% of GDP (Gross Domestic Product) over the next several decades. This is due to losses in the acquisition of cognitive skills by today's children and adolescents, which may translate into decreased human capital in adulthood, including: poorer skills at learning and cooperation, lower creativity, independence and innovation. These are abilities that are crucial for the development of a modern knowledge-based economy.

A separate issue is posed by entering the workforce during a deep recession, which, according to available research, can have a long-term negative impact on the future earnings of today's youth. The salaries of those entering the market in unfavorable conditions are from 3% to 8% lower, on average, than for those who

According to experts, whenever the epidemic situation allows this, we should push for the efficient and safe relaunch of in-school education with adherence to sanitary safety guidelines

PROSTOCK-STUDIO/SHUTTERSTOCK.COM

enter the labor market in a period of prosperity, with the difference persisting for up to ten years. Entering the labor market during a recession is also associated with such disadvantages as increased mortality in middle age, lower likelihood of marriage or partnership union, lower fertility rates, and higher likelihood of relationship breakdown. Findings suggest that for children and adolescents, economic turmoil – even if perceived as temporary – can have a lasting and negative impact on their lives and health.

What can be done? Providing psychological and psychiatric support to children, adolescents and parents

Given the varying responses to the pandemic threat, it will be necessary to develop individualized ways of providing help and support during the pandemic situation and several years afterwards. This requires appropriate identification and monitoring of the following by parents, teachers, and psychologists:

1. factors that augment COVID-19-related stress (e.g. exposure to infection, having family members infected, losing loved ones, undergoing quarantine);
2. side-effects of pandemic stress (e.g. economic losses, family breakups, changes in life plans);
3. psychosocial impacts (e.g. depression, anxiety, insomnia, substance abuse, domestic violence), and
4. indicators of vulnerability (e.g. pre-existing physical or psychological conditions that increase sensitivity to stress).

Support for child psychiatry is required. There also needs to be close collaboration between the medical community and researchers in the behavioral and social sciences. Children, adolescents and their parents should have ongoing access to specialist care that provides both psychological support and appropriate treatment.

The Polish community of psychologists and psychotherapists has taken several initiatives in this regard. For example, the Polish Psychological Society (PTP) publishes a list of its member psychologists who offer free psychological assistance to people who need support during the pandemic. Also, the association of psychologists and psychotherapists "Psychologists for Society" offers free telephone support during the pandemic. A government website also provides information about where to get help.

Promoting knowledge of ways of coping with stress in a pandemic

A key role in alleviating anxiety is played by talking about the pandemic (special guidelines have been developed in this regard) and psychoeducation (providing information on how to live in times of a pandemic, or how to cope with stress). It is also important to promote knowledge about the importance of establishing

and sticking to routines, engaging in physical activity, striving to ensure positive experiences and self-esteem. This is a task for parents and schools, but also for education specialists and psychologists. Also worth noting are such initiatives as the one prepared by the Institute of Psychology at the Jagiellonian University, offering a range of information for parents and teachers on how to cope with stress and tips on when, how, and where to seek help. A recently published book entitled *Człowiek w obliczu pandemii* [People Facing a Pandemic], for instance, seeks to provide teachers and parents with more information about the consequences of the pandemic for psychology and the human psyche.

Safe and efficient relaunch of school education

Given the already evident negative effects of school closures, they should not be the first countermeasure implemented in response to every surge in infection rates. If they are necessary, however, there should be a firm commitment to efficiently and safely reopening schools as soon as the epidemic situation permits. The strategy for this process should be based on the three pillars called for by our Advisory Team in Position Statement No. 2 of 19 August 2020 and by education-economics experts in their open letter of 30 November 2020. These three pillars are: maintaining an appropriate sanitation regime, introducing hybrid teaching (e.g., splitting school classes and school weeks into onsite vs. offsite), and taking a regional approach to the introduced operational restrictions. This strategy should be supported by the National Immunization Program and a new testing strategy in line with our Advisory Team's Position Statement No. 6 of 17 November 2020.

In the long run, it will be necessary to reform school curricula, reducing nonessential information and emphasizing knowledge-acquisition skills. Curricula should also include basic knowledge about epidemiology, hygiene, disease prevention, and vaccination. It is moreover crucial to teach critical analysis of sources so that future generations will be able to distinguish science from pseudoscience and truth from falsehood. The scope of instruction in social skills such as cooperation and mutual solidarity should also be broadened.

Sources

Andrews D., Deutscher N., Hambur J., Hansell D. (2020). *The career effects of labour market conditions at entry,* OECD Productivity Working Papers, OECD Publishing, Paris.

Beam C.R., Kim A.J. (2020). Psychological sequelae of social isolation and loneliness might be a larger problem in young adults than older adults. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12 (S1), 58–60.

Dalton L., Rapa E., Stein A. (2020). Protecting the psychological health of children through effective communication about COVID-19. *The Lancet*, vol. 4, issue 5, 346–347.

Glowacz F., Schmits E. (2020). Psychological distress during the COVID-19 lockdown: The young adults most at risk. *Psychiatry Research*, 293 (May), 113486.

Hanushek E.A., Woessmann, L. (2020). *The economic impacts of learning losses* (no. 225; OECD Education Working Papers). OECD Publishing.

Jiao W.Y., Wang L.N., Liu J., Fang S.F., Jiao F.Y., Pettoello-Mantovani M., Somekh E. (2020). *Behavioral and Emotional Disorders in Children during the COVID-19 Epidemic*. J Pediatr 221 (264–266): e261.

Kossowska M., Letki N., Zaleśkiewicz T., Wichary S. (2000). *Człowiek w obliczu pandemii. Psychologiczne i społeczne uwarunkowanie zachowań w warunkach kryzysu zdrowotnego* [People Facing a Pandemic: Psychological and Social Determinants of Behavior in Conditions of a Health Crisis], Smak Słowa.

Lee C., Cadigan, J., Rhew I. (2020). Increases in Loneliness Among Young Adults During the COVID-19 Pandemic and Association with Increases in Mental Health Problems, *Journal of Adolescent Health*, 67, 5, 714–717.

Lee J. (2020). Mental health effects of school closures during COVID-19. *Lancet Child Adolesc. Health*. 2020 Jun;4(6):e16.

Liang L., Ren H., Cao R., et al. (2020). The effect of COVID-19 on youth mental health. *Psychiatry Q.*, 91: 841–852.

Liu J.J., Bao Y., Huang X., Shi J., Lu L. (2020). Mental health considerations for children quarantined because of COVID-19. *Lancet. Child Adolesc. Health* 4 (5), 347–349. PubMed.

Maldonado J., De Witte K. (2020). *The effect of school closures on standardised student test* (20.17; KU Leuven Discussion Paper Series). KU Leuven – Faculty of Economics and Business.

Oreopoulos P., von Wachter T.M., Heisz A. (2012). The Short-and Long-Term Career Effects of Graduating in a Recession, *American Economic Journal: Applied Economics*, 4 (1): 1–29, doi: 10.1257/app.4.1.1. *rp.pl* (2020). *Zajęcia przez internet nie zastąpią nauki w szkole* [Online classes are no substitute for learning at school], *Rzeczpospolita*, 30 November 2020.

Schwandt H., von Wachter T.M. (2020). Socioeconomic Decline and Death: Midlife Impacts of Graduating in a Recession, *NBER Working Papers* no. 26638.

Shanahan L., Steinhoff A., Bechtiger L., Murray A.L., Nivette A., Hepp U., Eisner M. (2020). Emotional Distress in Young Adults during the COVID-19 Pandemic: Evidence of Risk and Resilience from a Longitudinal Cohort Study. *Psychological Medicine.*

Singh S., Roy D., Sinha K., Parveen S., Sharma G., Joshi G. (2020). Impact of COVID-19 and lockdown on mental health of children and adolescents: A narrative review with recommendations. *Psychiatry Research*, 293 (August), 113429.

Stavridou A., Stergiopoulou A.A., Panagouli E., Mesiris G., Thirios A., Mougiakos T., Troupis, T., Psaltopoulou T., Tsolia M., Sergentanis T.N., Tsitsika A. (2020). Psychosocial consequences of COVID-19 in children, adolescents and young adults: A systematic review. *Psychiatry and Clinical Neurosciences*, 74 (11), 615–616.

Wee S.L. (2013). *Born Under a Bad Sign: The Cost of Entering the Job Market During a Recession*, Working Paper.

Position Statement 11 10 February 2021

Understanding the Vaccine – The Individual Perspective

The COVID-19 vaccination campaign is underway. It is the largest undertaking of this kind the history of medicine has seen in recent decades. Its outcome will depend on many factors. In this statement, we present the key factors underpinning the success of this complex operation. We also describe what to consider before getting vaccinated. In the Advisory Team's next position statement, in turn, we will focus on what vaccination means from a societal perspective.

The current choice is between vaccine and infection. As each of us makes our personal decision to be vaccinated or not, the following comparison may be helpful: if we take a group of one million people, less than three of them will have a severe anaphylactic reaction after vaccination. This does not mean death, only a need for immediate medical attention. Without vaccination, after contracting COVID-19, out of a group of one million people, thirty thousand will not survive. This is the approximate risk of death due to the disease in Poland. This varies by age and body weight, but even in the case of teenagers hospitalized with COVID-19, the risk of death is ten times higher than in the case of hospitalization for influenza. The long-term effects of SARS-CoV-2 virus infection on the whole body are also unknown. In contrast, no lasting complications have been identified following vaccination. Let us remember, every dose of vaccine given brings us closer to a return to pre-pandemic normality.

Components of the vaccination process

a) The vaccine and its availability

One essential element of the vaccination process is having an effective, safe, and accessible vaccine. A primary role in this regard is played by manufacturers, clinical trial sites, agencies that authorize vaccines for use, administrators who ensure the logistics and organization of vaccine distribution, and the vaccination centers themselves.

The speed at which COVID-19 vaccines have been developed and the first batches manufactured is impressive. It is also crucial for the success of vaccination that the vaccine should be available to everyone. Essential in this context are smooth negotiations with the manufacturer (mainly at European Union level), the organization of the national-level vaccination system, including the storage and transport of vaccines at appropriate temperatures, the planning of vaccination appointments, ensuring safety measures at vaccination centers, and the appropriate documentation and monitoring of vaccinations and their effectiveness. With modern technology facilitating such organizational processes, it is hoped that this highly complex logistics will improve month by month.

b) Medical personnel

Another, equally important element of the vaccination process is having professional medical personnel to screen individuals for vaccination and administer the vaccine, abiding by the indications and contraindications and ensuring maximum effectiveness and complete safety at the vaccination center.

The decision to vaccinate must be made on an individual and person-focused basis, so as to take into account any potential coexisting medical conditions and contraindications. It should be emphasized that both the performance and non-performance of any medical procedure involve a certain degree of risk. The individual decision to vaccinate, not to vaccinate or, for example, to postpone vaccination results from risk analysis and comparison, to be carried out jointly by the person to be vaccinated and the physician, so that an optimal course of action can be identified for each of us.

c) The vaccinated person

The third element in a successful vaccination process is the vaccinated person himself or herself, who should be prepared to receive the vaccine. In medical terms, it is our immune cells that must effectively utilize the vaccine antigen or the information stored in the mRNA to produce immunity. This process proceeds slightly differently in each of us, and each of us reacts differently to the vaccine. However, it has to be taken into account that the development of post-vaccinal immunity is a process that lasts from a few days to two weeks, during which the person is still sensitive to the infection.

In the case of currently available vaccines, the immune system only begins to fully protect us 7 to 14 days after the second dose. Therefore, do not succumb to a false sense of security and continue to scrupulously observe the rules: wear a mask, keep your distance, and wash your hands frequently. We now know that getting vaccinated protects us from infec-

SIEKIERSKI.PHOTO/SHUTTERSTOCK.COM

tion with the SARS-CoV-2 virus and the dangerous consequences of the disease. However, we do not yet know whether vaccination protects us from infecting others. Therefore, as long as we do not know for sure, or until the pandemic subsides, it is important to scrupulously observe the above-mentioned rules even after getting vaccinated, for the sake of others.

What should one know before getting vaccinated?

The effectiveness of vaccination can be evaluated by laboratory means, clinically and epidemiologically. It is important to remember that SARS-CoV-2 infections may proceed completely asymptomatically, or may involve symptoms of COVID-19. In turn, symptomatic infections can be mild or severe, and can even lead to death.

The true measure of the effectiveness of vaccination, regardless of the type of vaccine, is decreased risk of contracting the disease. Clinical trials compare the incidence of COVID-19 in participants actually vaccinated versus those who received a placebo and the degree of reduction in this risk achieved by the vaccine is calculated. The risk of death from SARS-CoV-2 infection in those receiving the vaccine and placebo is also compared. The effect of vaccines on asymptomatic infections is the most difficult to measure – in this respect we are still awaiting the results of clinical trials.

The outcome of vaccination depends, among other things, on the age and health status of the vaccinated person and the type of vaccine used. Vaccination does not eliminate the risk of contracting the disease completely, but only reduces it. Even the best available vaccines provide approx. 99% protection against the disease. The available vaccines used to protect us against respiratory infections (e.g. against influenza), for instance, have an effectiveness of 50–70%.

COVID-19 vaccines containing mRNA have been shown to reduce the risk of disease by around 95% overall, across all age groups. Another COVID-19 vaccine approved for use, containing a viral vector, has an efficacy of 60–70%; as we are still awaiting the results of clinical trials on its use in people over 55 years of age, it is being offered to young adults exceptionally out of turn under the general strategy that older people have priority. Such individuals therefore face a choice: to obtain a risk reduction of around two-thirds now, or to wait a few more months until more effective preparations become available. It should be remembered that in the case of vaccines, 40% is taken as the minimum acceptable risk reduction. Any other preventative medical intervention that reduced the risk of, for example, heart attack or diabetes to a similar degree would be considered valuable and worth considering.

The effectiveness of vaccination, even with the most effective preparations, may be lower in immunocompromised individuals, those undergoing chemotherapy, having undergone transplantation, or infected with HIV. This does not mean, however, that such people should not be vaccinated. Clear-cut data on the effectiveness of the vaccine for these groups will still take a while to come in. Things are similar in the case

UFABIZPHOTO/SHUTTERSTOCK.COM

After COVID-19 vaccinations, people may experience fever, pain and redness at the injection site, diarrhea, and drowsiness

of pregnant women. It should be emphasized, however, that currently available vaccines against COVID-19 do not contain "live" viruses, which might multiply in the body in the case of weakened immunity or, for example, penetrate through a pregnant woman's placenta to the fetus or infect an infant via breast milk.

With the advent of vaccines, some people have called their safety into question. These doubts are not grounded in reality. We would all feel more comfortable with years of data on the efficacy and safety of particular SARS-CoV-2 vaccines. However, we do not have that time, when there are huge numbers of cases and as many people as possible need to be vaccinated urgently. Vaccination decisions – both strategic decisions and personal ones – therefore have to be made without having answers to all the questions that present themselves, including how long the protection will last and whether the vaccine will protect us against emerging new variants of the virus.

Vaccination is intended to provoke our immune system to work against a specific threat. That is why, after vaccination, we might feel pain, notice swelling or redness in the place where the vaccine is administered, and sometimes enlargement of the lymph nodes on the side of the vaccination. Some people may experience fever, muscle aches, a feeling of drowsiness or fatigue, depressed mood or even diarrhea or vomiting. We may feel similar to having the flu and fear that we have been attacked by the disease instead of being protected. However, this is a symptom indicating that our immune system has been forced to work intensively – a state of inflammation develops, cytokines are released, and immune cells are stimulated, learning to recognize virus antigens. These symptoms are expected and are usually mild, resolving within hours or days without intervention. The severity of post-vaccination symptoms tends to be slightly higher in young people than in seniors, and is more frequent and more severe after the second dose of the vaccine. Some of these reactions are not related to the vaccine itself – this is evidenced by the fact that in clinical trials such side effects were also experienced by people receiving a placebo. Some people may not experience any symptoms, even such mild ones as temporary discomfort, but this is not a sign of the ineffectiveness of the vaccination – rather, each of us reacts to vaccination somewhat differently.

Potentially the most dangerous reaction to vaccination is a severe anaphylactic reaction to the vaccine components. Currently available mRNA vaccines do not contain the typical allergens – latex, egg white or yeast. Anaphylactic reactions occur rapidly (within a few minutes or a quarter of an hour) or not at all, making it essential to wait 15–30 minutes after vaccination under the supervision of medical personnel. It is important to stress that the risk of a severe anaphylactic reaction after vaccination is estimated at around 3 per million vaccinated persons, and it is obligatory for every vaccination center to be prepared, equipped, and trained to give immediate assistance in the event of such a reaction.

What next?

The first objective of the vaccination campaign is to reduce the number of illnesses, hospitalizations and deaths, and to free up the capacities of the healthcare system. Therefore, medical personnel and people who most often need a hospital bed and for whom the disease often has a tragic outcome – seniors – are getting vaccinated first. This measure alone should contribute to curbing the effects of the pandemic and allow at least a partial return to normality.

The second objective is to bring the number of new infections and illnesses down to a minimum. To achieve this, vaccinations will gradually be given to younger and younger people who are less likely to be severely affected by the disease.

The third goal, the complete eradication of SARS-CoV-2 from our environment, will probably not be attainable, because the virus has established reservoirs in the animal world – it is found in cats, mink and even deer. Full control of the spread of the virus in these reservoirs is unachievable. However, the fewer viruses circulating among humans, the lower the risk of new vaccine-resistant variants emerging.

Position Statement 12 2 March 2021

The New Normal – There Will Be No Quick Return to the pre-Pandemic World

What is a pandemic?

According to the classical definition, a pandemic is understood to mean to a situation when, in at least several regions of the world, the transmission of a certain pathogen is much more intense than in previous seasons, and the disease affects a large part of the global population. The use of the word is intended to serve as a worldwide mobilization to combat the disease. The World Health Organization (WHO) decides to declare the outbreak of a pandemic, or the end thereof, based on the recommendation of an expert committee. In the case of the previous pandemic – involving the new influenza A(H1N1) (known as "swine flu") – which lasted from 2009 to 2010, its end was declared when the total number of influenza cases dropped to pre-pandemic levels and outbreaks were no longer observed during the summer season. But although the end of the pandemic was declared, influenza A(H1N1) did not disappear, but rather took on the character of ordinary influenza.

Likewise, in the case of COVID-19, we do not expect to completely eradicate the disease. Rather, the objective is to reduce its incidence so as to be able to return to functioning as normally as possible in various branches of social life, the economy and education, whilst not disrupting the operation of the healthcare system. Already now it is clear that an essential condition for this "return" is the success of the vaccination program against COVID-19, at the local, national, and global levels.

Variability of SARS-CoV-2 virus forms

One of the key aspects that will shape the course of the pandemic is the emergence of new virus variants. Mutations of the SARS-CoV-2 virus are nothing surprising or unprecedented. They could, for example,

THANAKORN.P/SHUTTERSTOCK.COM

New coronavirus variants disrupt air traffic. Some flights are canceled due to border restrictions or placement of pilots and flight attendants under quarantine

ALEXANDROS MICHAILIDIS/SHUTTERSTOCK.COM

Vaccines must be transported and stored at required temperatures

mean new forms of the virus that spread easier or show lesser or greater virulence. As a rule, pathogens evolve to become better adapted to their main host. If that host is humans, strains that spread more easily among humans will begin to dominate. Also, although there is no rule here, adaptation may also involve decreased virulence, that is, new variants may cause a lighter course of the disease.

In the case of SARS-CoV-2, variants have already emerged that can spread faster than the original variant. This has already been shown with a high degree of likelihood for the so-called British variant (B.1.1.7, VOC 202012/01 or 20I/501Y.V1) as well as the so-called South African variant (20H/501Y.V2 or B.1.351). In the case of the UK variant, data suggest that the disease may have an even more severe course than the previously dominant variant. The easier spreading of the virus, and possibly its greater virulence, is bad news. It means that with the same restrictions, there will be more disease, greater need for hospital care, and higher mortality. It also means that the threshold for collective immunity increases. Instead of the previously estimated 60%–70%, it is above 80% for the new variants. Only by immunizing such a percentage of the population can it be guaranteed that, even if the virus does appear in such a population, the outbreak will die out naturally. Achieving such a high percentage of immunization with currently available vaccines is extremely difficult.

The timing of vaccination

Past experience with coronaviruses indicates that immunity achieved naturally or through vaccination declines over time. We already know that antibody levels decline, but we do not yet know the extent to which memory cells protect us. We also know that some people contract the disease again a few months after the first illness. In the case of seasonal coronaviruses, re-infection is common.

If post-vaccination immunity really only lasts one or two years, then vaccinations will have to be repeated. To interrupt the circulation of the virus, we should also all get vaccinated before those who were the first to get vaccinated start to lose immunity. The timing of the vaccination campaign is therefore important. It is also worth remembering that the greater the number of people vaccinated, the lower the risk of new variants of the virus emerging.

Data from clinical trials indicate reduced vaccine efficacy for the South African variant. This is consistent with laboratory experiments that suggest that strains showing increased resistance to current vaccines are selected for under antibody pressure. Circulation of the virus in a partially immunized population may therefore result in a more rapid dominance of strains resistant to available vaccines. Hence, monitoring of circulating strains and vaccine efficacy worldwide, as well as research on the mechanisms of emergence of new virus variants, are extremely important. Already, despite many uncertainties, vaccine manufacturers are investigating the possible need to develop new versions of vaccines and are preparing for their development. Should this prove necessary, we will quickly have new versions of vaccines available. In addition, there is much evidence that reinfections are milder than first infections. Perhaps, therefore, even partial immunity will protect us from a severe course of the disease in the future, even as new dangerous variants emerge.

For the time being, however, the majority of the population is not immune, and the prospect of full implementation of the vaccination program is still quite remote. The British and South African variants have already appeared in Poland. The experience of other countries indicates that the British variant is rapidly displacing the previous variants, so within a few weeks it is also likely to become dominant in our country.

The challenges of vaccine production and the vaccination program on the global scale…

Manufacturing vaccines on the scale currently needed poses huge logistical problems in itself – in view of not just production line capacity, but the availability of materials necessary for a mass vaccination program, such as syringes, and stabilizing substances necessary for vaccine manufacturing. Sufficient production of dry ice necessary for transporting mRNA vaccines, for example, is also important. Moreover, the companies that have developed the vaccines do

not have the capacity to meet worldwide demand. Therefore, appropriate partnerships and technology transfers to potential manufacturers in different parts of the world are needed. The WHO has already authorized vaccines produced under license by Astra Zeneca/Oxford in Korea and India. The company's agreements with manufacturers in Brazil, Argentina and Thailand have been made public. Johnson&Johnson has signed an agreement with manufacturers in South Africa, and Novavax has signed a contract with manufacturers in India. The companies whose vaccines have already been approved for use by the WHO (Astra Zeneca/Oxford, BioNTech/Pfizer, Moderna, Gamaleya, Sinopharm/Beijing Institute) state they can manufacture 8 billion doses by 2021, enough to vaccinate about 4 billion people. This is effectively the number of adults who currently say they want to be vaccinated against COVID-19.

However, the financial and logistical feasibility of organizing global-scale vaccination is in question. Vaccine prices currently vary quite significantly depending on the manufacturer and how the vaccine is obtained, ranging from less than a dollar to over twenty dollars per dose. This span of prices stems from technological differences, manufacturing costs, intellectual property costs, and company policies. Most of the companies have benefited from public grants on condition that prices are held down, at least until the pandemic is declared over. It is estimated that manufacturers have received more than $10 billion in public funding for COVID-19 vaccine development mainly from governments in countries such as the US, China and Russia and from the CEPI (Coalition for Epidemic Preparedness Innovations), in which European Union countries also participated.

CEPI, WHO, Gavi and UNICEF launched the COVAX initiative back in April 2020, aiming to develop a vaccine as soon as possible, but also to create a mechanism for allocating available vaccine doses between countries according to established criteria. According to the COVAX distribution model, the global vaccination program should proceed in phases. In the first phase, all countries would initially receive enough doses to vaccinate 20% of their population (mainly senior citizens, as a group particularly vulnerable to severe COVID-19). In this model, vaccine prices were also made dependent on national income. Thus, high-income countries would pay an average of $11 per dose, while middle- and low-income countries would pay between $1.5 and $2. However, this is dependent on subsidies from wealthy countries, and it is estimated that in order to deliver 2 billion doses by the end of the year, between $10 billion and $12 billion would need to be allocated by the end of 2021.

People waiting in line to receive COVID-19 vaccines in Kraków

ELZBIETA KRZYSZTOF/SHUTTERSTOCK.COM

An additional threat to global vaccine distribution is posed by the fact that many wealthy countries and the European Union are breaking away from the COVAX initiative – holding their own negotiations and entering into separate agreements with manufacturers. Currently, the most developed countries, home to about 16% of the world's population, have secured 70% of the five major manufacturers' vaccine doses for their populations, which they say will be available in 2021. Most of the doses secured by COVAX for the remaining countries are doses of potential vaccines still currently in clinical trials, meaning they will be available in the latter half of 2021 at the soonest. Globally, the lack of resources to put in place the infrastructure necessary to carry out vaccination programs could also be a major problem, especially given the deepening pandemic crisis. The continued presence of the virus in low- and middle-income countries is not only a matter of a deepening crisis and existing inequalities, but also means augmented migratory pressures and a greater risk of seeing further variants of the virus emerge.

…and on the national scale

At the national level, the organization and delivery of vaccines should be tailored to the real needs of the population, including geographical distribution. A lack of optimization in this regard causes long queues to form at some vaccination points, while there are vacancies at others – as has also been the case in our country. Having to wait for a long time or to travel to a distant vaccination center leads some individuals to forego getting vaccinated. In turn, reluctance to get vaccinated elsewhere increases the risk that some doses will be wasted. Given the limited supply of vaccines, this is a particularly acute problem. The vaccination distribution system should take into account both the number of residents per vaccination site and their geographic concentration. In more densely populated urban centers with relatively easy and fast access, distribution points need not be densely located but should be capable of handling large numbers of patients.

The most important link in the whole vaccination system is, and will continue to be, the doctors and nurses. Their skills and time are at a premium and should be put to best use. Wherever possible, vaccination logistics should benefit from economies of scale – the size and number of vaccination points should be organized to minimize the burden of administrative and other duties on medical staff, while ensuring the smoothest possible servicing of vaccinated persons. A well-organized vaccination system is one that will be able to rapidly increase its distribution capacity as soon as the availability of vaccines increases. However, bottlenecks are already evident while the number of doses is still very low. Many vaccination centers receive vaccines with long delays. Eliminating these bottlenecks in the vaccination system should be a priority – otherwise the problems will pile up and we will face even greater difficulty in matching more and more doses with more and more people willing to be vaccinated.

Privileges for the vaccinated?

The group of people already vaccinated is growing by the day, and with it the expectation that certain restrictions will no longer apply to them. However, it is important to look at the bigger picture. Most of us do not yet have the opportunity to become vaccinated, and will not have such an opportunity for a few months, or even more than a year. Hence, establishing special privileges for those already vaccinated before the completion of the vaccination program would exacerbate social inequities and thus could generate resistance to the vaccination order being followed and undermine confidence in the entire program.

In addition, doubts remain regarding the durability of the post-vaccination response, as well as the efficacy of vaccination against newly emerging variants. We must not succumb to a false sense of security. At this point, the main purpose of vaccination is to protect the groups most vulnerable to a severe course of the disease, as well as to increase the job security of key personnel who cannot shift over to remote work and whose illnesses would disrupt the functioning of society. Therefore, medical personnel have been vaccinated at Phase 0, in order to be able to do their jobs in relative safety. However, the situation may change when the availability of the vaccine increases and the outbreak is under better control. In our country, this will probably occur in Phase III of the National Vaccine Program. In this situation, it will probably be possible to introduce certain facilitations for vaccinated persons or, conversely, a requirement to be vaccinated in certain situations. This could provide an element of reward and encourage more people to get vaccinated. Given that some are still hesitant to accept the vaccine, this could be an important condition for a successful vaccination program. It will then be important to clearly stipulate what benefits vaccinated individuals can safely receive.

When is the risk of infection acceptable

The longer the pandemic lasts, the longer the associated restrictions to combat it remain in force, the wearier we become of them and the more willing we are to push the boundary of accepting more and more risk of infection. However, this is only to some extent a personal choice. The risk must not only be acceptable to someone who assumes that, since he has not fallen ill so far, then his or her risk of becoming ill is

DARSZACH/SHUTTERSTOCK.COM

Mobile vaccination site in Wrocław

low. Above all, the level of acceptable risk must be determined by the decision-makers responsible for the proper functioning of healthcare and the economy. With a high percentage of the population vaccinated and a low incidence of disease, it will be easier to prevent the further spread of the epidemic. Right now, when we do not know to what extent having previously contracted the disease or getting vaccinated protect against asymptomatic infections, it seems reasonable to keep in place rules that hamper transmission. For this reason, even vaccinated individuals should adhere to DDM principle (distance, disinfection, masks), especially when dealing with people in groups at risk.

Seeking innovations

The threat of the virus spiraling out of control is real. Fortunately, we already have vaccines and also a fair amount of knowledge at our disposal. However, the implementation of the vaccination program is lengthy and varies enormously on a global scale. All of this means that a complete return to the situation that existed before COVID-19 cannot be expected within the next few years.

And so, instead of waiting for the pandemic to end, we must all seek ways to live with the virus. This should involve not cyclically imposing unpredictable restrictions that damage the economy, education and social life, but rather creating new social norms that curb the possibility of the infection spreading. Given that the rules of social distancing will remain with us for the long term, we need to come up with forms of them that meet counter-epidemic requirements but at the same time allow us to function in a reasonably normal way. This is where there is room for innovative thinking on the part of the designers of, for example, means of public transport, public-use spaces, and ventilation systems. For a long time to come, we will have to practice isolation in the case of even mild symptoms of infection, and undergo testing or quarantine if it proves advisable.

There also needs to be a change in approach on the part of those in government – from crisis management to systemic management of the new reality, with expanded services able to continuously monitor the epidemic and improved systems of information and public communication. This involves moving away from public health as the only priority, and increasingly factoring in social and economic priorities. Consequently, broader interdisciplinary advisory groups are needed.

The public became mobilized in the face of the threat last spring. Now, however, we are increasingly facing the need for a long-term perspective. Returning to the pre-pandemic "normality" in the wake of SARS-CoV-2 may take longer than expected, and the coming years may bring new threats posed by other infectious diseases. We should prepare for this new normal that we be living in for a long time to come.

Position Statement 13 22 March 2021

Lessons from the Pandemic: Strengthen Health Care, Invest in Science and Education, and Build Trust

Since the outbreak of the pandemic, many breakthrough discoveries have been made, including the development of the COVID-19 vaccine, which has turned the containment of the pandemic into a realistic goal. In order to accomplish this goal, however, we must learn the lessons of what we have found out about the state and its institutions, as well as about ourselves.

We can already draw two fundamentally important conclusions. First of all, to tackle the challenges posed by the pandemic, we must have a robust health-care system and independent institutions responsible for collecting and analyzing data on epidemic threats, and we must invest in science and education. Secondly, we must strengthen solidarity in society so that its members follow the standards of safe behavior, work together, and take action for the public good.

Robust and independent institutions are needed

LESSON 1:

Invest in modern health care

The pandemic has laid bare the weaknesses and shortcomings of the health care system. If it had not been for extraordinary dedication on the part of medical professionals, the toll taken by the virus would have been far greater. The absence of strategic preparation, sudden organizational changes, staff shortages worsened by the pandemic, shortages of basic personal protective equipment and beds with ventilators and access to oxygen, significant reductions in the availability of non-COVID-19 care, and long wait times for health-care services all show that Poland's health system was and still is dramatically unprepared to deal with the pandemic and needs profound reforms.

In the short term, improving the functioning of the health system requires better planning and communication in hospital management. In the long run, it will be necessary to increase the number of medical professionals and provide adequate funding. Today, public funding for health care accounts for about 4.5% of GDP. This is not enough. The EU average is nearly 8% of GDP, with such countries as Germany and Sweden spending over 9% of their GDPs. Underfunded health care means a low quality of life for citizens. Health-care services are not a bottomless pit, but one of the best investments in the prosperity of the state and the well-being of its citizens.

LESSON 2:

Build professional and independent expert institutions in the field of public health

The pandemic has also exposed the weakness of epidemic prevention and control institutions, including staff shortages, as well as insufficient organization and management of data on infections. Acutely felt examples include the lack of adequate research and

DARSZACH/SHUTTERSTOCK.COM

The pandemic necessitated setting up many temporary hospitals. The photograph shows a hospital in Wrocław

DZIUREK/SHUTTERSTOCK.COM

Physical education during the pandemic

modern epidemiological models dedicated to the needs of public health. In this respect, many countries have independent public health institutes. For this reason, the emergency management system in Poland operated without access to necessary information and without a long-term strategy. It is necessary to establish a network of independent and interdisciplinary expert teams or institutions that would provide reliable analyses for public health purposes. Such a system of independent experts and institutions improves the monitoring of the authorities by the public and ensures that the actions being taken are transparent and rational. Recommendations made by independent experts and scientists as well as representatives of universities and research institutes should therefore be a permanent element of the state's activities taken in response to and during epidemics.

LESSON 3:

Provide experts with access to data

Administrative resources and research data should be made available in a structured manner with clear policies on their usage, optimally in the form of a public repository. Such resources require data quality control, effective management, and coordination. The scientific community and those responsible for IT systems in health care should work together to find a suitable solution. Source data and research findings should be made available to the public. Professional data collection and transparent access policies would make it possible to use the experience and knowledge of external experts.

LESSON 4:

Invest in science and education

The pandemic has made us see the importance of science and decisions based on the results of scientific research. For this reason, scientific research, especially in the area of public health, should be treated as a priority and should receive adequate funding. It is likewise necessary to take action to build confidence in science, for example through clear communication of research findings to the public. Also, the public must be made aware of the fact that scientific knowledge is constantly evolving, and discussions and disagreements are something normal and beneficial in the world of science, because they bring us closer to the truth. The pandemic has made us aware of the importance of education for the proper development of humans and society. The adverse psychological and educational effects of long-term school closures on children and adolescents may be very serious and last much longer than the pandemic itself. They will most likely affect the public's mental state and competences in the future. Experts agree that school closures should be the last measure to be adopted, after other restrictions are implemented. The pandemic has also demonstrated that the weakness of Polish school lies in the curriculum overload, the rigid system of education, and the focus on the conveying of information. The Polish education system has been unable to cope with the pandemic, and this fact has an adverse educational impact on children. Education is the foundation of today's knowledge-based economy.

ALEKS333/SHUTTERSTOCK.COM

During a pandemic, an important role is played by the disinfection of high-touch surfaces in common areas, such as buttons in elevators and door handles

A solidarity-based society is needed

LESSON 5:
Build trust

People must trust institutions and one another and the government must trust society for a success to be achieved not only in the fight against a pandemic, but in the conditions of any crisis. The competence of the government authorities and public institutions, in turn, is the key condition for building this trust. "Politicizing" the virus, taking action to deliberately create conflicts, showing arrogance, and ignoring the rules imposed on the rest of society have all led to the fact that the second wave of COVID-19 infections in the fall had such tragic consequences in Poland. We did not even get a passing grade on this test, and we are about to face a third wave. The less people trust the recommendations formulated by the government institutions, the worse the expected outcome of the fight against the pandemic. Separating the debate about the pandemic and the decisions made by public administration bodies from ongoing politics will help to increase trust. We should monitor the actions of politicians and vote for those who are able to keep health care and current politics separate.

LESSON 6:
Work together for the common good

Other people are important for each of us to function well. They not only satisfy our need to belong, which is important for all of us, but also serve as a source of values, self-esteem, and inspiration. Our lives are fuller thanks to others. We should nurture the relationships we have with others and look after others. In this way, we can also look after ourselves. The pandemic has also taught us that working together is important in every sphere of our lives. In the economic sphere, it is necessary to formulate fair rules for the distribution of protective equipment and vaccines. In the political sphere, we need involvement in the development of fair solutions in the EU and across the globe so that national and global goals complement each other. In the social sphere, individual protective efforts will not be effective if others ignore them. Only together can we defeat the virus. This also means that we should look after the underprivileged, minority groups, and those at risk of social exclusion to a greater extent than before. During the pandemic, we have learned how much depends on our behavior, even if institutions are ineffective. We can eliminate many uncertainties and threats by strictly following the recommendations, mostly by acting in keeping with the simple rule known as DDM (distance, disinfection, and masks). But we must show solidarity in these actions – in the interests of not only all of us as a group but also each of us individually. For example, this means that "free riding" is not worth it – we should not think that it is enough if others get vaccinated, because this means that we will be safe as well. If many people think this way, no one will be safe.

LESSON 7:
Learn to live with the pandemic

The COVID-19 pandemic will stay with us for a long time to come. We must learn how to live with the virus and stay safe. We should therefore create innovative solutions in the public sphere. Based on what we know today, the COVID-19 vaccine offers effective protection against symptomatic COVID-19 infections. In order to prevent the transmission of the virus, we may be required to keep appropriate social distance for a long time. Therefore, those who construct, design, and organize public life should find innovative solutions regarding means of transportation, public institutions, and personal protective equipment that will allow compliance with epidemic prevention and control recommendations without being overly burdensome for social life. Enormous European resources available under the recovery fund should support such innovations.

LESSON 8:
Make political choices with long-term goals in mind

The pandemic has highlighted the weaknesses in society, leadership, and state institutions. Now is the time to learn our lessons. Failure to do so will cost us dearly in the future. We should engage in a debate on such important issues as health care, education, and science. We should evaluate politicians and their platforms based on concrete proposals to improve the situation in these spheres of public life.

Position Statement 14 19 April 2021

The Morality of Vaccination – On Vector Vaccines

In the early months of 2020, when the news spread about an outbreak of the dangerous new respiratory disease COVID-19, hundreds research teams began a race against time to develop an effective and safe vaccine. Many of their attempts failed or were abandoned due to insufficient efficacy or safety, or on account of organizational difficulties.

However, several vaccines have already successfully passed rigorous clinical trials and have been approved for use by specialized agencies such as the European Medicines Agency (EMA) and the US Food and Drug Administration (FDA). Several more are likely to gain approval for use in the coming months. Those already approved include "vector vaccines," which are created from inactivated human or animal viruses.

In the case of COVID-19, vector vaccines were created based on adenoviruses (DNA viruses that cause mild symptoms in humans, such as in the respiratory system), from which the genes forming key elements of the pathogen have been removed. In their place, a fragment of DNA has been inserted, allowing for the production of the S protein of the SARS-CoV-2 virus. Such an artificial and defective virus – which cannot multiply in our tissues or cause disease – is known as a vector, i.e. a carrier that delivers to the cells of a vaccinated person the matrix for the production of S protein and, as a result, prepares our immune system for contact with the SARS-CoV-2 virus. This is how the AstraZeneca and Johnson & Johnson vaccines work.

To be able to produce such vaccines, it is necessary to use cells specially prepared in the laboratory. Adenoviral vector elements are produced inside such cells, allowing for their mass replication. The result is a ready vaccine that is effective, yet safe and does not pose a risk of disease. Without such cells, this process would not be possible.

In recent days, controversy has arisen over this particular stage of vector vaccine production. Virtually

TOMASZ WARSZEWSKI/SHUTTERSTOCK.COM

An anti-COVID-19 march in Łódź

JESSICAGIRVAN/SHUTTERSTOCK.COM

London, 17 October 2020. A protest of opponents of lockdown measures

all advancements in molecular biology, immunology and modern medicine have been based on tools created by nature. Even molecular or antigenic testing for SARS-CoV-2 would not be possible without the use of viral (reverse transcriptase) and bacterial (DNA polymerase) enzymes and human proteins (antibodies). Similarly, a large portion of drugs are actually produced not by machines, as one might think, but rather by cells or by whole organisms.

In the case of vector vaccines against COVID-19, a key element is the use of human cells for producing the vectors. All cells used in the production of such vaccines originally come from humans and vary depending on which organ they were taken from and the age and sex of the donor. The cell lines used in the production of COVID-19 vaccines are HEK293 and PER.C6. Both lines were derived decades ago (in 1973 and 1985) from embryonic tissues obtained after abortion.

In this context, we would like to point out the following about the AstraZeneca and Johnson&Johnson vaccines:

- **First, the cells from which the HEK293 and PER.C6 cell lines were derived were collected decades ago and have been cultured in the laboratory since then.** The abortions were not performed specifically to harvest the cells – rather, tissue fragments were taken following a procedure that would have taken place regardless. The use of these cells does not in any way affect abortions currently performed or promote abortion.
- **Second, the vaccine itself does not contain HEK293 and PER.C6 cells, just as drugs produced by bacteria or fungi do not contain fragments of these microorganisms.** The cells serve only as bioreactors, responsible for a certain stage in the production of the vaccine. The preparation is then purified of any biological contaminants. This is one of the steps that is subject to strict scrutiny by numerous institutions, including the EMA.
- **Third, the vaccine saves lives.** COVID-19 entails a very high risk for all of us, including pregnant women.

Appeal on vaccinations

We strongly urge taking a rational approach to vaccination. Advocating against getting vaccinated with vectored vaccines at a time when we are seeing several hundred deaths a day from COVID-19 is irresponsible and means consenting to thousands of deaths and severe complications from the disease.

Position Statement 15 11 May 2021

The Impact of the COVID-19 Pandemic on Selected Minority Groups in Poland

People with disabilities, care home residents, refugees, migrants, and those experiencing homelessness account for a total of over 20% of Polish society. The impact of the COVD-19 pandemic on these groups will last significantly longer than the epidemic risk itself. For this reason, their problems should be urgently addressed by decision makers.

COVID-19 has affected the whole of society. However, the effects of the pandemic are not the same for everyone. For example, people with disabilities, especially care home residents, refugees, migrants, and finally those experiencing homelessness encounter additional difficulties during the pandemic. In addition to being excluded from the mainstream of public life, these people face problems that often escape the attention of decision makers and attract little interest from the media and the public. Despite being typically treated as minorities, such people account for a total of over 20% of Polish society, forming an integral part thereof. Their situation, which was already difficult in the normal times, became even more acute during the pandemic. The pandemic has not only laid bare all the weaknesses of the system of support for such individuals, but also created completely new problems. By looking at the problems experienced by such people, we can see more clearly the problems affecting the whole of society – from the sidelines, we can sometimes see more, also the things that are by no means "marginal" (Kapralski, 2008).

We still lack systematic research showing, in a comprehensive way, the situation of such people during the pandemic. In this position statement, we refer mainly to qualitative data that we have collected by interviewing experts familiar with the situation of each of these groups.

In order to maintain at least some level of methodological standardization in our analysis, we asked all experts four fundamental questions (about the size of each group, about the impact that the pandemic has on their members, about their lives during the pandemic, and about the demands that they have in connection with the pandemic). Obviously, however, the interviews were not limited to those issues.

We do not claim to present a full picture of the impact of the pandemic on these communities, but we do want to draw public attention their problems and highlight the need to work out measures that will counter the long-term adverse impact of the COVID-19 pandemic on these communities.

FOTEMA/SHUTTERSTOCK.COM

Downtown Warsaw, September 2020. Volunteers giving out food to individuals experiencing homelessness

WAVEBREAKMEDIA/SHUTTERSTOCK.COM

During the pandemic, the Deaf have been unable to benefit from medical consultations over the telephone. Their social contacts are additionally limited by the fact that masks prevent lip-reading

Obviously, our analysis does not cover all the minority groups that have been affected by the pandemic. When selecting them, we were guided by three crucial criteria.

- **First of all**, we wanted to focus first of all on large and easily recognizable groups.
- **Secondly**, we chose groups whose problems are similar enough to be addressed jointly.
- **Thirdly**, we selected groups that also have specific problems requiring distinct individual solutions, and the failure to notice such issues condemns these groups to marginalization and exclusion.

As a result of applying these three criteria, we focused on analyzing the situation of the following groups.

People with disabilities

There are several reasons why the pandemic has had a particularly severe impact on this group.

- **First of all, the issuance of decisions on disability and inability to work was temporarily halted,** which translated into delays in the payment of welfare benefits.
- **Secondly, the operations of rehabilitation and care facilities was suspended**. Some people, including many of those who live in public nursing homes, have not left their homes for over a year. Very few of them can continue to work remotely, but they have no family or social contacts, nor do they have ongoing access to rehabilitation and rehabilitation holidays, which are essential for their health.

People with intellectual disabilities and their families or caregivers are affected especially severely by this confinement within the four walls of their homes. Every day of such deprivation of stimuli and opportunities for therapy means that individuals with intellectual disabilities **are losing the life skills that they have spent years acquiring.**

The situation is further worsened by the fact that such people often do not understand the dangers posed by the epidemic or the related safety measures. Other problems are experienced by the deaf, who **cannot benefit from medical consultations over the telephone**, and their social contacts are additionally limited by the fact that they cannot lip-read through masks, which exacerbates their incomprehension and confusion.

- **Thirdly, information exclusion has proved particularly problematic for people with disabilities**, which often results from the absence of communication tools (such as messages intended for the deaf) that would allow them not only to engage in social interactions but also to work and learn remotely.

The European Disability Strategy 2010–2020 promotes the transition from institutional to community-based care. If properly implemented, especially during the pandemic, this approach would offer people with disabilities an opportunity to become fully included in public life and would guarantee respect for their fundamental rights.

In addition, deinstitutionalization would eliminate most of the problems that people with disabilities are grappling with during the pandemic. As has been the case with the current pandemic, however, smaller centers and public-benefit organizations might be then left without guidelines and support from state institutions.

Refugees and migrants

The COVID-19 pandemic has exacerbated the problems faced by refugees and migrants in Poland and partially created new phenomena. However, systemic problems related to the lack of migration policy in Poland (the document regulating the national strategy in this respect was repealed on 18 October 2016) have proved especially acute during the pandemic.

Key problems

The most important problems faced by refugees and migrants in Poland during the pandemic were:

- **no access to the refugee procedure** and the temporary closing of border crossing points,
- **protracted legalization procedures**, which prevent such individuals from, for example, taking up legal employment,
- **the job market crisis**, which meant that many foreigners had no means of subsistence, lost their places to live, and had no access to welfare benefits,
- **information exclusion**, with no access to hardware, a lack of computer skills, and not speaking the language.

- **no access to remote education for the children of foreigners, or difficulties in obtaining such access** (a lack of computers, software, and hardware; a lack of network access; a lack of support; the language barrier making it difficult to understand messages; and a lack of ICT skills on the part of parents) and the related sense of marginalization, growing threats to the physical and mental development of such children and their integration into society,
- **a failure to adapt refugee centers to meet quarantine and isolation needs.**

An enormous role in countering the effects of the pandemic on the situation of refugees and migrants in Poland is played by NGOs. However, it is currently essential not only to support these organizations, but also to create systemic solutions focused on mitigating the impact of the COVID-19 pandemic on the situation of refugees and migrants.

People experiencing homelessness

People experiencing homelessness function in very different spaces, including homeless shelters, non-residential sites (vacant buildings, allotment gardens (działki), basements, trash dumps, and so on), and public spaces. In each of these spaces, the pandemic has created different difficulties and different risks.

A great challenge is posed by efforts to ensure the continued operation of assistance centers in the conditions of the risk posed by the epidemic. Such centers are run almost exclusively by NGOs. In the first months of the pandemic, they were forced to operate without guidelines and budgets for epidemic prevention and control. Like other facilities mentioned above, shelters are not suited to the conditions of isolation, so providing assistance is risky both for those who use such facilities and for their staff.

Likewise, the pandemic has not been without influence over those among people experiencing homelessness who do not stay in shelters. Reduced mobility of people in cities meant that those who relied on handouts were deprived of subsistence means. In the first months of the pandemic, intervention facilities (soup kitchens and night shelters) were closed, and they have yet to return to operating at full capacity.

Since soup kitchens and night shelters were temporarily closed, those staying in public spaces or non-residential areas were deprived of places to live and to eat. For many months, those employed at intervention facilities and social workers continued to help those in need without epidemic control and prevention support and despite the fact that they were not included in the National Vaccination Program.

The people and organizations that aid individuals experiencing homelessness are urging measures that chiefly involve:

- **drafting pandemic response guidelines** for shelters and social workers,
- **providing medical services to social workers and their families** (tests, vaccinations, medical assistance),
- **increasing the capacity of homeless shelters** and adapting them to the needs of those who need care (disabled or ill individuals),
- **taking steps to counter information exclusion.**

In light of the difficult situation in the job market, the scale of homelessness will presumably grow in coming years. Therefore, now is a good time to take action to support homeless shelters, the NGOs that aid people experiencing homelessness, and nursing homes.

Summary

The population affected by the COVID-19 pandemic in Poland comprises many groups, including communities that remain on the periphery of Poland's general policy towards the fight against the pandemic. These groups are grappling with common problems that make it difficult for them to face the risks associated with the pandemic. These are:

- **limited access to information about the pandemic** due to language or financial barriers,
- **limited access to health care**, including prevention and rehabilitation services,
- **support facilities not suited to meet pandemic requirements** (these include therapy centers, refugee centers, shelters for people experiencing homelessness, centers for those struggling with addiction, public nursing homes, child-care and education centers) and the absence of epidemic

Kraków. Christmas Eve dinner for people experiencing homelessness

WJAREK/SHUTTERSTOCK.COM

DZIUREK/SHUTTERSTOCK.COM

Lubin, June 2020. A soccer game of KGHM Zagłębie Lubin vs ŁKS Łódź. Viewers include people with disabilities

prevention and control procedures and financial resources to implement the requirements imposed over time in response to the epidemic,

- **limited financial support** received by NGOs that aid such people,
- **no adequate educational support for children** from such groups,
- **rising unemployment and poverty**.

In addition to the minority groups mentioned here, there are other people who have been adversely affected by the pandemic. These include those struggling with drug addiction, patients in various types of therapy centers, residents of public nursing homes, child care centers, and education centers, people experiencing domestic violence, and non-heteronormative individuals.

The pandemic has hindered the operations of the facilities that aid individuals from these groups. The better these facilities are prepared to provide their services during the pandemic, the more limited the real, psychological, and health-related costs will be for both for those who benefit from such services and for those who work in such centers.

In the case of non-heteronormative individuals, another problem is posed by the need to stay in what is often a hostile family environment and by exposure to violence. In addition, such people have been targets of political attacks and hate speech during the pandemic, which increased their level of stress and gave rise to a range of psychological problems.

A more detailed discussion of each of these groups and their problems goes beyond the scope of this position statement. However, we feel that the impact of the pandemic on these communities will last significantly longer than the epidemic risk itself. For this reason, their problems should be urgently addressed by decision makers.

It is already clear that:

- The response to additional difficulties created by the pandemic should involve **helping local governments** to implement measures that support the groups of citizens that are affected by the pandemic to the greatest extent.
- **Involving NGOs and volunteers** is crucially important for the mitigation of the effects of the pandemic and the exclusion of people from minority groups. Hence, it is necessary to support their activities with funding for epidemic prevention and control investments (such as adapting facilities to quarantine requirements), tests as well as support and protection of social workers (including social "streetworkers").
- **Education is needed**, and so are care educational tools adapted to people with special needs (educational materials available in different languages and support for teachers who provide remote education to students with special needs).
- Work needs to be done to **counter the information and digital exclusion** of people from minority groups.
- It is crucial to support those who have been particularly severely affected by the pandemic **in the context of mental health risks.**

Social distancing poses a greater risk for minority groups, because their lives and functioning are heavily dependent on frequent and close interpersonal contacts. If they are unable or do not know how to observe restrictions and limitations for various reasons, they turn into easy targets for SARS-CoV-2.

Let us remember that each of us will be fully safe from the COVID-19 threat only when all of us are safe.

We are thankful to the experts from the Office of the Polish Commissioner for Human Rights for their materials and contribution to this position statement:

- experts from the Office of the Human Rights Commissioner – **Kamila Dołowska, Jolanta Nowakowska, Joanna Subko, and Monika Wiszyńska,**
- **Tomasz Przybyszewski** of the Integration Foundation,
- **Piotr Bystrianin** of the Rescue Foundation,
- **Maria Złonkiewicz** of the Polish Hospitality Foundation,
- **Janina Ochojska** of the Polish Humanitarian Action,
- **Adriana Porowska** of the "Camillian Mission" Association,
- **Karol Grygoruk** of the Foundation "Heart of the City,"
- **Magdalena Ankiersztejn-Bartczak** of the Social Education Foundation,
- **Artur Malczewski** of the National Bureau of Drug Prevention, and
- **Paweł Moczydłowski**.

Sources

Biuro Rzecznika Praw Obywatelskich, *Czy mieszkający w Polsce cudzoziemcy mogą zaszczepić się przeciwko Covid-19?* [Can foreigners living in Poland get vaccinated against Covid-19?] (2021) https://www.rpo.gov.pl/pl/content/cudzoziemcy-szczepienie-covid-19-faq-11-lutego-2021

Borowska, B., Kotyniewicz, K., *Petycja środowiska osób niesłyszących* [Petition by the Deaf Community] (2020) https://www.pzg.org.pl/2020/03/petycja/

Cope, B., Keryk, M., Kyliushyk, I., *Sytuacja ukraińskich migrantek w Polsce w czasie COVID-19* [The Situation of Ukrainian Migrant Women in Poland in the Times of Covid-19] (2021). https://bit.ly/3sNTwtd

Crowley N., *Equality in the Time of Covid-19: Learning from Equality Body Initiatives* (2021). https://bit.ly/3IiUi6b

Daniłowska S., Gawska A., *Praca a koronawirus. Czy osoby z niepełnosprawnością stracą pracę?* [Labor and the Coronavirus: Will Individuals With Disabilities Lose Their Jobs?] (2020). https://bit.ly/3ENI4jJ

European Commission, *Delivering on the coronavirus global response – an EU humanitarian air bridge* (2020) PE DEVE – COVID update 5 Annex – Report on EU HAB (15 December 2020).

Gardocka T., Jagiełło D., *Pandemia COVID-19 a prawa i wolności obywatela* [COVID-19 Pandemic in the Light of the Law and Civil Liberties] (2021). Series: Monografie Prawnicze.

Kotyniewicz K., *Apel do mediów* (2020). https://www.pzg.org.pl/2020/03/apel-do-mediow/

Kurowski K., Białek I., et al., *Potrzebujemy skoordynowanych działań. Osoby z niepełnosprawnościami piszą do premiera* [We need coordinated action: People with disabilities write to the Prime Minister] (2020). https://bit.ly/3pND8qQ

Malczewski A., *Przeciwdziałanie uzależnieniom a pandemia COVID-19 w 2020 roku* [Addiction prevention and the COVID-19 pandemic in 2020] (2021). https://siu.praesterno.pl/artykul/705

Malczewski A., *The impact of the COVID-19 epidemic on drug services, drug users and drug market in Poland – findings of the rapid situation assessment* (2020). https://bit.ly/3FN1lnZ

Miżejewski C., Bugalska A., et al., *List otwarty do Prezydenta RP i Prezesa Rady Ministrów w sprawie wsparcia prac nad strategią rozwoju usług społecznych i zdrowotnych oraz procesu deinstytucjonalizacji w Polsce* [Open letter to the President of the Republic of Poland and the Prime Minister on supporting the work on a strategy for the development of social and health services and the deinstitutionalisation process in Poland] (2020). https://bit.ly/3pMesyX

OECD, *The impact of COVID-19 on student equity and inclusion: Supporting vulnerable students during school closures and school re-openings* (2020). https://bit.ly/3sR8RJC

PFRON (State Fund for Rehabilitation of the Disabled), *Działania związane z epidemią Covid-19 podejmowane przez pracodawców zatrudniających osoby niepełnosprawne* [COVID-19 related measures taken by employers of disabled people] (2020). https://bit.ly/32WLZxn

Pisula E., *Percepcja sytuacji pandemii, deklarowane zachowanie i symptomy lęku oraz depresji u osób dorosłych ze spektrum autyzmu w początkowej fazie pandemii COVID-19* [Perceptions of the pandemic situation pereption, reported behaviour and symptoms of anxiety and depression in adults on the autism spectrum during the initial phase of the COVID-19 pandemic] (2021). https://bit.ly/344OiPi

Ujházyová M., Waerniers R., The role of equality bodies during the Covid-19 pandemic (2021). Report on discrimination prepared by EQUINET. https://bit.ly/3FRLxyU

UNICEF, A checklist for UNICEF staff on factors to consider when planning COVID-19 education response. https://uni.cf/3JzSJSn

United Nations, *Policy Brief: COVID-19 and the Need for Action on Mental Health* (2020). https://bit.ly/3pMyIjM

United Nations, *Policy Brief: Education during COVID-19 and beyond* (2020). https://bit.ly/3zh2Kzp

United Nations, *Rights of persons with disabilities* (2021) Human Rights Council. https://undocs.org/en/A/HRC/46/27

Wolska D., *Subiektywna jakość życia w ocenie osób dorosłych z niepełnosprawnością intelektualną aktywnych zawodowo – przed i w czasie pandemii* [Subjective quality of life as assessed by economically active adults with intellectual disabilities – before and during the pandemic]. https://bit.ly/3EGskPi

Zawadka J., Plewko J., et al., *Problemy studentów Uniwersytetu Warszawskiego ze specyficznymi trudnościami w uczeniu się podczas nauczania zdalnego związanego z epidemią COVID-19.* [Problems of Warsaw University students with specific learning difficulties during distance learning related to the COVID-19 epidemic] https://bit.ly/3qJWtYS

Position Statement 16 28 June 2021

Between One Wave and Another – The Current Lull Should Not Cause Us to Relax Our Vigilance

It is our behavior that will determine how severe the fourth wave of COVID-19 infections will be and whether it will paralyze the health-care system. Therefore, the current lull should not cause us to relax our vigilance.

What will the fourth wave be like?

Since mid-May 2021, we have watched the third wave of the pandemic fade away in Poland, with a significant drop in COVID-19 infections, hospitalizations, and deaths. This situation is due to not only to recent severe social contact restrictions, but also to the growing number of vaccinated individuals.

The weather is favorable: it's warmer, so we are spending a lot of time outdoors and making sure that indoor spaces are ventilated frequently. Social and economic life has largely returned to normal: schools, restaurants, sports facilities, and cultural institutions have reopened, and the limits on the number of guests for social gatherings and events are very high.

The Poles are starting to hope that the pandemic is ending for good. However, we should be prepared for a much more difficult scenario. **In Poland, the re-opening of the economy and the resumption of social life combined with insufficient vaccination rates and the appearance of a new and more contagious variant of the virus may contribute to a surge in the pandemic, thus triggering a dangerous fourth wave of infections.** First detected in India, this more contagious variant, called the Delta variant, has already become dominant in such countries as the UK, and it is beginning to spread among our population.

It is our behavior that will determine how severe the fourth wave will be and whether it will paralyze the health-care system. Therefore, the current lull should not cause us to relax our vigilance.

The dangerous Delta variant

Studies of the Delta variant show that it is more contagious than the Alpha variant (also called the British variant), which dominated the third wave of infections in Poland in March and April 2021. The Delta variant is estimated to be up to twice as contagious as other variants, so it can completely dominate the variants previously circulating in a given population in a matter of two months. In the UK, the Delta variant is now responsible for 90% of new infections and has caused the number of new cases detected there to rise fivefold in less than four weeks.

At the same time, the number of COVID-19 hospitalizations and deaths in the UK remains stable and very low, which results from relatively high vaccination rates. In the UK, 65% of the population have had at least one vaccine dose (compared with 44% in Poland), and over 48% (versus 33% in Poland) have been fully vaccinated (data as of 26 June 2021). This also results from the fact that most older people (aged 60+) in the UK have already been vaccinated. The disease continues to spread, but its death toll is now much lower. Unfortunately, the situation in Poland may look a lot more dramatic.

Data indicate that the Delta variant mostly strikes those who have not been vaccinated – they account for more than two-thirds of all new cases. By contrast, those who are fully vaccinated remain highly immune. Being fully vaccinated significantly reduces the risk of illness and very significantly reduces the risk of hospitalization in those who have contracted the disease. This has been shown by studies conducted by Public Health England / UK Health Security Agency for the viral vector vaccine (AstraZeneca) and the mRNA vaccine (BioNTech/Pfizer). There's much to indicate that the same will hold true

On 6 June 2021, the government eased restrictions. Weddings could be attended by up to 150 people (compared with the previous limit of 50)

MARGY CRANE/SHUTTERSTOCK.COM

for other vaccines that have been granted marketing authorization.

There is also a growing number of studies showing that even if vaccinated individuals become ill, they are considerably less likely to infect those they live and interact with on a daily basis than those who have not been vaccinated.

What can we do to protect ourselves and our loved ones?

The Delta variant is already present in Poland. The first isolated cases were recorded in late April. Currently, this variant already accounts for several percent of all infections, and it's spreading at a growing rate. We can assume that in September it will become the dominant variant in the whole of Poland. **Its high contagiousness combined with the re-opening of the economy and low full vaccination rates (especially in at-risk groups) means that the Delta variant poses a much greater danger to Poland than to such countries as the UK. The Delta variant in Poland may prompt new lockdowns.**

Whether we succeed in limiting the transmission of the virus and therefore avoid a severe fourth wave of infections depends largely on our behavior in the coming weeks. For this reason, we appeal to everyone to observe a few simple rules:

1. **Meet outdoors** with large groups of people; avoid closed spaces and crowds.
2. Postpone attending and organizing meetings until all participants are fully vaccinated – vaccine availability is now high in Poland, so everyone can book a vaccine appointment in just several days.
3. Remember to ventilate indoor spaces regularly. Wear a mask in the presence of unvaccinated people or if you're not sure that everybody around you has been vaccinated, for examples in stores, at work, or at church.
4. Make sure you and your loved ones become fully vaccinated this summer. Acquired immunity will help us avoid a severe fourth wave of infections and prevent schools, stores, restaurants, hotels, theaters, museums, movie theaters, and churches from being closed again. Vaccines are currently available to everyone over the age of 12. In order to stop the transmission of the Delta variant and avoid new lockdown measures, children and adolescents should be vaccinated before they go back to school. Act now to make sure that your children are vaccinated.
5. Rest and take care of your mental health. Staying in good condition and mentally resilient will help you to cope better with the fourth wave of the pandemic.
6. Choose your holiday destinations carefully, avoiding those where the number of infections is on the raise (to avoid problems with returning home) and above all those characterized by the presence of more contagious variants of the virus. When the virus travels long distances, it does so inside our bodies – let's not make it easier for it to reach Poland.
7. Get tested as soon as possible even if you only have mild symptoms. The epidemiological situation is currently good, and it can be maintained by carrying out tests, isolating those who have been infected, and quarantining the unvaccinated individuals who have had contact with the virus. Diagnostic tests are a necessary first step to effectively monitor the status of the pandemic, including detecting and controlling the first outbreaks of the new variants of the virus. Falling ill may spoil individual holiday plans, but a failure to control the pandemic more generally will necessitate renewed nationwide restrictions that will affect everyone.

We appeal to the local authorities, local communities, and local organizations, such as rural women's associations, parish communities, and the Voluntary Fire Brigades to support and promote the vaccination campaign and ensure easier access to vaccination sites for the elderly. If you've had a vaccine because you're convinced this is the right choice, try to persuade others to do the same during the summer vacation.

This summer, we have a unique opportunity to learn from the past experience in the fight against the pandemic. We know that the highly contagious Delta variant is already present in Poland, and we can't rule out the emergence of other new variants. We should not repeat the mistake we made a year ago and believe that the virus is in retreat. We have a year of experience more, with science and vaccinations being on our side in the fight against the virus. What our summer and autumn will look like depends on our own actions.

ELZBIETA KRZYSZTOF/SHUTTERSTOCK.COM

On 15 May 2021, restaurant gardens reopened. Two weeks later, all restaurants were allowed to receive guests indoors

Position Statement 17 20 July 2021

An Appeal Regarding the Upcoming 2021–2022 School Year

We call for the vaccination of school children, mandatory vaccinations for school staff, and the observance of the rules concerning distance, disinfection, and masks (DDM). This is the only way to avoid remote learning in the 2021–2022 school year.

In the Position Statement "On students returning to school in 2020,"[1] which we published on 19 August 2020, we wrote that "we recommend introducing mandatory mask-wearing for staff and at least older children in all schools." We also recommended delegating teachers to specific classes, creating bubbles of students that would have no contact with one another, airing all rooms, and following disinfection procedures.

However, those appeals were received with reluctance, sparking off questions and doubts. How could we suggest that children should wear masks? How could classes be taught in such conditions? In September 2020, there was no requirement to wear masks at school. Consequently, the issue soon became moot when schools shifted to remote learning in reaction to COVID-19 outbreaks that largely resulted from the failure to introduce proper preventive measures.

Recommendations for the new school year

A year has passed. The 2021–2022 school year is about to begin. We already know how much damage is done to children by long absence from school and lack of contact with other students and with teachers. We wrote about this in the Position Statement "Implications of the COVID-19 pandemic for the mental health and education of children and adolescents"[2] dated 25 January 2021 (published in English on 29 January 2021).

We are about to face an impending fourth wave of infections (we wrote about this in more detail in the Position Statement "Between one wave and another – the current lull should not cause us to relax our vigilance"[3] dated 28 June 2021 (English version – 9 July). Having in mind the experience gained fighting the pandemic over the past year and a half, what can we do today to prevent the situation we witnessed last year from happening again? Should we add more demands to the appeal we made last year?

We again appeal for the wise opening of schools. In particular, we should introduce proper preventive measures, starting from wearing masks, airing rooms, and following disinfection procedures to delegating teachers to specific classes and dividing students into groups that will have no contact with one another. After each lesson and before returning to the staff room, teachers should carefully wash their hands, just as surgeons do before surgery.

In addition, we have new ways to prevent schools in the times of the pandemic from posing a great danger to students and their loved ones and causing the epidemic to spread.

We call for the highest possible vaccination rates among school staff. Unvaccinated teachers and members of support staff should be removed from direct involvement in the functioning of schools during the pandemic, especially during surge periods.

We also urge the widest possible promotion of COVID-19 vaccines among students. Vaccines are already available to all those who are at least 12 years of age. We hope that the European Medicines Agency (EMA) will soon approve the use of vaccines for younger children.

AGUNG BAYU/SHUTTERSTOCK.COM

Bali, Indonesia, October 2021. Students wearing face shields and masks sit individually at spaced out desks. Around the same time, students in Polish schools were being required to wear masks only outside the classroom

[1] See Position Statement 2 in this publication, p. 9
[2] See Position Statement 10 in this publication, p. 30
[3] See Position Statement 16 in this publication, p. 52

Let us remember that we can protect ourselves effectively against COVID-19: we have vaccines, which protect adults, adolescents, and children. If a child cannot be vaccinated, it is necessary to create a "buffer of immunity" around such a child through what is called "ring vaccination," i.e. vaccines should be given to the parents of the child and the people that the child meets on a daily basis. In particular, such measures should apply to middle-aged and elderly individuals and those with underlying diseases such as diabetes, cancer, cardiovascular disease, and heart disease.

Some children and adolescents have already benefited from vaccines for those aged between 12 and 18. We already know that nearly 900,000 vaccines have been administered to members of this age group. However, this group comprises almost 2.2 million individuals, which means that 4.4 million doses are needed to vaccinate all of its members. Consequently, the vaccination rates in this age group are not very good. Both parents and their children deserve praise for receiving vaccines. However, the vaccination rates in this age group are very far from satisfactory.

It must be stressed that some individuals under 18 years of age are at risk of developing very severe COVID-19, and vaccines save their lives and health. These include children with such diseases as diabetes, chronic respiratory diseases, obesity, or hypertension. Another group that has great significance from the epidemiological perspective is formed by children who have frequent contact with elderly people, especially those with multiple diseases – children who live in multigenerational households, are under the care of their grandparents, or simply visit them.

In the case of the vaccine approved for use in individuals over 12 years of age (Pfizer–BioNTech), full protection is achieved at least two weeks after they receive their second dose. It is therefore important that vaccinations start immediately – the sooner the better!

Vaccines will make schools much safer places and allow them to operate normally. If the next wave of infections becomes severe, necessitating hybrid learning (a mix of in-person and online learning), unvaccinated school children should above all stay at home.

Regular coronavirus tests

We also call for regular testing for SARS-CoV-2. Such tests do not have to be overly burdensome for students and school staff. Rapid mass tests should be enabled in schools, and antigen tests are recommended for those with any cold or flu-like symptoms. Such tests are relatively inexpensive and allow the detection of most infections. They should be carried out at least once a week, and preferably twice a week.

Alternatively, we should consider pool testing. Researchers from the PAS have already implemented with success one of the possibilities of such group diagnostic tests.[4] With pooled testing, every student and member of school staff should give their saliva samples once a week. That is all. The samples should be tested as soon as possible, and no later than on the next day. In this way, we can detect infected individuals and outbreaks in schools. All infected individuals and their family members should be isolated and placed under quarantine.

TOMASZKUDALA/SHUTTERSTOCK.COM

Elżbieta Witek, speaker of the Polish Sejm (lower chamber of parliament), at the ceremony marking the start of the school year 2021–2022 in a school in Częstochowa, 1 September 2021

An appeal to caregivers and teachers

Anyone who has been onboard a passenger plane knows the rule that should be followed in emergency situations, when oxygen masks drop. If you are sitting next to a child, you put your own oxygen mask on first and then help the child. During the pandemic, many caregivers have already received their vaccines, staving off the threat that the children they look after will be left without their care. Now the time has come to vaccinate children – for now those aged 12 or older and hopefully soon also younger children.

We call for the vaccination of schoolchildren, mandatory vaccinations for school staff, and the observance of the rules listed above in schools. This is the only way to avoid remote learning in the 2021–2022 school year and protect children and adolescents from its long-term adverse consequences, so one year from now we will not be forced to consider for the third time how to make schools safe for children and adolescents.

[4] *Puls Medycyny*, "Instytut Nenckiego PAN: testy grupowe na koronawirusa działają bez zarzutu" [The Nencki Institute of Experimental Biology, Polish Academy of Sciences: SARS-CoV-2 pool tests work flawlessly], https://pulsmedycyny.pl/instyt-utnenckiego-pan-testy-grupowe-na-koronawirusa-dzialaja-bezzarzutu-1102337

Position Statement 18 29 July 2021

Public Communication During the Pandemic – Transparency and Responsibility

We call for the establishment of an institution in Poland whose role would involve constantly monitoring impending health threats, communicating them to the public, and providing information about how to address them. The institution should have a multidisciplinary team of experts operating independently of the government and receiving permanent funding. The opinions and recommendations of the experts should be made directly and publicly available.

In March 2020, at the very beginning of the pandemic, a vast majority of the Poles listened carefully to the health minister's announcements and were prepared to follow his guidelines. Soon, however, the Poles began to ignore government decisions. In May 2020, only one in four Poles trusted the government to fight the pandemic effectively. This result gave us the last place in the trust ranking among the EU countries (Eurofound, 2020). After a year and a half of the pandemic, a significant portion of the Polish public believes that the pandemic is a conspiracy of politicians or major pharmaceutical companies, the virus poses no threat, and vaccinations are harmful to health (CBOS, 2021). This has led to a widespread disregard for sanitary rules and epidemic restrictions as well as to aversion to vaccination.

Inconsistent statements on the issue of the pandemic made by government officials have contributed to this change in public attitudes. In addition, coronavirus skeptics and anti-vaccination movements have turned out to be well-heard and well-organized, whereas the voices of experts have been relatively poorly audible. Some of the communication problems have also resulted from deliberate propaganda and disinformation measures intended as a means to political ends for those in power and other interest groups that want to spread conspiracy theories and destabilize society (OECD, 2020).

Under the circumstances, the public has been exposed to inconsistent yet relatively powerful messages of an irrational nature that call into question scientific facts. All this has caused us to lose the potential to fight the pandemic in a way that would minimize health-related, social, psychological, and economic costs. Such mistakes continue to be made, which shows that the efforts to encourage the Poles to get vaccinated lack effectiveness.

The role of independent expert centers

Judging by the manner of providing information about the pandemic so far, we could get the impression that in Poland it is politicians who know best how to fight the coronavirus. The prime minister-affiliated Medical Council has been operating since November 2020. Unlike in other countries, however, it was set up on an ad hoc basis, and the records of its meetings are not publicly available. This is doing nothing to increase trust.

In many countries, the pandemic-related issues are addressed by independent research centers: national public health institutes (such as the Robert Koch Institute in Germany and Public Health England in the UK) or advisory groups (such as the Scientific Advisory Group for Emergencies, or SAGE, in the UK). In addition, there are also specialized agencies at the European Commission level such as the Joint Research Center, the Group of Chief Scientific Advisors, and the European Centre for Disease Prevention and Control (ECDC).

These are all permanent institutions and advisory groups, as opposed to ones set up in response to a crisis, so they have experienced experts and specialized knowledge. They are a permanent part of the institutional order, and they operate independently of the government. It is these institutions that work out key recommendations based on current scientific data. Such recommendations are public yet not binding upon the authorities. It is experts from such centers that have the mandate to spread knowledge about the pandemic, and they are as a rule trusted by people.

Communicating uncertainty

Some of the communication problems encountered by the authorities result from the fact that it is difficult to inform the public about something that is new, previously unknown, and is changing rapidly. Hence the mistakes, ambiguities, and messages that leave the public disoriented and erode trust in official information. Effective communication in crisis situations must be particularly well-planned, based on the best knowledge of experts, consistent, responsible, and honest. Communicating the pandemic-related uncertainties in a skilled way is crucially important.

KRYSTIAN MAJ/KPRM

A remote meeting of the Medical Council

Uncertainty about facts and decisions is an inherent part of scientific knowledge, including knowledge about SARS-CoV-2 and COVID-19. The state of our knowledge is invariably open to revision as we witness the emergence of new data, methods, technologies, and contexts. We have experienced this throughout the pandemic. Such changes should be treated as something natural. However, the public finds it hard to accept uncertainty because it sparks anxiety and negative emotions. Therefore, it is very important to openly communicate uncertainty, which means providing information about what is currently known, what remains unknown, and what may change.

Communicating risks

The purpose of risk communication is to improve public understanding of the nature of the threats, their level (for example, the likelihood of negative consequences), and the steps that should be therefore taken. Effective risk communication should consist of four stages.

1. Stage one involves identifying what people should know to take appropriate steps when faced with a given threat. Here, it is crucial to collaborate with experts who have the most up-to-date knowledge about the disease and its course.
2. Stage two involves establishing what people think about the threat, how they perceive it, and how they make their decisions.
3. Stage three is about creating the message that will be conveyed to the public (here, it is important to identify the discrepancies between expert knowledge and naïve beliefs, adjust the form of the information to the public's knowledge and cognitive competence, and make sure that the message is comprehensible).
4. In stage four, it is crucial to monitor whether the message has the intended effect.

Every message, no matter what it pertains to, should always be clear, simple, and consistent, and any change in relation to the previous message should be properly justified. Many of the problems associated with risk communication have their origin in stage two, or the failure to properly identify people's beliefs and opinions on a specific issue. The message should be formulated in a way that takes into account the specific characteristics of the group to which it is addressed. Different groups have different fears and related beliefs about the pandemic and its causes, as well as coping methods.

Fake news on the Internet

Social media such as Facebook, Twitter, Reddit, and YouTube have become a primary source of information about health for people around the world (Cinelli et al., 2020). According to the OECD's 2020 report on COVID-19 disinformation, about one in three people were exposed to false information about COVID-19 on social media and took such information seriously.

The research cited in the report also demonstrates that disinformation is a lot more widespread than information about the disease that come from reliable sources such as the World Health Organization (WHO) and the ECDC.

For this reason, combating disinformation, or false information spread intentionally to mislead the recipi-

13_PHUNKOD/SHUTTERSTOCK.COM

Social media popularity contributes to public disinformation

ents, has been identified by the European Commission and WHO experts as one of the most important tasks in the fight against the pandemic.

In response to the pandemic, some Internet platforms have taken steps (Tech Transparency Project, EUvsDiSiNFO, EU DisinfoLab) to reduce the spread of false and misleading information about COVID-19. Examples include:

- automatically pointing users to official sources of information about COVID-19;
- highlighting, making publicly available, and prioritizing content from reliable sources;
- removing offers containing false or misleading reviews of products that prevent or treat COVID-19; and
- offering the authorities free advertisements on the topic of COVID-19.

Public authorities should work with these platforms as well as focus their efforts not so much on denying false opinions (studies show that such interventions are barely effective) as on protecting social media users from their influence. For the achievement of this goal, it is important to:

- monitor social media to identify fake news that is gaining popularity on the Internet and preparing responses,
- take regular surveys of reactions to ongoing disinformation to identify emerging misconceptions,
- identify and educate members of local and online communities who could spread crucially important true information (such as employers, directors, religious leaders, and student governments).
- reinforce positive social norms (community norms),
- allow public communication experts to become involved in the information process at the stage of formulating messages.

Summary

Mistakes in the information policy pursued so far have caused many people in Poland to ignore the threat posed by the pandemic and to refrain from getting vaccinated against SARS-Cov-2. Professional, transparent, responsible, and honest communication is crucially important in the fight against the pandemic. We recommend following the example set by many countries and taking action in the following areas: expert advice, education of the public, and the inclusion of its members in the fight against the pandemic through broad public consultations.

It is crucial to:

- set up a body of experts or strengthen a specialized institution, both of which should be independent of the government and receive permanent funding,
- take firm steps to hold accountable those in positions of public trust (doctors, scholars) who openly deny the basic principles of science and the current state of knowledge,
- work out a crisis communication strategy that includes close collaboration with experts from specialized research centers,
- work out strategies to address various types of disinformation (both fake news spread intentionally to destabilize the country and false information resulting from ignorance) and support initiatives aimed at raising the level of digital competence among members of the public,
- introduce knowledge about public health into the school curricula to promote from an early age proper pro-health attitudes, the ability to critically assess health information, and methods of coping with health crises. Examples include the British initiative introducing Personal, Social, Health, and Economic Education as a curriculum subject in primary schools.
- develop dialogue between experts, decision makers, and the public by supporting independent science journalism and science popularizers.

Sources

Bruine de Bruin, W., & Bostrom, A. (2013). *Assessing what to address in science communication. Proceedings of the National Academy of Sciences*, 110 (Supplement 3), 14062 LP – 14068.

Cinelli, M., Quattrociocchi, W., Galeazzi, A. et al. The COVID-19 social media infodemic. *Sci Rep* 10, 16598 (2020).

Eurofound (2020), *Living, working and COVID-19 dataset,* Dublin.

OECD (2020). *Combatting COVID-19 Disinformation on Online Platforms.*

Position Statement 19 2 August 2021

A Voice on the Issue of Mandatory SARS-CoV-2 Vaccinations

Vaccinations are an essential tool to effectively and safely limit the spread of COVID-19, its consequences, and its costs. For this reason, it is necessary to urgently consider introducing mandatory vaccinations for selected groups and in selected situations.

Over almost a year, SARS-CoV-2 vaccines have been one of the main topics of public debate. In administrative terms, they are completely voluntary, which means that getting (or refusing to get) a vaccine is a decision made by the patient. In Poland, the costs of voluntary vaccinations are essentially borne by patients. SARS-CoV-2 vaccines are an exception to this rule – the patient pays neither for the vaccine nor for the administration procedure. Such a solution has been adopted for reasons related to the important interests of the state and the high risk that COVID-19 poses to the health of each of us.

In the Polish legal system, there are also mandatory and much more frequent vaccinations: for children and adolescents (rubella, mumps, measles, tuberculosis, polio, tetanus, *Streptococcus pneumoniae*, whooping cough, and so on), individuals at a particularly high risk for infection (such as the hepatitis B vaccine for medical professionals), and post-exposure vaccines (for example, against rabies). As a rule, mandatory vaccinations are available for free. In the case of these vaccinations, the obligation to get vaccinated arises from a ministerial regulation. The doctor's role in determining the eligibility of patients is limited to ruling out contraindications, including those listed in the product characteristics of a given vaccine.

An administrative obligation, in turn, means that a patient who fails to comply with the legal provisions will be fined, just as a driver who does not stop at a red light. An obligation does not mean coercion. In the current epidemiological situation, physical coercion measures can only be lawfully used to enforce isolation or quarantine.

Until recently, introducing the obligation to get vaccinated against SARS-CoV-2 in the situation of vaccine shortages (and even rationing) were unjustified. However, this situation has changed in recent months, and access to vaccines is now practically unrestricted. The efficacy and safety of SARS-CoV-2 vaccines authorized for use by the European Medicines Agency (EMA) no longer raise any doubts in

TOMASZKUDALA/SHUTTERSTOCK.COM

On 23 December 2021, the Polish Minister of Health issued a regulation on mandatory vaccinations for health professionals and university students studying to become medical professionals

GABRIEL PETRESCU/SHUTTERSTOCK.COM

Vaccinations of health professionals in Bucharest

the scientific world. More than one billion people in the world have already received vaccines, including 17 million fully vaccinated Poles. We are now waiting for the EMA's decision authorizing the use of vaccines in children aged 0–11 years, pregnant women, and immunocompromised individuals.

COVID-19 vaccines have gone through an extremely rigorous testing process. No other vaccine has ever been studied, monitored, and commented on so intensively and in such great detail. In the light of the ongoing fight against the pandemic, it would be unrealistic and irresponsible to further wait for a vaccine that is 100% effective against all variants of SARS-CoV-2 and free from any vaccine reactions. Let us not be deceived by various individuals who are spreading doubts and peddling pseudoscientific theories. There is, as yet, no possibility of treating COVID-19 at home, and ordering people to stay at home as a preventive measure is troublesome and very expensive.

Expecting a new wave of COVID-19 infections, we should consider introducing mandatory vaccinations against SARS-CoV-2, at least for those at a particularly high risk of infection. It stands to reason that this obligation should apply first of all to medical professionals, for the same reasons why members of this group were among the first to be offered vaccines ("group zero"). It is likewise worth noting and appreciating the maturity, responsibility, and professionalism of Polish doctors – approximately 90% of them have already received their COVID-19 vaccines.

In addition, we should consider mandatory vaccinations for other professional and social groups that are of key importance for the functioning of the state during the pandemic (the Armed Forces, police, fire brigades, and teachers) or at a particularly high risk for SARS-CoV-2 infection for reasons related to their direct contacts with customers (such physiotherapists, hairdressers, mail carriers, beauty salon employees, and so on). These topics require urgent debates and decisions. One clear epidemiological argument in favor of mandatory vaccinations is the ongoing pandemic along with its high costs and long-term consequences, associated with reduced access to health care and the prospect of closing for example workplaces, schools, universities, churches, cultural institutions, and recreational facilities.

Mandatory vaccinations imply limiting personal liberty. Nevertheless, we should remember that the unfettered liberty of an individual ends where the individual starts to pose a threat to others. To put it openly and bluntly, when it comes only to the financial aspect of keeping vaccines voluntary for all, if it is obvious that vaccine refusals cause additional expenses, resulting from the burden placed on health care and lockdown measures, should those who consciously refuse to receive free vaccines not bear the cost of these losses, which are after all deliberately caused by them? If a vaccinated patient has been waiting for many years for a scheduled surgery (ocular, oncological, orthopedic, cardiac, and so on), will he or she want to continue to wait, while hospitals treat those who deliberately expose themselves to the risk of infection and its sequelae?

Imposing an obligation is a means used by the state to achieve important societal goals: universal education is possible thanks to the obligation to go to school, the efficient functioning of the state is possible thanks to the obligation to pay taxes, and so on. Mandatory COVID-19 vaccinations will protect the public and the state from the dangerous consequences of the COVID-19 epidemic: numerous deaths among COVID-19 patients, excess deaths among those suffering from other diseases, and the serious socioeconomic consequences that may be caused by the need to implement various lockdown measures. It is sad that we are now forced to recall the old slogan "there is no freedom without solidarity" and reiterate that brotherhood should go hand in hand with freedom.

At the beginning of 2020, the pandemic was an unexpected disaster of a global reach. Today, we have a readily available and well-tested tool to effectively extinguish the pandemic at the level of the country, provinces, and municipalities. Vaccinations remain an essential tool to effectively and safely limit the spread of COVID-19, its consequences, and its costs. For this reason, it is necessary to urgently consider introducing mandatory vaccinations for selected groups and in selected situations.

Position Statement 20 6 September 2021

A Call for Urgent and Consistent Implementation of VMT Procedures in Schools: Ventilation, Masks, Testing

As the new school year begins, the COVID-19 outbreak is once again gaining momentum. We are in the early stages of a fourth wave, and the vaccination rate among society is still too low to stop it. Questions remain: How high will this wave surge, and how many people will as a result face the delayed effects of an initially mild illness? How many will struggle with respiratory failure in hospital wards, or finally, how many lives will it take? Only urgent and decisive action taken right now can minimize the effects of the fourth wave. Every day of delay will translate into human tragedies.

In Poland, 50% of the population has already been vaccinated. Between the ages of 12 and 18, 24% of children have been vaccinated. Among their parents, relatively meager success has been achieved after months of campaigning to promote getting vaccinated. For example, the share of vaccinated individuals among those aged 25–49 stands at 30% in the Podkarpackie Province, 31% in the Lubelskie Province, 33% in the Świętokrzyskie Province, and 34% in the Warmińsko-Mazurskie Province. Thus, it can be assumed that the vaccination drive among school-aged children in these provinces will not yield results that might significantly lower the degree of pupils' susceptibility to infection with DELTA SARS-CoV-2. The highest vaccination rates in the same age category can be found in the Mazowieckie Province (50%), followed by the Wielkopolska Province (46%) and the Dolnośląskie Province (45%). The level of vaccination rates is therefore very different in different regions of the country. We should sound the alarm especially in areas where the vaccination level is relatively low. There, the fourth wave, whose main infectious factor will be DELTA SARS-CoV-2, may have particularly dangerous consequences for the functioning of schools and of course also for the health of those in them.

Schools are particularly likely to see a surge in SARS-CoV-2 infections in the fall, as we already know that previous variants of the virus, which were less infectious than DELTA SARS-CoV-2, did affect children and adolescents. Serological testing methods

HALFPOINT/SHUTTERSTOCK.COM

It is estimated that 40% of children and adolescents were infected with SARS-CoV-2 even before the summer vacation, some of them being asymptomatic

STUDIO ROMANTIC/SHUTTERSTOCK.COM

Starting from 7 June 2021, vaccinations could be administered to children of at least 12 years of age and, starting from 14 December 2021, to children aged 5–11

have shown that more than 40% of children and adolescents had already experienced a SARS-CoV-2 infection before the summer vacation period began. So far, they only rarely presented COVID-19 symptoms, so it has mostly gone unnoticed.

With DELTA SARS-CoV-2, this situation may be changing. Infection with this virus variant spreads particularly easily in confined spaces with large groups of people and is more likely to cause severe symptoms. With this variant, children may be more severely infected and more likely to develop cases of pediatric inflammatory multisystem syndrome (PIMS, MIS-C). Children may also transmit the infection to parents, siblings, grandparents, and friends. A similar source of infection may be school staff, especially those who are unvaccinated – which means about 20% of them. The effect of the end of the summer vacation period was also observed last year. Therefore, it is certain that the start of school classes for 4.5 million pupils will also bring a significant increase in the intensity of the epidemic this year.

The campaign to vaccinate school-aged children is not slated to intensify until the third week of September, which means that its effects will make themselves felt near the end of November. In the absence of a vaccine approved for children under 12 years of age and the lack of compulsory vaccination for children over 12, only non-specific prophylactic measures can be applied in schools: room ventilation, masks, testing, social distancing, and disinfection.

DELTA is a variant of SARS-CoV-2 slightly different from earlier ones. It is spread more by the airborne route and less by the droplet route, so the priorities for individual prevention efforts should be somewhat different than before.

First of all, intensive ventilation of school rooms, even at the cost of children and teachers having to function in warmer garments at school on particularly cold days. Ideally, the windows should be kept open or distinctly ajar during lessons. A constant influx of fresh air dilutes virus-contaminated air and means that infections do not occur so easily.

The second thing we strongly recommend is the wearing of masks. However, it is important that masks should be worn correctly – with the mouth and nose covered. Moreover, masks should be replaced twice a day with new or clean ones, and used disposable masks should be disposed of at school after the ear-straps are properly cut.

A third extremely important practice should be to ensure that even in the case of the mildest cold symptoms (fever, the appearance of a runny nose) the pupil will remain at home or be sent home. We also recommend that rapid, certified antigen tests be donated to schools. This will allow testing of students who have even minor symptoms or have had contact with people with the infection. Rapid tests could be used here. Perhaps group tests using saliva samples (e.g., Sonar Anti-CoronaVirus) could also be used in schools for testing. These are less disruptive and less expensive. Adherence to the above principles is what seems most important to us at this time.

In UK schools, among the relevant recommendations, ventilation has been given first priority, post-contact testing second, and masks third. In South Korea, strict rules of conduct are followed in schools: temperature checks at school entrances, rigorous ventilation of the premises, a rule of maintaining a distance of at least 1 m between persons. Masks are to be worn at all times while in school, except when eating a meal, which is to be done in silence.

In France, on the other hand, the work of schools has been planned according to the following rules: masks are changed twice a day and provided by the school; hand hygiene is obligatory; sports and other activities requiring contact without a mask are cancelled; masks are obligatory on the way to and from school, on public transport and at bus stops.

These are just three examples from among many. Everywhere, the functioning of schools in the traditional form is recognized as a priority value. We have already written about the costs of remote learning in our Position Statement 10: "Implications of the COVID-19 pandemic for the mental health and education of children and adolescents," which we released on 25 January 2021 (English version 29 January). We stand by the conclusions of that position statement and make an even stronger appeal for applying the principles outlined above in schools: Ventilation, Masks, Testing (VMT). We should also not forget in schools to observe an appropriate distancing between people, to wash our hands as often as possible and to disinfect surfaces.

Position Statement 21 16 September 2021

Broader Data Access Crucial for the Fight Against the Pandemic to Be Effective

Strategic decisions made without proper data and analysis may not only be ill-guided but can also have severe consequences. This is especially true in crisis situations, such as the current COVID-19 pandemic. Data should be harnessed more broadly not only by decision-makers but also by researchers – the more quality data is available, the more likely the phenomena under study will be properly understood. Amid an epidemic crisis that can only be overcome by sensible behavior on a societal scale, ensuring wider data access for journalists and citizens is of key importance. In this position statement, we analyze how the available data can be more fully harnessed during the COVID-19 pandemic.

Data during the pandemic

Highly aggregated data on infections, hospitalizations, and deaths, as well as interventions such as testing and vaccination, is needed for tracking the evolution of the pandemic on an international scale and assessing the effectiveness of different prevention strategies. These objectives are served by global data repositories such as Worldometer, Our World in Data, or COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University, which use such modern technologies as automated retrieval of web-published data. Access to these repositories is open to the public, but they contain only general information.

Decision-making at the local, national, or regional level requires more detailed information, such as which age and occupational groups are getting infected, whether there are local outbreaks, which groups are at risk of severe disease, or what the vaccination status is of those who get sick.

Such information is collected as part of epidemic surveillance systems. Additional data is also generated by systems that support administrative processes, such as the isolation, quarantine, and test-order support systems. This constitutes a particularly rich resource when combined with other administrative data, for instance, information on employment status, marital status, parental status, etc. In Poland, however, only basic statistics on COVID-19 incidence are publicly available, and for a long time, even these have been published in a format difficult to download and use.

A separate category consists of data generated by the use of new digital technologies. This includes mobility data from cell phones and phone apps that track contacts made and quarantine compliance, or apps where one can document symptoms and, for example, order a SARS-CoV-2 test. Some of this data is held in the private sector, and some parts of it has been made publicly available, such as the COVID-19 Mobility Reports. Data collected by public applications, on the other hand, is hardly ever made available to the public.

During this pandemic, additional funding has been allocated to research aimed at understanding the virus itself, the pathophysiology of the disease, the routes of transmission, the social processes involved, and the broader consequences of the pandemic. Some of this data has been shared with other researchers. There have also been initiatives to create repositories of data obtained through publicly funded research projects, but these are so far quite few in number and limited to narrow topics or disciplines.

Global research ventures such as the Rapid-Response COVID-19 Project (PSACR) are also good examples here. The purpose of the activities included in this project is to conduct rigorous international research dedicated to understanding the psychological and behavioral aspects of the COVID-19 crisis. The advantage of such an effort is the large scale of data collected, which not only increases the reliability of the results obtained but also provides excellent opportunities for cross-cultural comparisons.

In Poland, many researchers are pursuing work on various aspects of COVID-19, but their work addresses fragmented issues, is conducted on a small scale and in isolation from other researchers. A lack of coordination, cooperation and established habits of sharing ideas and information hinders the harnessing of the existing research potential in Poland and significantly reduces the importance and rank of the results.

In summary, there is a great deal of data that is being collected on an ongoing basis during this pandemic. This includes epidemic data, administrative data, data from research projects, or data from users of apps and different services. While these types of data are being used by the decision-makers, they are not being used to their full potential. Combining

administrative resources would allow, for example, for the incidence of COVID-19 in selected occupational groups to be studied, the severity of the disease in patients with comorbidities to be gauged, or hospitalization rates among vaccinated and unvaccinated individuals to be compared. If we could integrate epidemiological data with psychological or social data, we could also better understand the influence that non-medical factors have on the development and course of the disease.

Making more databases available to researchers would provide a unique opportunity to capitalize on the scientific community's interest in the pandemic. Moreover, perhaps better evidence-based administrative decisions could be made on the basis of their in-depth analyses. Access to data would also allow for verification and increase the credibility of sensible government decisions aimed at fighting the pandemic.

Health data is sensitive data, so when it is shared, pains must be taken to ensure that it is fully anonymized and that no individual can be identified. It is also important to note that while it may not be possible to identify an individual using the original dataset, its combination with additional information may allow for the identification of that person. The more information included in a data set, the higher the risk of identification of an individual. Therefore, the sharing of personal data must always be considered from this perspective and must be subject to specific rules.

A culture of data reuse

Many data repositories have been established during this pandemic. One worthy of note is the data collected, aggregated, and published by the European Centre for Disease Prevention and Control (ECDC). ECDC is indeed a good example here, as much of the data collected by this institution is made freely available for use for any purpose. However, access to potentially sensitive detailed personal data is only granted on the basis of a specific request from researchers, in which the scope of the data requested and the research objectives are precisely defined. This procedure allows for transparency in the data collection and sharing process and at the same time makes it possible to use data from all over Europe to undertake research work.

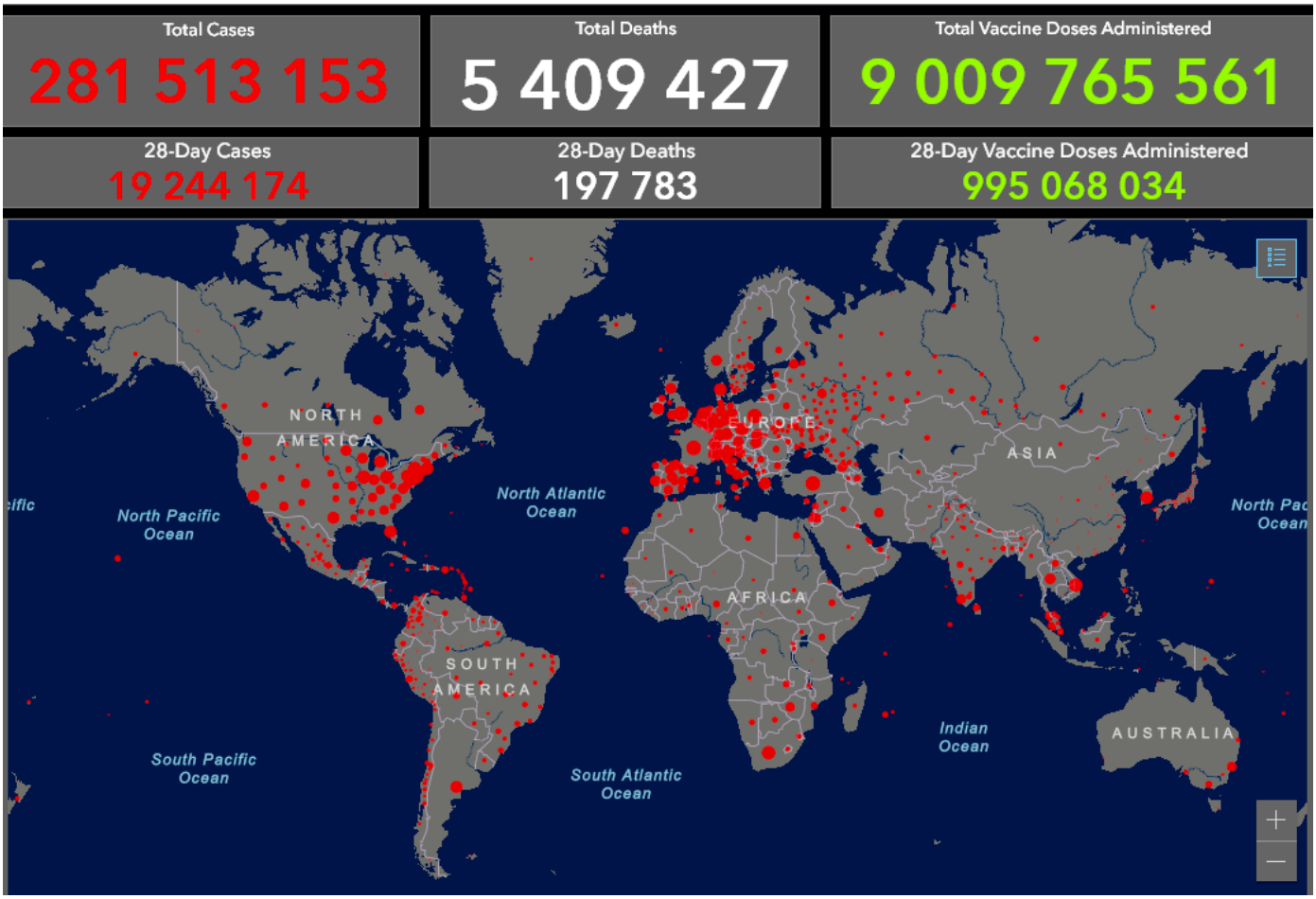
This aspect should be taken into account already at the stage of database design; this helps to ensure a transparent and efficient process of accessing data, in particular administrative data from public registers. It is also necessary to designate an institution responsible for providing this access. During work with complex databases, when it becomes necessary to integrate data from different sources, non-standard operations to prepare the dataset for research may be required. Consequently, a team of professionals who are familiar with the structure of these resources may be needed to prepare that data for further analyses. Currently, COVID-19 records are kept by several institutions in Poland (the e-Zdrowie government health portal, Chief Sanitary Inspectorate, National Institute of Cardiology – National Research Institute, National Institute of Public Health – NIH – National Research Institute), and data is exchanged between these registries. However, rules for the possible sharing of data for research have not been set out, and there is no designated institution to take charge of this process.

At the same time, there usually are many limitations on using secondary data from administrative sources, and these limitations should be taken into account during data analysis. Knowledge of the data acquisition process is important for both working with registry data and data acquired from regular research and experiments. Thus, the process of secondary data analysis requires detailed knowledge of the data collection process. When working with more complex data sets, collaboration with the institutions responsible for data collection is required. We suggest that it may be established as a good practice for data to be published along with its description as a separate publication (a "data paper"), focusing more on the data itself than on the conclusions drawn from it. The role of such a publication would also be to secure recognition for the data collection process itself. Understanding this process and verifying data consistency should be one of the objectives of the institution responsible for the data sharing process.

Recommendations

Fostering a culture of making data widely available is likely to help instill confidence in the decisions of the government, which is crucial in dealing with the pandemic. Therefore, we recommend the following:

- making as much detailed data as possible publicly available, free of charge and without registration. Such data should be available to the media, businesses, and to the general public. A sustainable platform that would allow for the visualization of data, as well as retrieval of up-to-date data in a form that allows for its further analysis, needs to be created and maintained. This will require a clear identification of the acceptable level of detail in data sharing, in compliance with personal and sensitive data protection laws.
- providing far greater access to administrative and research datasets for the purpose of conducting secondary analyses on COVID-19. To share these resources securely and make datasets more widely available, it is necessary to create a suitable infrastructure; that includes establishing transparent rules for data sharing and, very importantly,



Current COVID-19 statistics are available on such websites as https://coronavirus.jhu.edu/map.html

appointing an institution to be in charge of this process. The policies for data sharing should be developed in collaboration with the scientific community and data protection specialists.

- establishing a specialized independent entity to maintain a research data repository, particularly data from population-based social surveys on attitudes and behaviors observed during the pandemic. This unit could also serve to coordinate the acquisition of such data to allow for an independent trends assessment.
- broader sharing of research findings Scientific publications, while very important, nevertheless take time to appear. Time is of the essence during the pandemic, when it is important to share key findings as soon as possible. In our Position Statement 18 on public communication during the pandemic, we highlighted the critical role of independent institutions and expert groups. Such panels could also provide a forum for discussion on research findings that have not yet been published.
- participation in international initiatives dedicated to data resources available to both researchers and businesses. Providing open access to information resources is seen as a long-term development direction, and is part of the European Strategy for Data. This strategy introduces the principle of open and free use and distribution of data sets that come from public registries and publicly funded research, and emphasizes the need to establish fair and clear rules for access to these data. It is also necessary to invest in infrastructure, including pan-European infrastructure, and to ensure that the data-generating institutions have the right powers, tools, and skills. In accordance with this strategy, the European Commission, in cooperation with scientific communities, has taken the initiative to establish the European Open Science Cloud, in which the Polish National Science Centre takes an active part. In a few years' time, the European Cloud will be a virtual environment that will offer accessible services of storing, managing, analyzing, and reusing research data, which will be shared among different scientific disciplines and the EU Member States. Still, further work is needed in this area.

Position Statement 22 8 October 2021

A Third Dose – Is the Third Time Indeed the Charm?

The virus and its variants

The SARS-CoV-2 pandemic has been with us for nearly two years now. Over this time, it has had several unexpected turning points. Even the initial phase of the epidemic appeared frightening to us and took a deadly toll in many countries. However, the virus keeps mutating. In the winter of 2020–2021, the world faced a pandemic wave caused by the Alpha variant. In the late spring and early summer, however, a new and more contagious variant (B1.617.2, called Delta) became responsible for nearly 100% of cases.

In 2020, an infected person transmitted the virus to an average of 2–4 people; a person infected with the Delta variant infects 4–8 people. For this reason, a much higher threshold of herd immunity is required to extinguish the disease, namely 80–90% (up from 60–70%) of the population with immunity acquired after receiving a vaccine or after recovering from a previous infection. A similar phenomenon of increased transmissibility was witnessed during the Spanish flu pandemic back in 1918.

It is now well documented that virus pathogenicity and the immune response to an infection largely depend on the patient's age. We may be witnessing the birth of a new member in the category of "infectious diseases associated with childhood," one that is highly contagious, but a primary infection in children or adolescents is typically associated with a relatively mild course.

Vaccinations

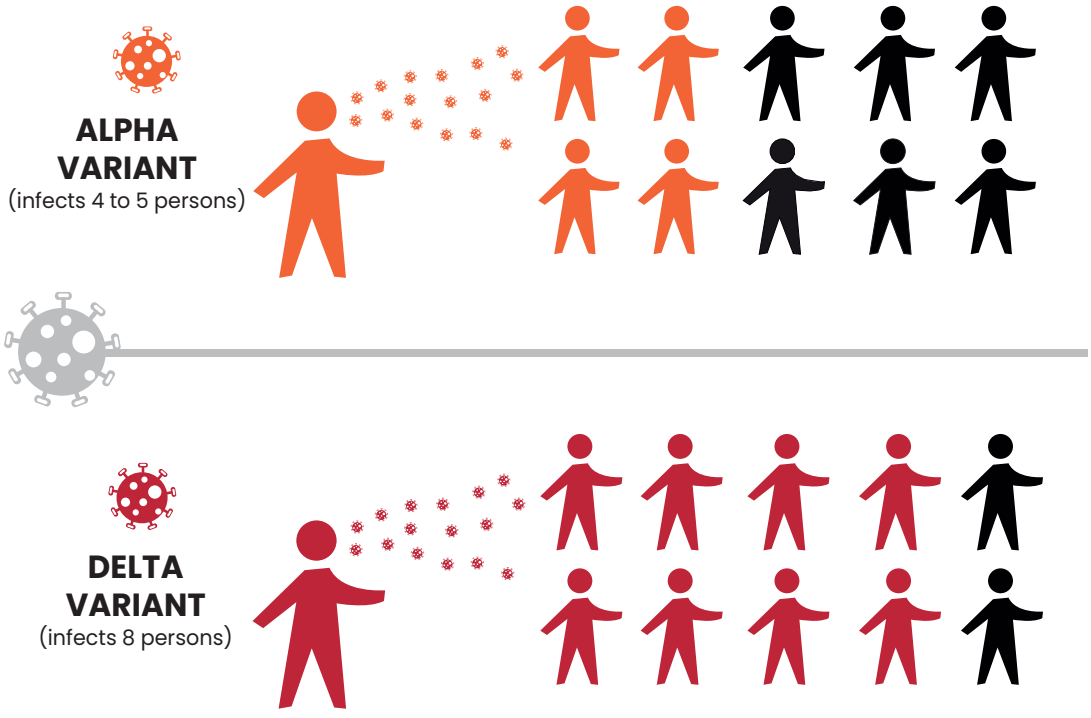
As the pandemic was taking its toll, scientists were able to develop innovative, highly effective, and safe vaccines against COVID-19. However, the premature hopes that vaccinations would provide full, long-term protection against SARS-CoV-2 infections have not been borne out. As with other respiratory pathogens (tuberculosis, influenza, pertussis) COVID-19 vaccines are effective in preventing **the development** of a severe form **of the disease**, hospitalization, and death, but they do not offer full protection against mild or asymptomatic "breakthrough" **infections**.

When exposed to the Delta variant of SARS-CoV-2, individuals over the age of 18 who have received **two doses** according to the basic vaccination schedule are five times less likely to become infected with SARS-CoV-2 (and to later transmit it to others) and, on average, more than 10 times less likely to become severely ill and die due to COVID-19. This protection is particularly visible in individuals under the age of 65.

Unfortunately, it has also been observed that the protection offered by vaccines wanes over time. After only a few months, we can notice a drop in antibody levels in the blood and more frequent infections. Although protection against severe illness and death remains very good in younger people, it drops in older people, and severe cases of the disease become increasingly frequent.

Third doses of vaccinations significantly reduce the risk of severe COVID-19

JO PANUWAT D/SHUTTERSTOCK.COM



The Delta variant is almost twice as contagious

CRYSTAL EYE STUDIO/SHUTTERSTOCK.COM

These observations became a point of departure for research into the efficacy and safety of a third dose of the vaccine. An analysis conducted in Israel showed that people over the age of 60 who received their **third doses** of the vaccine were **11 times less likely to become infected with SARS-CoV-2**, and **the risk of severe disease and hospitalization was almost 20 times lower** compared to patients who received only two doses more than six months earlier. Adverse vaccine reactions did not differ significantly from those observed after the first two doses. This makes a strong case for offering seniors booster doses. This will not protect them completely from a mild infection, but it will restore protection against severe disease.

Administering third doses to immunocompromised patients is a somewhat different issue. Studies show that such individuals do not develop a complete response after the classical vaccination regimen. Such patients require a stronger stimulation of the immune system to achieve comparable antibody levels, so it is recommended that they receive their third doses after only a few weeks. This differs from the administration of third doses as booster doses more than six months after the primary vaccination.

Current knowledge about combining of different vaccines remains limited, but available information suggests that the type of the vaccine used as a booster dose has no significant effect on the efficacy and safety of the third dose.

Prospects for the future

The most likely scenario envisages further waves of infections and deaths. With the highly contagious Delta variant, the number of infections could be as high in the fall of 2021 as it was a year previously. Thanks to vaccines, however, some of these infections will be milder and less likely to result in death. This should translate into less strain on the healthcare system. However, the vaccination rates among the highest-risk groups remain poor, so it is hard to expect the coming winter to be peaceful. For this reason, we should encourage our relatives and friends and those under our care who are in high-risk groups to take third doses. Further (ever milder) infection waves will probably continue until almost all those who have not been vaccinated gain immunity after recovering from the disease.

In the long term, however, the immunity gained after recovering from COVID-19 or after receiving a vaccine will slowly wane, and reinfections and the need for booster doses are to be expected, at least in high-risk groups. We must also consider the real risk of SARS-CoV-2 mutating into further variants, in the pessimistic scenario even completely circumventing the immune system because virions will not bind to existing antibodies. We can already observe variants that relatively successfully hide from being recognized by antibodies, such as the Mu variant.

Simultaneously, the development of an effective, safe, and inexpensive drug that patients could take by mouth at home to treat and prevent SARS-CoV-2 infections appears to be a realistic prospect. A dozen or so potential drugs are already at the stage of being tested in patients. The development of an effective drug will bring us closer to the moment when SARS-CoV-2 becomes endemic and stops paralyzing the world.

There is no doubt that over time humanity will win the battle against SARS-CoV-2, but we must all do our best to do so at the lowest possible cost. Therefore, we should protect the lives of seniors by offering them third doses of the vaccine.

Position Statement 23 26 October 2021

COVID-19 Across Borders

The virus knows no borders. The COVID-19 pandemic has highlighted the need to take action for the sake of the health and common safety of neighboring countries. Herein we consider the observed similarities and differences in how the pandemic has played out in Poland and Ukraine, and what kinds of conclusions might be drawn from them.

Nowadays, it takes just half a day to travel from Asia to Europe by plane, or from Warsaw to Kyiv by car. Traveling is conducive to interpersonal contacts, but it also creates excellent opportunities for a virus to spread. This is especially significant for countries that neighbor one another.

Poland and Ukraine have a great deal in common. For instance, Poland is Ukraine's largest international partner. Therefore, what happens in Ukraine is important to Poland, and what happens in Poland affects many activities in Ukraine. The COVID-19 pandemic has highlighted the need to take joint action for the sake of the safety and health of neighboring countries. Let us take a closer look, therefore, at the history of the COVID-19 epidemic in Poland and Ukraine.

The course of the COVID-19 epidemic in Poland

The first 50 officially recorded cases of COVID-19 in Poland occurred between 4 March and 11 March 2020. Those individuals had been infected with the virus chiefly outside Poland's borders, in particular in Italy, Germany, the United Kingdom, Spain, and Norway. They had been in those countries for job-related reasons or had spent time at holiday resorts during the school winter break. The first death caused by SARS-CoV-2 in Poland was reported on 12 March 2020. In the second half of March 2020 infections had already been reported throughout Poland's territory. That was also when new infections started to concentrate in areas characterized by high population density.

Poland was one of the first countries in Europe to introduce health screening on its land borders (9 March). On 13 March, Poland closed its borders, which also included the suspension of passenger air flights. At the same time, however, the #LOTdoDOMU (#FlyHome) campaign was initiated, during which LOT Polish Airlines made 400 flights from 70 destinations on five continents in just three weeks. In April, the epidemic situation in Poland was therefore fueled by the arrival of infected individuals into local communities, while the local transmission had been rather limited.

By the end of April 2020, the epidemiological situation had stabilized. Stability was achieved three weeks after the introduction of isolation measures: professional activity shifted to the work-from-home model, schools, shopping malls, and large-format retail stores were closed, restrictions on social contacts

KAROLCIESLIK/SHUTTERSTOCK.COM

Thanks to the #LOTdoDomu campaign (LOT Home), around 55,000 Poles returned to Poland

were imposed, and staying in public places and traveling were banned. Further research showed that early interventions were the most effective in limiting the pandemic's spread.

However, the epidemic situation changed drastically in the fall of 2020, with rapid growth in the epidemic being caused directly by the easing of restrictions (the partial opening of Poland's airspace, the return to full social activity, including the opening of schools with no epidemic restrictions). In mid-September, the number of detected infections started to grow rapidly. Administrative restrictions on social activity (restrictions on the number of people at gatherings, remote education in schools and universities, telemedicine and the cancellation of scheduled hospital admissions), introduced in late September, and lockdown measures, introduced on 24 October, were not able to stop the number of infections from growing rapidly. By the end of 2020, Poland had officially recorded a total of just under 1,300,000 infections and 28,524 deaths from COVID-19. Many of those victims were seniors, including nursing home residents.

Around mid-December 2020, the Alpha variant of SARS-CoV-2 appeared in Poland. This was related to the fact that people who worked abroad, in particular in the UK, arrived in Poland for the Christmas and New Year period. This led to a high number of new infections in early 2021 and a rapid rise in the number of cases in the spring wave. The wave of infections was also accompanied by a wave of deaths, whose course was delayed by about two weeks after infection detection. The number of reported cases during the summer of 2021 did not exceed 300 infections per day. In mid-July, however, it began to rise again and exceeded 900 infections per day in the second half of September.

In December 2020, a voluntary and free COVID-19 vaccination program began, using the Pfizer/BioNTech, Moderna, AstraZeneca, and Johnson & Johnson vaccines. However, the program was progressing too slowly to attenuate the next wave of the pandemic, which was recorded in spring 2021. As of 25 September 2021, approximately 19 million Poles were fully vaccinated. However, incomplete vaccination among seniors and low vaccination rates among adolescents aged 12–18 continue to pose a major problem. Vaccination of adolescents has been possible in Poland since June 2021.

Projections of the course of the epidemic in Poland

In the conditions of a full return to normal life (the opening of schools and retail service providers, the return to in-person education at universities, and so on), with the infections being dominated by the Delta variant of SARS-CoV-2, the number of recorded cases started to grow exponentially in mid-July 2021, marking the next wave of cases. The number of infections is growing almost at the same rate as in the same period of 2020. Projections made by two research groups, ICM from the University of Warsaw and MOCOS from the Wroclaw University of Technology, show that in late October and early November 2021, the number of infections will reach 30,000 per day. Another wave of deaths is also projected, with the number of deaths being estimated at up to 40,000 in the pessimistic scenario.

LIYA_BLUMESSER/SHUTTERSTOCK.COM

Kremenchuk, April 2020. Billboard in Ukrainian informing the public about the need to wear masks

The course of the COVID-19 epidemic in Ukraine

The history of the beginning of the epidemic in Ukraine is very similar to the Polish case. The first 100 cases of infection with the novel COVID-19 disease were registered in Ukraine by 25 March 2020, with the majority of infected cases coming from abroad. The first COVID-19 related death was registered on 13 March: a 71-year-old woman who had recently returned to Ukraine from Poland.

To stop the spread of the infection, Ukraine went into lockdown on 17 March 2020, with more strict restrictions being introduced on 6 April 2020, including the closure of schools, universities, shopping malls, and fitness facilities. Public transport was reduced to an absolute minimum across the country to minimize inter-regional transmissions, and face masks became obligatory in all public places. The early introduction of the lockdown stabilized the spread of the disease until late April / early May. From mid-May until late July, the numbers of newly registered cases fell in the range of 400 to 900 per day.

In the spring of 2020, the system of testing and detection of COVID-19 cases was in the development stage, therefore it is hard to say what the true number of infected people was in that period. But analysis of excess mortality data showed that

the early restrictions imposed in both Poland and Ukraine effectively stopped the spread of infection, with no increase in total deaths being observed in our countries, in contrast to some other European countries (like the UK, Spain, Italy). Stable growth in the infection rate started from August 2020, with a doubling period of around 4 weeks, and the epidemic reached its peak at the very beginning of December. Through the beginning of 2021, almost 20,000 COVID-19 related deaths were officially registered, but excess mortality analysis showed that this number was underestimated by at least a factor of 2. From February 2021, a new spring wave began in Ukraine, bigger in comparison with the autumn wave. The spring wave reached its maximum at the beginning of April 2021, with more than 400 registered COVID-19 related deaths per day.

The vaccination program began in late February 2021, with AstraZeneca, Sinovac (Coronavac), Pfizer/BioNTech and Moderna vaccines being used. Rates of vaccination were significantly lower than in Poland. By 21 October 2021, 6.7 million Ukrainians had been fully vaccinated.

Projections of the course of the epidemic in Ukraine

A new wave of COVID-19 spread, caused mainly by the new Delta variant of the virus and the lifting of quarantine restrictions, began in July and was enhanced with the start of the new school year. The rate of spread is higher compared to previous waves. In mid-October, Ukraine reached and exceeded the maximum seen during 2020's autumn wave. By 21 October, almost all the epidemic parameters had reached the maximum values of the spring wave. The indicators for the coming wave maximum are expected to be much higher than for the whole previous history, due to the higher virus infectivity and low vaccination level.

MYKOLA TYS/SHUTTERSTOCK.COM

Lviv, 3 March 2020. Disinfection of a trolleybus. On that day, the first case of coronavirus infection was officially identified in Ukraine

The main methods and recommendations used against the pandemic in Poland and in Ukraine

In Poland, the basic recommendations aimed at curbing the epidemic currently include the following: vaccinations, social distancing, and if this is impossible – wearing face masks, ventilating indoor spaces, and disinfection. Travel restrictions apply to international travel only. COVID-19 certificates (issued to those who have been vaccinated or recovered from the disease) are not officially required in public places, workplaces, and schools, but they are sometimes required of people wishing to visit patients in hospitals.

In Ukraine, the key approaches to countering the SARS-CoV-2 pandemic are as follows: social distancing, the use of face masks, and vaccination, the coverage of which, however, remains one of the lowest in Europe. A color classification of the levels of epidemic threat is used at the regional and subregional level, implying different degrees of severity of quarantine measures. In practice, the movement of public transport – urban and suburban – is restricted. In addition, the government has recently established weaker restrictions for vaccinated people at some levels of epidemic threat, in order to minimize economic losses from closing businesses.

The impact of the pandemic on the cross-border traffic between Poland and Ukraine

Ukrainians make up the largest minority group in Poland (about 2 million people). In 2013–2018, the arrival of workers from Ukraine increased Poland's Gross Domestic Product (GDP) by about 0.5 percentage points each year, and the influx of migrants from Ukraine is responsible for 13 percent of the growth in Poland's economy during this period.[1] For Ukrainian society, this means private remittances to Ukraine, the total volume of which over the past five years has been estimated by the NBU at $15.6 billion. This is approximately 30% of all external receipts to Ukraine and 2–3% of Ukraine's GDP annually.[2] Effective provisions regulating cross-border traffic are in the interests of both societies.

However, the trajectory of the pandemic in both countries forced the closure of borders. Poland closed

[1] Strzelecki P., Growiec J., Wyszyński R. (2020).
[2] National Bank of Ukraine (2021).

its borders on 15 March 2020, and Ukraine on the next day. It soon became apparent that without migrants, some sectors of the Polish economy would be threatened by costly downtime. Hence, as part of the "anti-crisis shield" measures, on 7 April 2020, exceptions were introduced in Polish law to allow for the legal stay of migrants for up to 30 days after the end of the declared state of epidemic.[3] Restrictions in cross-border travel resulted in long lines at the borders, which posed additional health risks. Moreover, Poles and Ukrainians crossing the border were subject to different rules, even if they were travelling in the same car or bus. For example, most Ukrainians crossing the Polish border had to undergo quarantine, whereas Poles were exempt from this requirement.

Under the visa-free regime, Ukrainian citizens may stay in Poland for up to 180 days and have the right to take up employment, provided that they have concluded a contract with an employer to perform a specific task. This forces them to cross the border quite frequently, which runs counter to epidemic safety requirements, and to remain tied to a single employer, which leads to labor market rigidity for both employees and employers.

It is important for the health of citizens that everyone, including migrants, should have easy access to clear, up-to-date, and reliable information in their native languages, even in countries of temporary stay. The pandemic has shown how important it is for neighboring countries to work together in this field.

Efforts and mutual information and education support are needed to promote vaccinations against COVID-19

In Poland, we can observe considerable skepticism about SARS-CoV-2 vaccines and ineffective measures taken by the government in response to this phenomenon. Such skepticism is fostered by disinformation on social media and aggressive actions taken by anti-vaccination movements.

On 1 February 2021, Ukraine's Ministry of Health presented a SARS-CoV-2 vaccination plan for the population.[4] The plan consisted of five stages, with Ukraine's medical professionals and armed forces being the first to receive vaccines. Ukraine received its first vaccine deliveries in February 2021. The European Union (EU) pledged to provide Ukraine with vaccines because Ukraine is a member of Gavi, the Vaccine Alliance. However, media reports in Ukraine claimed that the Ukrainian government would purchase COVID-19 vaccines at inflated prices, which led to public outrage and protests. A poll carried out by Rating Group Ukraine found that 55% of Ukrainians were willing to receive a SARS-CoV-2 vaccine if it were given for free. Currently, 16% of the population in Ukraine is fully vaccinated.

VERA PETRUNINA/SHUTTERSTOCK.COM

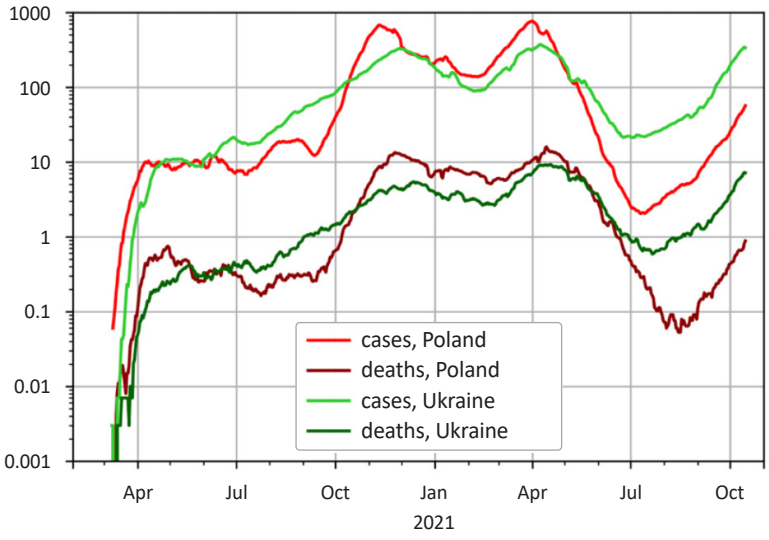
Vaccinations in Ukraine started in February 2021

In Poland, 52% of the population is currently fully vaccinated against SARS-CoV-2. Poland benefits greatly from its membership in the EU. Just six months after the vaccine was developed, the EU made sure that it would be available to practically anyone who wanted to receive it. Vaccinations in Poland have slowed in recent months and, unlike in other EU member states, the vaccination rate has practically stopped at 50%, due to considerable skepticism about vaccinations, supported by disinformation on social media and a low level of trust in state institutions among citizens.

Ukrainian society is faced with similar phenomena. In October the pace of vaccination declined by nearly 25% from the level seen at the beginning of September, when two million doses of the Moderna vaccine were made widely available, remaining close to a hundred thousand administered doses daily. This meant it took approximately a week to fully vaccinate another one percent of the population. Moreover, skepticism about vaccines remains strong and stable. Recently, however, after the implementation of new quarantine restrictions for the unvaccinated, vaccination rates increased significantly and reached 250K doses per day.

This suggests that even after the resolution of initial problems with vaccine deliveries, the vaccination rate in the population may stagnate at around 55%. In this situation, in order to reduce the social and economic costs of the prolonged pandemic, both countries may need to consider mandatory vaccinations among certain occupational and age groups (PAS Position Statement 19, dated 2 August 2021, English version 5 August). Ukraine, indeed, has already announced mandatory vaccinations for a list of jobs.

[3] Cope B., Keryk M. (2020).
[4] Matiashova L., et al. (2021).



Daily new confirmed COVID-19 cases and deaths per million people in Ukraine, a seven-day rolling average. Red colors: Poland. Green colors: Ukraine. Horizontal axis: date (month of identification). Vertical axis: number of cases. Source: H. Ritchie, E. Mathieu, L. Rodés-Guirao et al., *Coronavirus Pandemic (COVID-19)*, https://ourworldindata.org/coronavirus

Similarities and differences in the epidemic situation in Poland and in Ukraine

The major problem that Ukraine and Poland face when analyzing the common traits is the availability of high-quality data. This includes information on the real number of cases and deaths, but also on patient follow-up. Excess mortality due to COVID-19 exceeded the official data in both countries, which suggests that the actual magnitude of the epidemic was underestimated, and many cases remained undiagnosed. Furthermore, both countries have only started sequencing programs. Mass sequencing would allow scientists to track the transmission of specific variants and strains and understand better the direction and routes of the virus transfer between the countries.

Consequently, mapping and understanding of SARS-CoV-2 transmission between Poland and Ukraine has been limited. Therefore, we will not venture to suggest here any interpretation of the differences in pandemic wave height and distribution. However, it does seem that the PAS COVID-19 Advisory Team's Position Statement No. 21 on data availability would appropriately apply to both our countries. This includes more robust data collection but also data storage, sharing, processing, and integration.

Another conclusion that emerges from comparisons of the epidemic situation in Poland and in Ukraine is that there are distinctive concurrences of factors unifying and differentiating the dynamics of the epidemic. We see certain similarities, first of all the comparable period of the onset of the epidemic waves in both countries. Yet, we also see differences, for instance, a faster pace of epidemic development in Poland. We might initially hypothesize that the similarities are more closely connected to the "biology of the pathogen" itself, whereas the differences result to a larger extent from the "sociology of its penetration" in the specific populations. Here, the mobility patterns, demographic structure (including population density), and the structure of households play a role. This also overlaps with the accessibility and use of vaccines.

It is relatively easier to indicate the above unifying, "biological" factors, than to identify the role of differentiating, "sociological" factors. The latter task would require more research and data from the social sciences. Based on studies of the "biology of the pathogen," we may assess how many persons would be infected by one person, if they converse in an unventilated room. However, we have to turn to the social sciences to answer such questions, for instance, as whether it is a social norm in a given society for rooms to be well ventilated. Therefore, even though the virus "knows no borders" between countries, social factors influence patterns of its penetration in populations.

About the authors

- The Interdisciplinary COVID-19 Advisory Team to the President of the Polish Academy of Sciences
- The Ukrainian team is chaired by Prof. Anatoly Zagorodny, President of the NASU. Other members of the team are:
  - Prof. Serhiy Komisarenko (NASU Palladin Institute of Biochemistry)
  - Prof. Mykhaylo Tukalo (NASU Institute of Molecular Biology and Genetics)
  - Prof. Mykola Spivak (NASU D.K. Zabolotny Institute of Microbiology and Virology)
  - Prof. Andiy Sibirny (NASU Institute of Cell Biology)
  - Dr. Igor Brovchenko (NASU Institute of Mathematical Machines and System Problems)
  - Dr. Ihor Ivanov (NASU Institute of Mechanics)
  - Prof. Vitalii Mokin (Vinnytsia National Technical University)

Sources

Cope B., Keryk M. 2020. *Nowa sytuacja, stare problemy. Legalizacja pobytu ukraińskich migrantów w Polsce w czasie pandemii COVID 19*. Fundacja "Nasz Wybór".

Komisarenko S.V. 2020. Scientists' pursuit for SARS-CoV-2 coronavirus: strategies against pandemic. *Ukr. Biochem. J.*; 92 (6): 5–52.

Matiashova L., et al. 2021. Letter to the Editor. *J Med Virol.* 2021;1–2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8242568/pdf/JMV-9999-0.pdf

Remittances, annual data. Balance of payments and other statistical information compiled on the basis of the BPM6. National Bank of Ukraine.

Strzelecki P., Growiec J., Wyszyński R. 2020. The contribution of immigration from Ukraine to economic growth in Poland. *NBP Working Paper No. 322*. National Bank of Poland. https://www.nbp.pl/publikacje/materialy_i_studia/322_en.pdf

Position Statement 24 12 November 2021

Appeal of the COVID-19 Advisory Team to the President of the Polish Academy of Sciences Urging Booster Vaccinations

It is with great concern that we are observing the rapidly increasing numbers of people infected with SARS-CoV-2 and people hospitalized with COVID-19. For some people the disease will end in death, for others it will end in permanent respiratory disability and a drastic reduction in life, work, and social activity. People who have already been vaccinated may also contract the disease, but for them the risk of serious health consequences is much lower.

We are seriously concerned by the lack of an adequate response to the seriousness of the epidemic situation on the part of the state authorities. When confronted with the fourth wave of COVID-19 infections in Poland, each of us has been left on to our own devices.

In this situation, we appeal to all those who have previously shown responsibility and received the COVID-19 vaccine to get vaccinated with a booster dose as soon as it becomes possible for them. Research in other countries has shown that being fully vaccinated significantly reduces the risk of severe disease, but this protection wanes over time. Receiving a booster dose will strengthen the body's ability to fight the virus. This is especially important for older individuals and those with other illnesses. In younger people, too, a booster shot will reduce the risk of infection, illness, and transmission of the virus to others.

The introduction of effective, easy-to-use home remedies in the near future will further protect those who become infected. Although such drugs will not take the place of vaccines, they will complement their effect and allow another step to be taken on the road to normality.

Let us all place our trust in science and the facts and get vaccinated with a booster.

A third vaccination dose extends the validity of COVID-19 vaccine passports

SKYLINES/SHUTTERSTOCK.COM

Position Statement 25 27 November 2021

Omicron – A New Variant of SARS-CoV-2

According to recent reports, a new and potentially dangerous variant of the SARS-CoV-2 virus named Omicron (variant B.1.1.529) has been discovered. The European Commission is considering banning flights to the countries where this variant has appeared. Some countries, including the United Kingdom, Italy and the United States, have already taken such measures. The United States has placed restrictions on travel from South Africa, Botswana, Namibia, Malawi, Zimbabwe, Zambia, Lesotho, and Eswatini. Is there reason to be concerned?

The novel variant was first detected in five samples from Botswana collected on 11 November. The full sequence of the samples has been made available in recent days. The analysis of the sequence has shown that this virus is characterized by a high number of mutations that may cause concern. Earlier variants usually had single changes of this type, and even so, they have been associated with increased human-to-human transmissibility and immune evasion. There is, as yet, no data on how much these changes will affect the characteristics of the variant: its transmissibility as well as its ability to evade the immune system and to cause severe disease. Although we know the genome sequence of the virus, we have not isolated the full virus yet, which would allow us to gain the first insight into its exact characteristics.

Certain types of immunodeficiency may be conducive to the replication of SARS-CoV-2 over the long term, even for many months. By replicating for a long time, the virus learns how the human immune system works and gradually creates variants that evade it. We can only assume that this situation may have contributed to the emergence of the Omicron variant.

The worrying thing about Omicron (the B.1.1.529 variant) is that it became the majority variant in South Africa in just a few days, replacing the earlier variant, labeled as Delta. This may indicate increased transmissibility. However, few cases are now being reported in the region, so even a single outbreak caused by a specific variant may significantly distort the proportion of individual variants in the population. Such variants have also emerged in the past. Despite initial concerns, however, they did not trigger pandemic waves, nor did they pose a real global threat (this applies, for example, to the variants named Gamma and Lambda).

We are currently unable to estimate the actual extent of the threat, so there is an ongoing debate on adequate reactions. The European Commission is considering imposing restrictions on air traffic with countries that are starting to be dominated by this variant. Such an early response could delay a potential wave of infections and therefore give us more time to perform analyses and even to develop a new version of the vaccine. The country currently facing the largest outbreak of Omicron infections is South Africa, but there are also reports coming in from other regions of the world.

We expect the coming days to bring the first reports of the clinical presentation of the infections and the amount of virus in the respiratory tract of patients. There will be simultaneous reports of the spread of the virus in various countries. In the next stage, the scientists will examine if the immune response in the patients who have been vaccinated or who have recovered from the disease provides protection against the new threat. They will also examine how changes in the viral RNA translate into the virus's ability to infect, the rate of its multiplication, and its ability to produce progeny viruses.

Comparing these clinical data with laboratory data will allow us to assess the risk more accurately, but we should already prepare for the threat so that we can swiftly take decisive steps if this proves necessary.

Since the beginning of the pandemic, we have been concerned about the emergence of a SARS-CoV-2 variant that could very easily transmit between humans and evade the immunity acquired by those who have recovered from the disease or received vaccines. In the past, scientists signaled such a threat on several occasions. Perhaps our concerns are premature also this time. However, it is certain that by allowing the virus to spread freely, we increase the risk of the emergence of such a variant.

What can we do right now? Every person who has not been vaccinated yet should seriously consider receiving a vaccine. Those who have already received vaccines should seriously consider taking their third doses if this is possible. Universal vaccination significantly reduces the risk of the emergence of new variants. Those returning from another country should get tested for the virus. We should maintain social distance, wear masks, and ventilate indoor spaces. All these measures protect us from all variants of SARS-CoV-2, even the most dangerous ones, and more.

Position Statement 26 8 December 2021

What We Can Learn from Those Who Have Responded Best to the Pandemic?

Our country is now seeing several hundred deaths a day, and yet many people in Poland do not follow even the basic recommendations regarding mask-wearing, social distancing, disinfection, and ventilation. Almost half of those eligible for vaccination have not been vaccinated, despite the fact that vaccines are effective and widely accessible. The reasons for this situation include insufficient state involvement in the fight against the pandemic and contradictory messages sent out by government officials on such topics as vaccination.

From an epidemiological perspective, government inaction should be considered reprehensible, given that the Poles took a serious approach to the pandemic at the beginning of 2020, and decision-makers were given a considerable dose of public trust and the time to implement adequate solutions. However, this time was wasted, and the public trust was exhausted. The practical absence of the state in the fight against the pandemic and failure to implement a policy of restrictions against unvaccinated individuals is probably a result of political calculations.

Was the decision to leave the Poles on their own in the face of the pandemic the only option? It is instructive to compare the measures taken by other societies to contain the pandemic. One interesting, but not isolated example is Taiwan, a society that has considerable experience in tackling similar pandemics. By anticipating the impending crisis early and issuing clear health recommendations on a daily basis, the Taiwanese authorities were able to provide the public with timely, accurate, and understandable information about the spread of the epidemic.

This is a special example: since the outbreak of the COVID-19 pandemic Taiwan has reported very few infections (Fig. 1) and deaths (Fig. 2) and no economic losses (Fig. 3), and the level of restrictions has remained stable and low (Fig. 4). There are many factors behind this successful response. In this position statement, we only describe those that should serve as examples of good practices also for us. Many of these are related to the approach to the fight against the pandemic: a clear strategy, professionalism of institutions, and good communication. Others cannot be imitated, for reasons that include Taiwan's being an island.

Figure 3 compares the current economic growth path with that projected before the outbreak of the COVID-19 pandemic. The chart shows gross domestic product (GDP) at constant prices. For the purpose of better clarity of comparisons, the value in 2019 has been normalized to 100.

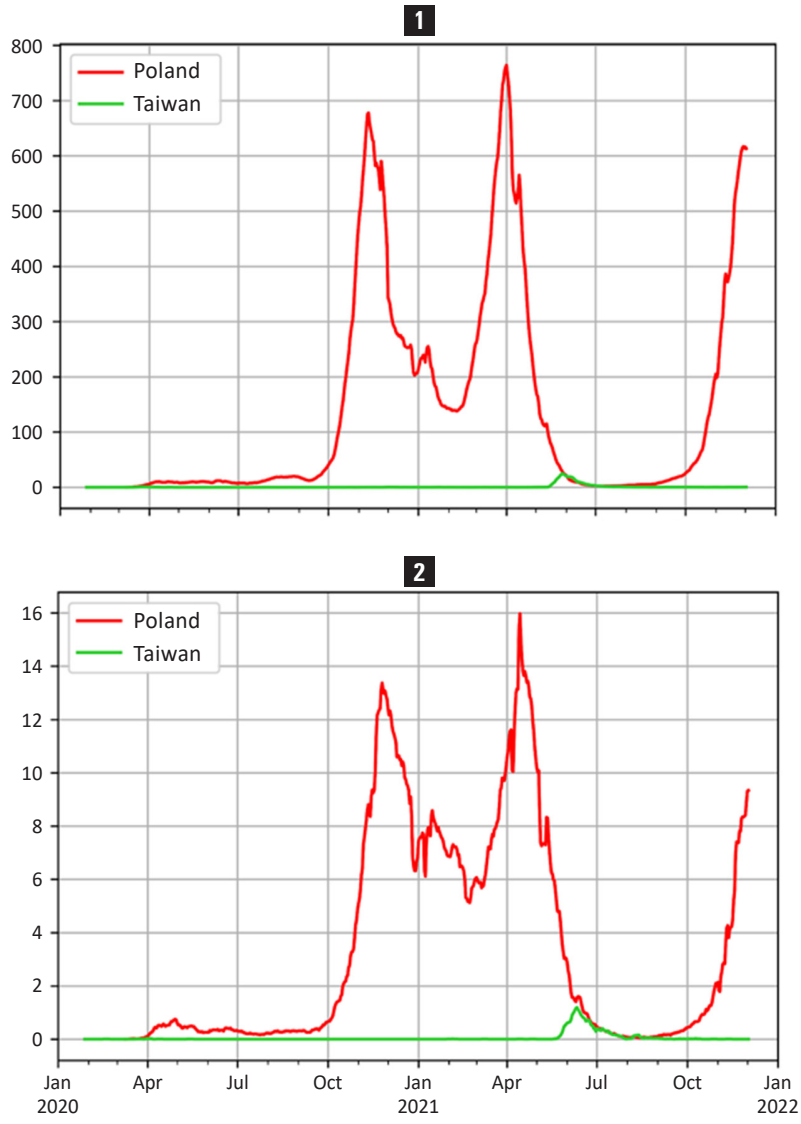


Fig. 1. Daily new confirmed COVID-19 cases per million people in Poland and Taiwan, 7-day rolling average.

Fig. 2. Daily new confirmed COVID-19 deaths per million people in Poland and Taiwan, 7-day rolling average. Fractional values result from calculations per million people and a 7-day average.
Horizontal axis: date (diagnosis month); vertical axis: number of cases.
Source of data: JHU CSSE COVID-19 Data, https://github.com/CSSEGISandData/COVID-19.

The economies being compared are those of Poland (orange) and Taiwan (blue). In 2020, the COVID-19 pandemic caused Poland's economy to go into recession and "drop off" its projected growth path by about 6%.

Almost all of the world's economies experienced a similar situation, with varying degrees of intensity. According to current forecasts, the Polish economy will return to its pre-pandemic growth path in 2024. Taiwan is an exceptional example: its economy experienced no recession, and it even grew at a rate of 2% above the forecasts in 2020.

Figure 4 compares the level of restrictions imposed in connection with the COVID-19 pandemic in Poland and Taiwan. The index presented here is a weighted average of eight categories and takes values from 0 to 100, where 0 indicates the situation before the pandemic and 100 indicates the most restrictive measures imposed in all categories. Taiwan introduced the first restrictions in January 2020, three months before Poland. Interestingly, for most of the COVID-19 pandemic, the restrictions in place in Taiwan have been less severe than those adopted in Poland. Taiwan went through the first three waves of the pandemic with a negligible number of infections and deaths and a low level of restrictions. The situation did not change until the emergence of the Alpha variant in May 2021. At that time, Poland was lifting restrictions as the third wave of infections was subsiding, while Taiwan was imposing more restrictive measures. Currently, they are at a similar level.

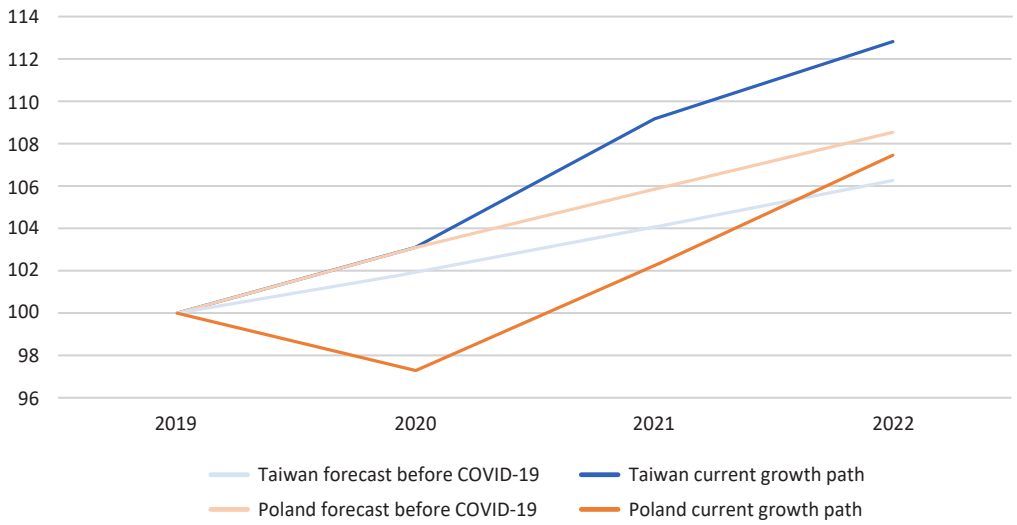


Fig. 3
GDP in Poland (orange) and Taiwan (blue): the forecast before the COVID-19 pandemic (light colors) versus the current growth path (dark colors; the situation in 2019 is conventionally assumed to be 100). Source: calculations based on: IMF, World Economic Outlook Update, October 2019, and IMF, World Economic Outlook Update, October 2021

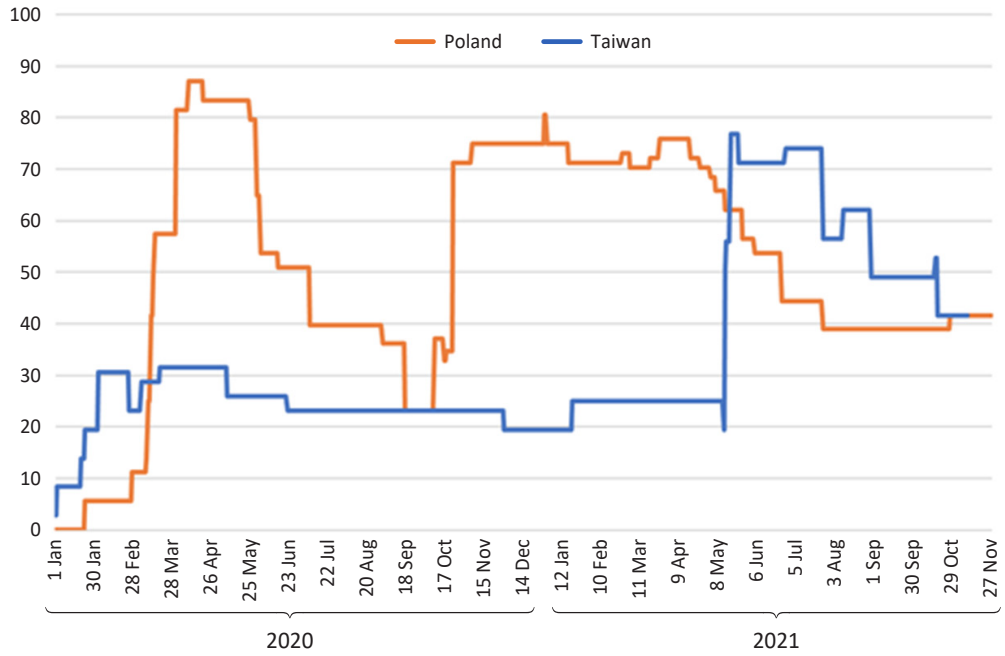


Fig. 4
Index showing restrictions during the COVID-19 pandemic in Poland (orange) and in Taiwan (blue). Source: Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, University of Oxford: https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker

A meeting between the COVID-19 Advisory Team affiliated with the PAS President and scholars from Taiwan

If we compare the charts showing the number of cases and deaths and the chart illustrating the restrictions, we will see clearly that Taiwan's success did not result from the severe nature of the restrictions, but from efficient policies. This efficiency depended largely on professional institutions, a clear strategy, transparent communication, and the trust that citizens had in the authorities and in one another.

Professional institutions

The factors behind Taiwan's successful response to the pandemic include the preparation of institutions. This pertains to the education of the right personnel, the construction of laboratory facilities, and institutional readiness. After the SARS epidemic in 2003, the authorities in Taiwan established the National Health Command Center (NHCC) in 2004. The NHCC includes the Central Epidemic Command Center (CECC), which focuses on epidemic response and acts as the operational command point during epidemic crises. This institution also coordinates direct communication between central, regional, and local authorities, as well as the measures aimed at containing the epidemic and taken by various ministries, including those responsible for transportation, the economy, labor, and education. Importantly, this is an expert institution that operates within the framework of public organizations and receives support from the authorities, but it is independent of politicians.

Thanks to well-coordinated actions on the part of highly professional institutions, Taiwan quickly developed and implemented not only a general strategy, but also 124 specific preventive measures, including:

- air and sea border control,
- case identification (with the use of new technologies),
- quarantine of suspicious and confirmed cases,
- proactive efforts to find infected individuals and contact tracing,
- management of the resources needed to fight the epidemic,
- public education coupled with the fight against misinformation,
- negotiations with other countries and regions,
- formulation of policies towards schools and childcare, and
- support for businesses.

Our team called for the establishment of such an institution in Poland in Position Statement 13: "Lessons from the pandemic" from March 2021: "It is necessary to establish a network of independent and interdisciplinary expert teams or institutions that would provide reliable analyses for public health purposes. Such a system of independent experts and institutions improves the monitoring of the authorities by the public and ensures that the actions being taken are transparent and rational."

In Poland, we are grappling with staff shortages in the Sanitary Inspectorate and in other institutions responsible for epidemic control. Monitoring remains poor, and only very basic pandemic data are made available to the public. This results from the chaotic creation of an information system already during the ongoing crisis. Creating a functioning monitoring system requires continuous efforts, not only on the part of IT specialists, but also – and perhaps especially – on the part of epidemiologists, diagnosticians, microbiologists, sociologists, psychologists, and public health experts.

The EU has institutions responsible for monitoring the epidemiological situation (the European Centre for Disease Prevention and Control, ECDC). However, the European monitoring system has repeatedly proved to be too slow, often due to the absence of adequate technical and human resources in member states, which has prevented the efficient communication of information to the European level. Likewise, an early warning system has been implemented by the World Health Organization (WHO) under the 2005 International Health Regulations (IHR). Under this system, each country has established a unit whose role is to monitor and assess events in terms of their significance for public health at the international level.

However, Taiwan's experience has shown that the provision of information alone may not be sufficient. Immediately after receiving reports of the outbreak of unusual respiratory infections, a team of experts from Taipei traveled to Wuhan to obtain additional information. A WHO team also visited Wuhan. The EU should also have a permanent mobile team that could support the EU countries in measures taken in response to unusual events of public health importance and simultaneously assess the situation from the perspective of the threat to our region, and representatives of Poland should be active members of such a team.

It is likewise necessary to have relatively uniform EU-wide standards of procedures for fighting the pandemic. For this reason, the development of such standards requires collaboration at the level of EU institutions and the relevant institutions in member states. We welcome the beginning of efforts to create a legal framework for new solutions, including those consolidating the role of the ECDC and EMA.

Reliable and clear communication of information about the pandemic

Taiwan has institutionalized pandemic communications. This means that the institution responsible for pandemic control (CECC), in tandem with a specially established communications commission, developed resources for the media (including social media), such as videos, memes, posters, drawings, and stickers. Informing and educating the public as well as fighting against misinformation have become the overriding goals of the Taiwanese government's communication strategy. In addition to daily press briefings by the CECC and the authorities for health and welfare, Prof. Chen Chien-jen, Vice-President of Taiwan and a prominent epidemiologist, regularly made public announcements broadcast from the president's office and shared with the media. Those announcements reminded people of the need to maintain social distance, of when and where they should wear face masks, and of the importance of washing and disinfecting hands. Importantly, Prof. Chen and his wife volunteered to test the effectiveness of vaccines.

Interactive question and answer sessions were also introduced to alleviate individual concerns about the pandemic. Every citizen could ask questions and discuss their concerns via Facebook or Line (a popular messenger) or by calling a dedicated hotline. CECC's official Line account also offered a popular question-and-answer service.

Other crucial elements of Taiwan's strategy included positive messages about the pandemic – ones that motivated people, rather than scaring them. Moreover, the state hired comedians to create humorous messages and memes that conveyed reliable information and government decisions, and fought against COVID-19 misinformation. Such friendly attitudes were also observed in the strategy of encouraging citizens to maintain social distance. For example, people were told to keep a distance equal to "three dogs" (using dog mascots, adored by the Taiwanese). Also, teddy bears were put on selected seats in restaurants to ensure sufficient distance between the remaining seats. We can see here that bans and restrictions are not the only forms of efforts to contain the pandemic. Of course, we should not copy such solutions but create similar ones, adjusted to the Polish culture.

Technology for education

Effective communication in Taiwan was possible thanks to universal access to information. This meant investing in the relevant infrastructure and computer hardware. Those measures were coupled with investments in education (also addressed to groups that are often digitally excluded) to fight misinformation and media manipulation. This need is also urgent in Poland. Such educational programs could be easily implemented by NGOs, charitable organizations, and youth groups educating seniors.

Concern for one another

Taiwan's successful response to the pandemic was also possible because the Taiwanese share the belief that by complying with restrictions and adhering to government recommendations, they will protect not only themselves and their loved ones, but the society as a whole. This concern for others is the reason why regulations are perceived as justified. Concern for one another makes it easy to fulfill the potential locked in the community – in its resources and abilities. Together, we can do more and better. In Poland, such concern is insufficient, and so is action taken with others in mind.

Strict observance of the basic recommendations regarding mask-wearing, social distancing, disinfection and ventilation is good not only for us but also for other citizens. By taking care of ourselves, we are also taking care of others.

Position Statement 27 21 December 2021

Omicron Is a Threat to Every One of Us

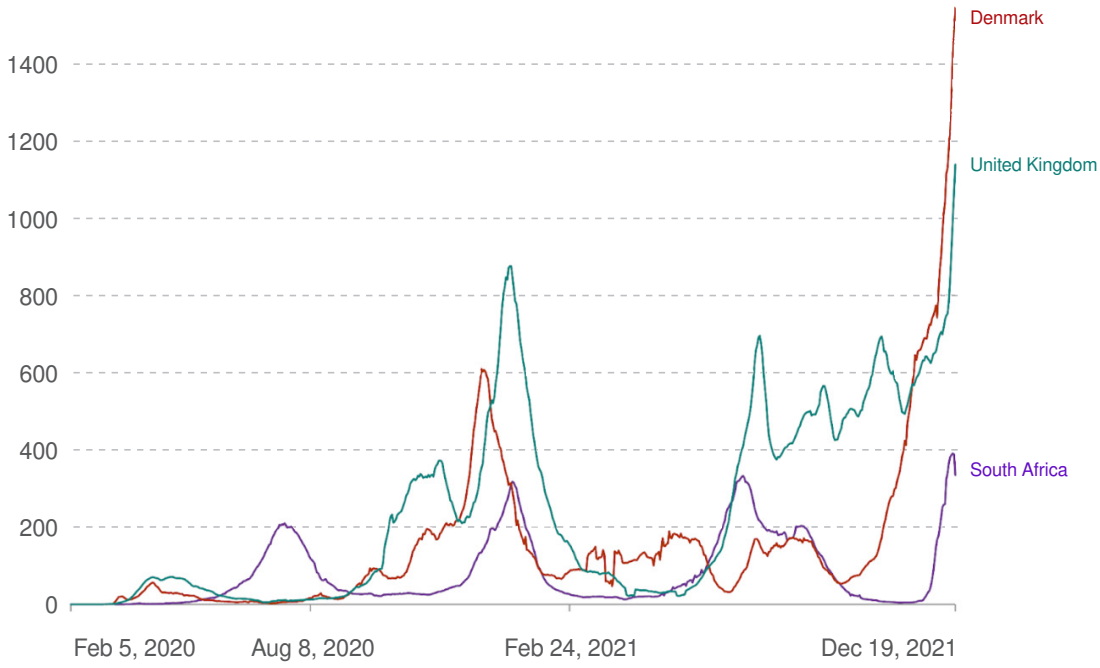


Fig. 1
Number of daily new infections per million people in Denmark, the United Kingdom, and South Africa, cited after: Our World in Data, https://github.com/CSSEGISandData/COVID-19
Source:
Johns Hopkins University CSSE COVID-19 Data

The risk of infection can be reduced with a booster dose of the mRNA vaccine, whose protective effect begins after about two weeks. In a recent position statement, the interdisciplinary COVID-19 Advisory Team to the President of the Polish Academy of Sciences writes about the Omicron variant and reminds us that social distancing and masks limit transmission of all SARS-CoV-2 variants. "We urge the implementation of rigorous controls on compliance with these rules in public spaces," the researchers emphasize.

Today, we are on the eve of another major escalation of the COVID-19 outbreak. A new variant of the SARS-CoV-2 virus, Omicron, emerged in the first half of November 2021. It has raised concern due to the numerous modifications present in its genome. In the past, alterations observed in these regions have been associated with increased transmissibility of the virus.[1] We now know that these fears have proven correct, with the Omicron variant transmitting more easily than Delta. The first European countries to report the emergence of Omicron are experiencing an unusually rapid increase in infections that overlap with the current wave of infections caused by the Delta variant. Even in highly vaccinated societies, we have recently seen an unusually steep curve of growth in infections (Figure 1), and mathematical models speak of a coming wave of unprecedented height. Across the European Union, the Omicron variant will be the dominant variant by the end of February 2022.[2]

At the same time, studies have shown – initially laboratory and now epidemiological – that the virus is actually fairly successful in "evading" the response produced by our immune system[3] against earlier variants. Early reports indicate only 40% protection against disease after receiving two mRNA vaccines (Pfizer and Moderna) and virtually no protection after vector vaccines (Astra Zeneca, Johnson & Johnson).[4] Similarly, the risk of reinfection

[1] https://covariants.org/variants/21K.Omicron

[2] ECDC, *Assessment of the further emergence and potential impact of the SARS-CoV-2 Omicron variant of concern in the context of ongoing transmission of the Delta variant of concern in the EU/EEA, 18th update, 15 December 2021*. https://bit.ly/3eL7dke

[3] Rossler A., Riepler L., Bante D., von Laer D., Kimpel J., *SARS-CoV-2 B.1.1.529 variant (Omicron) evades neutralization by sera from vaccinated and convalescent individuals* (2021). https://doi.org/10.1101/2021.12.08.21267491

[4] Andrews N., Stowe J., Kirsebom F., et al, *Effectiveness of COVID-19 vaccines against the Omicron (B.1.1.529) variant of concern*. https://bit.ly/3FMzbbl4

when exposed to Omicron is very high in patients who have recovered.[5]

Are we, then, back in the same place as we were at the beginning of our fight against the pandemic? No, we are not. Studies have shown that administering a booster dose of mRNA vaccine to vaccinated individuals reduces the risk of symptomatic disease by about 75% compared to unvaccinated persons, which is true for both mRNA and vector vaccines.[6] Currently, in selected countries, a vaccine booster can be given as early as three months after the date of the second vaccination with mRNA and Astra Zeneca vaccines, and Johnson & Johnson single-dose vaccine. This information is especially relevant for those vaccinated with vector vaccines. We cannot rule out the possibility that a similar recommendation will also appear at some point in Poland.

At present, we do not yet have a clear answer to what extent the reduced protection against the Omicron variant will translate into a risk of severe illness or death. Although preliminary data from South Africa seem optimistic, we should wait for data from countries of similar demographic structure to assess the risk to our society. Data from the UK and Denmark are still too sparse, and the time since the wave began in both countries is too short for the virus to penetrate risk groups and for people in those groups (elderly or diseased) to develop a more severe course of illness. The number of hospitalizations is already on the rise in some countries, and the number of deaths associated with this variant[7] is likely to increase soon.

Even assuming that Omicron is less harmful than Delta, a very high number of cases will strain the health care system to the maximum – both hospitals and primary health care centers. We should remember that in Poland the number of doctors and nurses per population is dramatically low, by far the lowest among European Union countries. Numerous quarantines may paralyze the health care system, and other infrastructure critical for society to function: the police, fire department, border services, army, education, courts, public transport, power industry, and so on.

The main conclusion from the above information is that everyone is at significant risk. Getting a booster dose of the mRNA vaccine is the key to reducing this risk. Do not delay – remember that the protective effect of this vaccine begins after about two weeks.

Given Poland's low level of primary vaccination coverage, it will be impossible to control the wave of infections caused by the Omicron variant with booster vaccines alone. It is important to remember that social distancing and masks limit transmission of all SARS-CoV-2 variants – we urge strict monitoring of compliance in public spaces. In addition, restrictions on social contact will need to be re-imposed to slow the spread of Omicron variant infections.

A year ago, we published a set of "Scenarios for 2021." In the first scenario, the vaccination campaign went well and stopped the pandemic; spring 2021 was the last season where the threat still remained. The other four scenarios we assumed were less optimistic. In the second, the vaccination campaign was not universally successful. In the third scenario, immunity after vaccination decreased over time, making it necessary to administer further doses. In scenario four, the pandemic continued unabated, resulting in a variant that evaded the immune response. Number five involved the emergence of a new pathogen, and the pandemic caused by this pathogen overlapped with infections caused by SARS-CoV-2. Unfortunately, the second, third, and fourth scenarios we outlined are now playing out simultaneously in Poland.

Among the many statutory obligations of a physician is to inform the patient of the prognosis for their disease. Suppose we predict a very unfavorable further development of the disease. In such a case, information should be given to the patient in such a form and scope that the patient can cope with this difficult content and utilize still available remedies. The facts above make up a very pessimistic prognosis for the Polish public, although it is not yet the most gloomy of all possible scenarios. Let us take the looming threat very seriously, as it deserves to be treated.

---

[5] Pulliam J., van Schalkwyk C., Govender N., von Gottberg A. et al., *Increased risk of SARS-CoV-2 reinfection associated with emergence of the Omicron variant in South Africa* (2021). https://doi.org/10.1101/2021.11.11.21266068;
Rossler A., Riepler L., Bante D., *SARS-CoV-2 B.1.1.529 variant (Omicron) evades neutralization by sera from vaccinated and convalescent individuals.* https://doi.org/10.1056/NEJMc2119236;

[6] Garcia-Beltran W.F., St. Denis K.J., et al., *mRNA-based COVID-19 vaccine boosters induce neutralizing immunity against SARS-CoV-2 Omicron variant.* https://doi.org/10.1101/2021.12.14.21267755;
Andrews N., Stowe J., et al., *Effectiveness of COVID-19 vaccines against the Omicron (B.1.1.529) variant of concern.* https://bit.ly/3FMzbbl;
Basile K., Rockett R.J., McPhie K., et al., *Improved neutralization of the SARS-CoV-2 Omicron variant after Pfizer-BioNTech BNT162b2 COVID-19 vaccine boosting.* https://www.biorxiv.org/content/10.1101/2021.12.12.472252v1.full.pdf;
Nemet I., Kliker L., Lustig Y., *Third BNT162b2 vaccination neutralization of SARS-CoV-2 Omicron infection.* https://doi.org/10.1101/2021.12.13.21267670;
Doria-Rose N.A., Shen X., Schmidt S.D., *Booster of mRNA-1273 Vaccine Reduces SARS-CoV-2 Omicron Escape from Neutralizing Antibodies.* https://doi.org/10.1101/2021.12.15.21267805

[7] UK Health Security Agency, *Omicron daily overview: 18 December 2021*. https://bit.ly/3HMky8w

Timeline of the COVID-19 pandemic

POLAND WORLD

2019

31 December

China informs the WHO that cases of an atypical pneumonia have been occuring in the country. Cases noted in Wuhan.

2020

7 January

WHO announces that the cause of the disease is a novel coronavirus (nCoV).

10 January

The first nCoV death reported in China.

12 January

First confirmed cases observed outside China (Thailand and Japan).

27 January

The coronavirus epidemic reaches France, as the first among European countries. All three quarantined patients had returned from a trip to China.

30 January

WHO declares a global threat.

10 February

The death toll in China rises to 908, surpassing the death toll in the SARS epidemic in 2002–2003.

11 February

WHO names the disease COVID-19.

14 February

WHO names the virus SARS-CoV-2.

JDZACOVSKY/SHUTTERSTOCK.COM

ACADEMIA CALENDAR 2020

POLAND

4 MARCH

Poland's "patient zero" at a hospital in Zielona Góra.

8 MARCH

National Sanitary Inspector recommends canceling all mass events with more than 1,000 individuals, organized indoors.

9 MARCH

Sanitary controls on Poland's borders.

12 MARCH

- A state of epidemiological danger is declared in Poland.
- The first death from SARS-CoV-2 infection in Poland.

13 MARCH

Poland's borders are temporarily closed and flights are suspended.

15 MARCH

- "LOT Home" – the first charter flights organized by LOT Polish Airlines enabling Poles abroad to return to the country.
- Poland's borders are closed for foreigners. All Polish citizens outside Poland's borders are allowed to return to the country. They must undergo a mandatory 14-day quarantine. International passenger flights and railroad connections are suspended.

16 MARCH

The closure of all educational institutions and universities.

20 MARCH

The Minister of Health announces his signing of a regulation declaring a state of epidemic in Poland.

WORLD

2 MARCH

Saudi Arabia, Jordan, and Tunisia announce their first cases of the coronavirus.

5 MARCH

The virus has spread to 84 countries. The number of cases in the world exceeds 95,000, the death toll exceeds 3,000.

11 MARCH

- Italy imposes a lockdown.
- **WHO declares a pandemic**.

12 MARCH

In the United States, a state of emergency is declared nationwide and flights to the EU are suspended.

17 MARCH

- France imposes a lockdown.
- The EU shuts its borders to non-member countries.

18 MARCH

3,421 deaths due to the pandemic.

19 MARCH

The first day with no new cases reported in Wuhan, the epicenter of the pandemic.

2020

POLAND

25 MARCH

The country's borders will remain closed until 13 April. People working on the other side of the border may freely cross the border only until 27 March.

31 MARCH

New restrictions:

- People in public places must remain at least two meters away from one another, except for caregivers of children under the age of 13 and disabled individuals.
- The number of people allowed in stores is restricted to a maximum of three individuals per checkout, and in post offices to two people per counter.
- Children and adolescents under the age of 18 are permitted to be outside their home only under the supervision of an adult.
- Access to parks, boulevards, promenades, and other recreational areas is restricted.
- Gloves must be put on before entering a store. Home improvement stores closed on weekends. Grocery stores, pharmacies, and drugstores remain open. From 10 a.m. to noon, stores and pharmacies will be open only to people over 60 years of age.

3 April

On 3–11 April, access to forests and national parks is temporarily prohibited.

7 April

Under the "LOT Home" campaign, 54,000 Poles have returned to Poland.

9 April

Schools will remain closed until 26 April, borders will remain closed until 3 May.

10 April

The government prolongs the ban on traveling and being out in public until 19 April.

WORLD

22 MARCH

Germany imposes a lockdown.

23 MARCH

The UK imposes a lockdown.

24 MARCH

Olympic Games in Tokyo postponed for another year.

25 MARCH

Curfew lifted in the Chinese province of Hubei.

27 MARCH

China imposes an entry ban on foreigners.

MATT LEUNG/SHUTTERSTOCK.COM

10 April

EU countries agree to an approx. €540 billion economic package to counter the impact of COVID-19.

ACADEMIA CALENDAR 2020

POLAND

16 April

A government regulation comes into force, imposing a requirement to cover the nose and mouth in public places in Poland.

20 April

The first stage of the gradual removal of restrictions begins:
- opening up of forests and parks and the relaxation of trade regulations;
- more people will be permitted to attend masses – one person per 15 square meters.

24 April

Schools, nurseries, and kindergartens will remain suspended until 24 May. *Matura* exams (at the end of high school) will start on June 8.

4 May

The second stage in lifting COVID-19 related restrictions:
- Shopping centers and supermarkets will be open, but with a limited number of people and no consumption of meals.
- Home improvement stores will be open on weekends.
- Hotel operations resume, but operations of hotel restaurants and recreational spaces remain restricted. Gyms, large halls, and swimming pools remain closed. Hotel restaurants may provide hotel guests with meals to their rooms.
- People with illnesses may return to rehabilitation, and libraries and cultural institutions will be gradually opened after consultations with public health authorities.
- Changes in the functioning of day-care centers and preschools.

6 May

First day of day-care centers and preschools reopening – of the 22,000 such facilities in Poland, over 1,600 resume operations.

10 May

A regulation of the Prime Minister comes into effect, prolonging the ban on air traffic in Poland until 23 May.

17 May

50% more people will be able to attend masses than previously – now limited to one person per 10 square meters.

WORLD

20 April

Lifting of restrictions in Germany.

2 May

Laboratories in 212 countries confirm 3.5 million cases and 250,000 deaths.

FIRN/SHUTTERSTOCK.COM

11 May

Removal of restrictions in France – mobility restrictions are lifted.

17 May

Bars, restaurants, and hair salons reopen in Italy.

2020

POLAND

18 May

– **Third stage in the lifting of restrictions.** Hair salons and beauty salons open.
– Suspension of in-person learning at schools prolonged to 7 June.

22 May

The Ministry of Health recommends permitting the organization of weddings with up to 50 participants.

25 May

State offices have resumed normal activity.

30 May

– **The fourth stage of lifting coronavirus-related restrictions**:
  - The requirement to wear masks will be lifted in outdoor spaces and in places were a distance of two meters can be maintained from other people.
  - Limits on the number of people permitted to be in stores and churches at the same time will be lifted.
– The government has eased up passenger limits on public transport. From 1 June, either all seats (without standing places) or half of all available places (seated or standing) may be occupied in such vehicles.

31 May

No more limits on church attendance. However, face masks must still be worn during mass and distance must be maintained from other individuals.

1 June

Another stage in the easing of restrictions:
- In primary and secondary schools, in-school consultations are organized for all students.
- Passenger air connections are launched; for now domestic travel is permitted.

6 June

Cinemas, theaters, concert halls, circuses, fitness clubs, gyms, swimming pools, and amusement parks may resume activity. Weddings may be organized for up to 150 participants.

WORLD

21 May

Germany, Austria, Slovakia, and Czechia prepare to open their borders in mid-June.

26 May

The number of people infected with SARS-CoV-2 worldwide exceeds 5.5 million. The highest number of infections was reported in the United States at 1,662,221, compared with more than 374,000 in Brazil and more than 362,000 in Russia.

TETIANA.PHOTOGRAPHER/SHUTTERSTOCK.COM

3 June

Germany to lift advice against foreign travel to almost all EU countries on 15 June. The regulations will also apply to the UK, Iceland, Norway, Switzerland, and Liechtenstein.

6 June

The number of SARS-CoV-2 cases worldwide exceeds 7 million. The United States accounts for about 25% of all deaths.

ACADEMIA CALENDAR 2020

POLAND

10 June

The Prime Minister sets the date for the opening of Poland's borders:
- from 13 June, Poland will open its borders to EU countries;
- starting 16 June, international flights will be permitted.

28 June

The first round of the presidential election is held. It was postponed from 10 May 2020 in view of the coronavirus pandemic.

1 July

The Ministry of Health issues new quarantine guidelines. Once a negative coronavirus test is entered into the system, quarantine will continue for no longer than 24 hours. However, it cannot end earlier than on the seventh day after exposure to someone with COVID-19. Quarantine can also end 14 days after contact with a person with COVID-19.

JHDT PRODUCTIONS/SHUTTERSTOCK.COM

14 July

In a clinical trial in Wroclaw, convalescent plasma was administered to 25 patients with COVID-19. Of those, 65% showed significant improvement in respiratory parameters after several up to about two weeks from the administration.

17 July

Entertainment events can be organized outdoors without being limited to 150 people.

WORLD

4 July

Restrictions are lifted in the United Kingdom.

8 July

More than 3 million infections have been reported in the United States. Over the past 24 hours, the number of daily infections has hit a record of over 60,000.

9 July

The President of Serbia reimposes a curfew and reinstates epidemic-related restrictions.

10 July

WHO warns that the virus may spread by the dissemination of aerosols in crowded, confined spaces. Infected individuals can transmit the virus when they talk, sing, or exercise – they do not have to cough or sneeze.

11 July

The President of Iran calls for a ban on large gatherings such as weddings and funeral ceremonies.

13 July

Mexico has become the fourth country in the world with the highest number of COVID-19 deaths. The total number of deaths since the beginning of the pandemic in Mexico is 35,006.

14 July

EU countries adopt a regulation to speed up the development and deployment of vaccines against COVID-19 across the Community.

17 July

The number of infected people in India exceeds 1 million.

2020

POLAND

21 July

Further restrictions are lifted:
- The required social distance in public spaces is reduced from two meters to 1.5.
- Sports facilities are permitted to operate up to 50% capacity.
- Swimming pools – both indoor and outdoor – no longer have to limit their number of users.
- Waterparks are now permitted to operate up to 75% of maximum occupancy.
- Cinemas and theaters are no longer required to only fill every second seat. However, they are still only allowed to operate up to 50% capacity.
- There are no changes in terms of wearing masks and covering the nose and mouth.

25 July

Changes in the rules for maintaining social distancing during cultural and entertainment events:
- Up to 50% of the number of seats in the audience may be in use.
- If places are not designated, audience members should maintain a distance of 1 meter.
- Event participants are required to cover their mouth and nose.
- Cinemas, theaters, concert halls, music clubs, entertainment and sports halls, amphitheaters, and concert shells may make up to 50% of places available.
- The distancing requirement does not apply to individuals accompanying a child under 13, a disabled person, or a person who is unable to move independently as well as to people who live together or share a household.

30 July

The daily number of new cases in Poland sets a new record, exceeding 600 cases for the first time

5 August

Students will return to schools as of 1 September.
- Students will not be required to wear face masks in class.
- It is recommended for schools to organize students' time so as to make it possible to maintain distance, e.g. by having staggered starting times.
- Students may not attend school if they have symptoms of respiratory infection or when a member of their household is in quarantine or isolation.

WORLD

20 July

More than 107,000 Americans have volunteered to participate in clinical trials for potential COVID-19 vaccines.

22 July

The number of confirmed cases worldwide exceeds **15 million.** More than **616,000 people** have died from COVID-19 over the seven months of the pandemic.

23 July

The number of infections in the United States exceeds 4 million.

26 July

One million new infections have been reported over the past four days. The highest numbers of confirmed cases were recorded in the United States (4.3 million), Brazil (2.4 million), and India (1.4 million). The highest number of deaths was reported in the United States (149,000), Brazil (86,000), and the UK (45,000).

30 July

The number of deaths in Brazil exceeds 90,000.

1 August

According to the WHO, over the past 24 hours, 292,527 cases of COVID-19 have been detected worldwide, which sets a new daily record.

5 August

The number of COVID-19 deaths worldwide 700,000, with the largest surge in deaths being reported in the United States, Brazil, India, and Mexico.

ACADEMIA CALENDAR 2020

POLAND

7 August

Details of the restrictions that will apply in the districts (*powiaty*, second-level administrative units) with the highest numbers of new cases:

- Stricter rules will apply to 19 districts in the provinces of Śląskie, Wielkopolskie, Małopolskie, Łódzkie, and Podkarpackie.
- In "red" zones, it will be obligatory to cover the nose and mouth in public spaces and prohibited to organize conventions and trade shows, operate amusement parks, and hold any cultural events. Gyms, cinemas, sanatoria, rehabilitation centers, saunas, solariums may not operate. Sports events will not be attended by public audiences. Catering establishments may serve a maximum of one person per 4 square meters.
- In "yellow" zones, the restrictions will be looser.
- In "green" zones, the rules of behavior related to COVID-19 will remain unchanged.

9 August

A record number of coronavirus cases, with COVID-19 having been diagnosed in 843 people.

18 August

Łukasz Szumowski resigns as Minister of Health.

20 August

A new list of "red" and "yellow" zones (with additional restrictions), naming 19 districts.

21 August

The daily number of infections in Poland reaches a new record: 903 confirmed cases.

25 August

The government extends the ban on air connections to 43 countries until 1 September.

26 August

The President appoints Adam Niedzielski, a doctor of economic sciences, as Health Minister.

WORLD

8 August

A new record of new COVID-19 cases in Ukraine with 1,489 confirmed infections.

13 August

The European Commission finishes preliminary talks with Johnson & Johnson on the purchase of a potential vaccine against COVID-19.

17 August

New Zealand's general election is delayed by a month due to a renewed coronavirus outbreak.

20 August

Alarming data coming from Germany, Italy, and France:

- 1,707 new cases reported in Germany over the past 24 hours,
- more than 1,000 coronavirus outbreaks in Italy, where the daily number of new cases reaches 845,
- new cases in France spike to 4,771 in a day, which is the highest daily number of new cases since the lifting of lockdown restrictions.

24 August

The start of a trial for an Italian COVID-19 vaccine.

25 August

The first confirmed reinfections in Europe (the Netherlands and Belgium).

2020

POLAND

27 August

- The Health Minister decides to introduce changes in the rules of quarantine and isolation. These include shortening quarantine to 10 days and removing the need for tests in the case of quarantine.
- Seven districts are recognized as "red" zones.

1 September

A new school year starts for 4.6 million students. A return to in-school learning with the possibility of remote learning.

5 September

A new list of "yellow" and "red" zones: three districts will be considered "red" zones and seven districts will be marked as "yellow" zones.

7 September

The Ministry of Health is modifying its strategy to fight COVID-19. Primary care physicians will be able to refer patients for COVID-19 tests during teleconsultations, without the need for an in-person physical examination. When there is a strong suspicion of a SARS-CoV-2 infection, there will be no need for a traditional visit and physical examination before the patient is referred for testing.

10 September

A new list of districts with additional restrictions. For the first time, no district is listed as a "red" zone.

WORLD

27 August

The European Commission signs an agreement with AstraZeneca for the purchase of a potential vaccine against COVID-19. The vaccine being developed in already large-scale Phase II/III clinical trials.

29 August

Foreigners are temporarily banned from entering Ukraine. The ban is expected to continue until September 28.

31 August

Daily infections in Russia again approach 5,000. The country ranks fourth in terms of the number of cases since the beginning of the pandemic and 12th in terms of the number of deaths.

1 September

The epidemic in Spain shows no signs of slowing down, with 8,115 new cases reported over the past day.

4 September

Trials to assess the efficacy of Russia's COVID-19 vaccine, Sputnik V, are underway.

6 September

2,988 new cases confirmed in the UK over the past day.

8 September

The first batch of Sputnik V vaccines has been produced in Russia. The Minister of Health has announced vaccinations for risk groups: doctors and teachers.

9 September

- India – 89,706 cases reported over the past day. After a break of more than five months, schools will reopen, but only for older students. India ranks second after the United States in terms of the number of SARS-CoV-2 infections.
- Restrictions in the UK – no gathering in groups of more than six people, either indoors or outdoors.
- **The British-Swedish pharmaceutical company AstraZeneca has announced the halting of clinical trials of an experimental vaccine against COVID-19 after a serious adverse reaction in one participant; the reason may be myelitis.**

POLAND

15 September

The Polish government has issued a ban on flights to 30 countries, including France and Spain. The regulation will come into force on 16 September.

LARS_NISSEN/PIXABAY

24 September

- A new daily record of infections – 1,136 cases.
- New "yellow" and "red" zones. The number of districts with additional restrictions will increase from 11 to 21.

26 September

1,584 new confirmed cases, the second highest daily count since the beginning of the pandemic.

29 September

New restrictions:

- limits on the number of people who can attend gatherings and weddings: 100 in the "green" zones, 75 in the "yellow" zones, and 50 in the "red" zones;
- in the "red" zones, catering establishments will be open until 10 p.m.;
- the requirement to wear masks outdoors will also apply to "yellow" districts, not just to the "red" ones, as was previously the case.

1 October

The number of districts with additional restrictions has increased to 51 (compared with 21 a week before). Seventeen districts are listed as "red" zones, and 34 districts are marked as "yellow" zones.

WORLD

12 September

The trial testing AstraZeneca's COVID-19 vaccine has resumed.

13 September

- A record-high number of cases in Czechia – 1,541 new cases.
- Israel's second lockdown, expected to last at least three weeks. Closure of schools, restaurants, shopping centers, and hotels. Supermarkets and pharmacies remain open. Considerable restrictions on mobility.

16 September

A surge in infections in the UK – as many as 3,991 new cases over the past day.

18 September

- Iceland closes pubs and restaurants for four days. Ireland is also introducing additional restrictions in its capital.
- A record-high daily number of infections in France – 13,215 people. The highest count of cases since the beginning of the epidemic was also recorded in Spain – 14,389 people.

19 September

More than 200,000 deaths in the United States.

30 September

Slovakia declares a state of emergency due to the pandemic. It will remain in place for 45 days.

1 October

India: a former president infected with SARS-CoV-2 has died.

2020

POLAND

2 October

The daily number of new cases in Poland has exceeded 2,000.

10 October

– **All districts in Poland are declared "yellow" zones:**
- Covering the mouth and nose is now required also outdoors. Special-event gatherings are limited to 75 attendees.
- Restaurants may serve a maximum of one person per 4 square meters, and cultural events held indoors are limited to 25% of audience capacity and those held outdoors to 100 attendees.
- The "red" zones are maintained. The list of districts to be updated on a weekly basis.
- The Health Minister's regulation on fines for refusal to wear masks takes effect:
- Those who cannot cover their mouth and nose for health-related and other reasons will have to show a medical certificate when asked to do so by police officers or city guards.
- Police will be able to verify the authenticity of the certificate by checking with its issuer. Refusal to wear a mask carries a fine of up to PLN 500.

15 October

– 8,099 new confirmed cases, 152 districts recognized as "red" zones.
– New restrictions:
- Catering establishments can operate between 6 a.m. and 9 p.m.
- Starting from 19 October, weddings and wakes in the "yellow" zones may be attended by a maximum of 20 people. No dancing is allowed at weddings.
- In the "yellow" zones, high schools and higher education institutions introduce blended learning. Remote learning in the "red" zones.
- Gatherings may be attended by a maximum of 10 people.
- Special-event gatherings are banned in the "red" zones.

WORLD

5 October

A state of emergency is declared in Czechia.

8 October

A record number of new confirmed cases have been reported worldwide: 338,779 (WHO data). **The total number of cases has exceeded 36 million.** The countries with the highest numbers of new infections detected over the past 24 hours are India (78,000), Brazil (41,000), the United States (38,000), and France (18,000).

9 October

For the first time since the onset of the pandemic, more than 100,000 infections were reported in Europe on a single day.

14 October

Poland ranks 6th in the world for daily deaths (116). It has been only outpaced by Mexico (475), Iran (279), Indonesia (129), the United States (127), and Russia (239).

16 October

The WHO has concluded that drugs used to treat COVID-19 symptoms reportedly have little or no effect on the course of the disease.

POLAND

17 October

Limits at stores in "red" zones:
- for stores up to 100 square meters – five people allowed in the store per checkout; for stores over 100 square meters – one person per 15 square meters;
- in both the "yellow" and the "red" zones, catering establishments can operate between 6 a.m. and 9 p.m. and with takeout-only service after 9:00 p.m.;
- in restaurants and bars, only every other table may be occupied.

24 October

– 13,628 new confirmed cases. A nationwide protest against COVID-19.
– **All of Poland declared a "red" zone:**
- a ban on meetings in groups of more than five people (does not apply to people who live together or meet for business);
- for two weeks, catering establishments and restaurants are limited to takeout or delivery only;
- operations at sanatoriums are suspended, but current stays may be completed;
- restrictions on public transportation – only 50% of seats or 30% of all places (seated and standing) may be occupied;
- limits at stores – five people per checkout in stores up to 100 square meters and one person per 15 square meter in stores of over 100 square meters;
- senior citizens over 70 years of age are urged not to leave their homes.

29 October

– 20,156 new confirmed cases.
– The opening of the hospital at the National Stadium in Warsaw.
– Changes regarding cemeteries: in connection with 1 November, no masses or processions will be held at cemeteries this year.

30 October

– 26,629 new confirmed cases.
– Cemeteries will be closed on the day before All Saints' Day, on All Saints' Day, and on All Souls Day. The decision does not apply to funeral ceremonies.

WORLD

17 October

A spike in infections in Germany and Ukraine. In Czechia, the daily increase in new cases has exceeded 10,000.

21 October

The Czech government has decided to impose further restrictions due to the rise in the number of infections. All stores except those with essential products will be closed, as well as most service establishments.

22 October

People entering Germany from Poland will have to present a negative test result or undergo quarantine.

23 October

Ukraine introduces restrictions for visitors from Poland, Croatia, and Georgia. Those arriving from the "red" zone countries (51 countries) are required to undergo self-isolation or take a test.

26 October

In Italy, catering establishments are open until 6 p.m. Cinemas, theaters, game rooms, casinos, gyms, and swimming pools are closed.

27 October

Belgium is now ahead of Czechia in terms of the number of infections per 100,000 inhabitants, which makes it the EU's hardest-hit country. After Belgium and Czechia, the worst situation has been reported in Luxembourg (760 cases per 100,000 people), Slovenia (732), the Netherlands (694), and France (629).

28 October

New restrictions in Germany: a maximum of 10 people from two households are allowed to meet in public. Theaters, operas, concert halls, cinemas, amusement parks, restaurants, bars, clubs, dance clubs and pubs, fitness studios, swimming pools, and aquaparks will be closed from 2 November at least until 30 November.

30 October

– National quarantine in France:
- bars and restaurants are closed;
- individuals who leave their homes must do so for work purposes, medical purposes, or to care for others;

2020

POLAND

JAROSLAV MORAVCIK//SHUTTERSTOCK.COM

5 November

27,143 new confirmed cases.

7 November

– New restrictions are introduced, and they are expected to remain in effect until at least 29 November:
  - Stores in shopping malls will remain closed, except for grocery stores and stores selling cosmetics, cleaning products, and pharmaceuticals. Home improvement stores, pet stores, and newsstands will remain open.
  - Limits at other stores: one person per 10 square meters in stores up to 100 square meters, and one person per 15 square meters in stores of over 100 square meters.
  - Hotels can only receive guests traveling for business.
  - Closure of cultural institutions: theaters, cinemas, museums, art galleries, community centers, and music centers.
  - Churches: one person allowed inside per 15 square meters.
– Current safety measures extended until 29 November.
  - From Monday to Friday, from 8 a.m. to 4 p.m., children under the age of 16 are only allowed outside if accompanied by a parent or a guardian.
  - In public transportation vehicles, up to 50% of seats or 30% of all available places (seated and standing) may be occupied.
  - The operations of swimming pools, aquaparks, gyms, and sanatoriums are suspended.
  - Sports events can only be held without audience.

WORLD

  - every citizen must have a certificate that justifies their decision to leave home;
  - schools remain open, as do workplaces and most stores.
– Not a single local infection has been detected in Taiwan since 12 April.

1 November

Slovakia: 2.5 million people tested on the first day of the nationwide campaign – infections confirmed in 25,850 people (1% of all tested individuals).

3 November

Austria imposes a lockdown:
- imposing a curfew and closing restaurants except for take-out deliveries,
- high schools and universities are required to switch to distance learning, elementary schools and preschools will provide in-person teaching;
- all hotels are closed to tourists.

5 November

The UK imposes a full lockdown:
- people are told to stay in their homes; people from different households may not meet indoors;
- all pubs, bars, restaurants, and non-essential retail are closed;
- schools and universities remain open.

DANI BER/SHUTTERSTOCK.COM

ACADEMIA CALENDAR 2020

POLAND

- Catering establishments may not receive guests indoors, they are limited to takeout or delivery service.
- Public gatherings can have no more than five attendees.
- Meetings and events are prohibited.
- Limited mobility of people aged 70+.

9 November

– New guidelines for schools:
- remote learning in elementary schools in grades from one to three until 29 November;
- no changes in education and care in preschools and preschool departments in elementary schools;
- the possibility of suspending the operations of a preschool, school, or educational institution if there are indications of a threat to the life and safety of students;
- remote learning in elementary schools in grades four to eight and in secondary schools extended until 29 November;
- schools provide care for children whose parents are medical professionals or work in the uniformed services;
- each teacher may claim PLN 500 in reimbursement of the cost of electronic equipment necessary to provide remote instruction.

– The pharmaceutical company Pfizer announces that its COVID-19 vaccine candidate is over 90% effective.

12 November

22,683 new confirmed cases. For the first time in two months, the average daily number of new infections has started to decline – the government is not imposing a full lockdown.

16 November

Initial results from clinical trials for the Moderna vaccine have showed an efficacy rate of 94.5% with no significant remarks regarding safety.

17 November

The European Commission approves a contract with the European pharmaceutical company CureVac for the purchase of 225 million vaccine doses.

19 November

The number of daily deaths among those infected with SARS-CoV-2 sets a new record at 637.

WORLD

8 November

The number of people with confirmed SARS-CoV-2 infections has exceeded 50 million worldwide.

11 November

– **The European Commission has signed a contract for the supply of up to 300 million doses of the COVID-19 vaccine being developed by Pfizer and BioNTech.**

– The producers of Russia's Sputnik V vaccine have announced that it is 92% effective.

JEPPE GUSTAFSSON/SHUTTERSTOCK.COM

17 November

A full lockdown in Austria until 6 December:
- people are told to leave their homes only to go to work and to the doctor's, to buy essential products, and to exercise,
- all non-essential retail to be closed,
- remote instruction in schools.

20 November

– A record-high number of infections in Sweden (7,240). Cities are introducing more restrictions. Stockholm reinstates the ban on visits to nursing homes.

2020

POLAND

21 November

- The government has decided to continue the closure of schools until 23–24 December. All schools will have winter breaks in the same period (between the beginning of January and 17–18 January).
- Starting on 28 November, retail stores will be allowed to operate under the strictest sanitary regime. Catering establishments, cultural institutions, cinemas, theaters, gyms, and fitness clubs will be closed until 27 December.

24 November

However, ski lifts will be open. A sanitation protocol for the use of ski facilities has been worked out. A maximum of one person per 100 square meters will be allowed in ski resorts.

25 November

In-person teaching at schools, with some exceptions, is limited to 3 January 2021. So far, remote learning has remained in effect until 29 November.

28 November

Stores and service outlets in shopping centers and malls reopen. Retail establishments must operate under a strict sanitary regime. Limits on the number of customers apply.

3 December

Vaccinations against COVID-19 are likely to start in February or March. The government has ordered 45 million COVID-19 vaccine doses.

WORLD

- **WHO has issued a new recommendation against the use of remdesivir in patients with SARS-CoV-2. According to WHO, there is no evidence that the drug is effective.**

21 November

Russia is ready to provide its vaccine to other countries.

22 November

The first Americans could receive the vaccines as early as 11 December. On 20 November, Pfizer submitted an emergency-use authorization request for its vaccine.

23 November

All those arriving in Spain from high-risk countries will be required to show a negative PCR test for SARS-CoV-2.

24 November

- Sweden introduces restrictions, which are expected to remain in effect for four weeks. Public meetings are limited to eight people. Wearing masks is still not recommended.
- People coming to the UK from high infection risk countries must undergo a 14-day quarantine.

25 November

More than 60 million cases have been confirmed worldwide since the start of the pandemic. The largest number of infections and deaths have been reported in the United States, Brazil, and India.

27 November

- A two-week lockdown is imposed in Northern Ireland.
- The British government formally asks the Medicines and Healthcare products Regulatory Agency (MHRA) to assess if the COVID-19 vaccine created by AstraZeneca may be approved for use.

2 December

- The UK becomes the world's first country **to authorize the COVID-19 vaccine developed by Pfizer and BioNTech.**
- WHO tightens guidelines on wearing face masks – those who live in places where the coronavirus is spreading should wear masks in stores, workplaces, and schools that lack adequate ventilation.

POLAND

8 December

The government has announced a draft National COVID-19 Vaccination Program. Until 12 December, anyone can submit their comments to the draft. On 15 December, the government plans to adopt a ready strategy.

15 December

The government has adopted a vaccination program against COVID-19:

- Vaccinations will be offered to adults and children of at least 12 years of age. Vaccination will be free and voluntary.
- Those working in the healthcare sector, public health authorities, and nursing homes will be vaccinated first.
- They will be followed by teachers, soldiers, and seniors in nursing homes.

ALEKSANDAR MALIVUK/SHUTTERSTOCK.COM

21 December

The European Medicines Agency (EMA) recommended authorization of the COVID-19 vaccine produced by Pfizer and BioNTech. A few hours later, the European Commission has granted marketing authorization for the vaccines in the EU. Vaccinations will begin on 27–29 December.

WORLD

7 December

Switzerland: vaccines are denied approval. Switzerland's drug regulator argues that important data on safety, efficacy, and quality of vaccines are still missing.

8 December

The start of COVID-19 vaccinations in the UK.

14 December

- **The start of vaccinations in the United States and Canada.** Healthcare workers and elderly people living in nursing homes will be the first to receive the shots.
- **The UK Secretary of State for Health and Social Care has announced that a new variant of SARS-CoV-2 (called Alpha) has been detected in Britain.**

16 December

- **Germany goes into a hard lockdown** until 10 January. Only essential retail stores are open, and so are pharmacies and banks. Schools are closed, and some employers will have to suspend their business operations or make their employees work remotely. Hair, beauty, and tattoo salons will be closed.
- **The European Commission calls for all EU countries to start vaccinations on the same day**.

18 December

Sweden imposes more restrictions. For the first time, the Prime Minister has recommended the use of masks in public transport vehicles.

20 December

The highest 24-hour count of new cases in the UK since the start of the pandemic (35,928).

21 December

The European Medicines Agency (EMA) recommends authorization of the COVID-19 vaccine produced by Pfizer and BioNTech. A few hours later, the European Commission has granted marketing authorization for the vaccines in the EU. Vaccinations will begin on 27–29 December.

22 December

- The first local case in 253 days has been detected in Taiwan.
- The German company CureVac from Tübingen starts studies of its COVID-19 vaccine.

2020

POLAND

27 December

- **The first person in Poland is given a COVID-19 vaccine**.
- The government decides not to impose a curfew on New Year's Eve, as this would require the state of exception to be introduced. People are urged to stay at home and celebrate in small groups.

28 December

- **A national quarantine is in effect from 28 December to 17 January**:
  - Hotels are closed, also for business travelers. They are only open to those working in the uniformed services, healthcare professionals, and those working in specialist hospitals. Hotels providing accommodation for laborers will also remain open.
  - Ski slopes are closed.
  - Shopping malls are closed, except for grocery stores, drug stores, pharmacies, bookstores, and newsstands, and stand-alone large furniture stores.
  - Sports infrastructure is only available to professional athletes.
  - Those arriving in Poland using organized transport must undergo a 10-day quarantine.
  - There will be travel restrictions on New Year's Eve, from 7 p.m. on 31 December 2020 until 6 a.m. on 1 January 2021.
- **The following restrictions are extended:**
  - the ban on the movement of children under the age of 16 not accompanied by a parent or a guardian from Monday to Friday, from 8 a.m. to 4 p.m. (except for half-day programs);
  - limits on the number of passengers in public transport vehicles: 50% of the number of seats or 30% of the number of all seated and standing places with the proviso that at least 50% of all seats are left unoccupied;
  - restrictions in places of worship – a maximum of one person per 15 square meters;
  - participation in gatherings – a maximum of five people;
  - a ban on the organization of weddings, first communion parties, and funerals;
  - the closure of gyms, fitness clubs, and aquaparks;

WORLD

23 December

- Arrival into France from the UK resumed at midnight. Those traveling for essential reasons, including healthcare professionals fighting COVID-19, can also enter France from the UK.
- In Italy, infection with a new variant of SARS-CoV-2 was confirmed in a person from Loreto who had no direct contact with the UK.

26 December

- **The first shipments of COVID-19 vaccines have arrived in all EU countries.**
- The Austrian government has announced the introduction of a third nationwide quarantine. This includes banning citizens from leaving their homes without a justified need. The restrictions will remain in place until 24 January, and people with negative test results will be released from quarantine.

28 December

In Italy, restrictions have been eased for three days, until 30 December, as part of the fight against the COVID-19 pandemic over the Christmas and New Year period.

VILTVART/SHUTTERSTOCK.COM

POLAND

- limits on the number of people in stores – no more than one person per 15 square meters;
- shopping hours only for senior citizens – Monday to Friday from 10 a.m. to 12 p.m.;
- restaurants are closed, with service being limited to take-out and delivery.

31 December

13,397 new confirmed SARS-CoV-2 infections and 532 deaths, including 104 due to COVID-19 and 428 due to comorbidities.

WORLD

29 December

The EU has decided to purchase an additional 100 million doses of BioNTech and Pfizer's COVID-19 vaccine.

MASTERKEYSYSTEM/SHUTTERSTOCK.COM

2021

POLAND

2 January

Start of vaccinations with the Comirnaty vaccine, developed by Pfizer/BioNTech.

4 January

Another shipment of vaccines: 360,000 doses have arrived in Warsaw.

6 January

The European Commission grants marketing authorization for the COVID-19 vaccine developed by **Moderna**.

7 January

Planes from UK airports are banned from landing until 13 January.

11 January

All restrictions are extended until 31 January. Ski slopes, sports facilities, and hotels remain closed. Selected stores are open in shopping centers. Restaurants are limited to takeout service.

12 January

Ministerial guidelines of the return of students to schools:

- Elementary school students in grades one to three will return to in-person learning on 18 January.
- Only individuals with no suspected respiratory infection and those who do not share a household with someone who is currently in isolation will be allowed on school premises.

WORLD

3 January

A full lockdown in Germany – people are prohibited from leaving their homes unless this is crucially necessary. Only essential retail stores, pharmacies, and banks are open.

4 January

A lockdown in the UK – people are again banned from leaving their homes except for a few specified cases; schools are closed.

5 January

The lockdown in Germany is extended until 31 January.

6 January

One million Russians have been vaccinated against COVID-19 with Sputnik V.

7 January

The number of infections in Europe has exceeded 25 million. Among the world's regions, Europe remains hardest-hit by the pandemic.

10 January

- The first case of infection with **the Alpha variant** has been detected in Russia.
- The Palestinian National Authority will receive its first shipments of COVID-19 vaccine in March under a contract with AstraZeneca.

11 January

Ireland: a surge in infections with **the Alpha variant** detected in the UK.

POLAND

- It will be the responsibility of parents to provide children with personal mouth and nose covers.
- Masks must be worn in common spaces.

15 January

Launch of registration for vaccinations for people over 80 years of age. All those over 18 years of age who want to receive vaccines should fill in a special form.

17 January

Nearly 134,000 elementary school teachers teaching grades one to three and school employees have been tested for SARS-CoV-2. Of these 122,000 received their results. Infections have been confirmed in 2,422 individuals.

HERMANN KOLLINGER/PIXABAY

25 January

The start of the nationwide vaccination program – senior citizens will receive vaccines, with priority being given to those over 70.

WORLD

13 January

The virus attacks China again – the authorities report 115 new cases, the highest count in more than five months.

14 January

The state of emergency in Italy extended until the end of April.

15 January

- **One million Italians have already been vaccinated; the country ranks first in the EU in terms of the number of administered vaccines**.
- More European countries are extending restrictions or introducing new ones to stop the pandemic:
  - restrictions have been extended in such countries as Italy, the Netherlands, and Switzerland;
  - curfew in France, in effect from 6 p.m.;
  - in Germany, quarantine may not end until April.
- **The number of deaths due to COVID-19 worldwide has exceeded 2 million. The highest number of deaths has been recorded in the United States (more than 389,000). In Europe, the highest number of deaths has been reported in the UK (87,295).**

17 January

- A lockdown without curfew – in Austria, Croatia, Ireland, the Netherlands, Portugal, Lithuania, Slovakia, and the UK.
- The world's largest COVID-19 vaccination campaign has started in India, with healthcare professionals being the first to receive their shots.

19 January

A record-high death count in the UK – 1,610 people.

20 January

Despite a decline in new infections, Germany has decided to extend the lockdown until 14 February.

24 January

- Mandatory tests before arrival to France also from EU countries.
- **Israel – COVID-19 vaccinations have now been extended to adolescents.**

2021

POLAND

26 January

Those who have received two vaccine doses are released from the obligation to go into quarantine after contact with an infected person or after returning from a foreign country using organized transport.

27 January

Remote learning for elementary school students in grades four to eight extended for another two weeks.

1 February

Changes in restrictions starting from 14 February:
- all rules regarding gatherings, events, hotels, restaurants, and travel remain unchanged;
- stores in shopping malls reopen, art galleries and museums operate under a sanitary regime;
- shopping hours for seniors are lifted.

12 February

– Changes in restrictions:
  - Hotels and guesthouses resume operations, but only half of the rooms available may be occupied by guests.
  - Ski slopes may reopen, but fitness clubs remain closed.
  - Restaurants continue to serve only takeout meals.
  - Other places that are allowed to operate include casinos, swimming pools, tennis courts, opera houses, theaters, and philharmonic halls.
– The start of vaccinations for teachers. The first to be vaccinated are the teachers involved in in-person teaching, including teachers at preschools, in elementary school grades one to three and special schools, as well as staff of day-care centers.

19 February

– The first case of infection with **the Beta mutation of SARS-CoV-2** in Poland, detected near Suwałki (Podlaskie Province).
– The Chief of the Prime Minister's Chancellery has provided indicative dates for the COVID-19 vaccination schedule:
  - vaccination of teachers is expected to be completed by 7 March;

WORLD

29 January

The European Commission has granted **marketing authorization for AstraZeneca's vaccine in the EU** following a positive recommendation by the EMA.

30 January

The Alpha variant already accounts for nearly 50% of active SARS-CoV-2 infections in Spain and Portugal.

13 February

Slovakia reinstates border controls; quarantine will be mandatory starting from 17 February.

14 February

15 million people have been vaccinated in the UK – 15,062,189 people received their first dose and 537,715 have received their second dose.

16 February

Israel eases restrictions – the government has approved the opening of stores, marketplaces, and hotels, among other places.

17 February

Extension of anti-epidemic restrictions in Ukraine until 30 April.

ACADEMIA CALENDAR 2021

POLAND

- booster vaccinations for medical staff are scheduled to begin on 7 March;
- vaccinations for the chronically ill are scheduled to begin on 15 March;
- vaccinations for the uniformed services and individuals aged 60–65 are scheduled to start on 22 March.

24 February

Third wave of SARS-CoV-2 infections; restrictions are maintained for most regions.

- The level of restrictions remains the same in all of Poland, except for the Warmińsko-Mazurskie Province.
- It is recommended the Warmińsko-Mazurskie Province should return to remote teaching in grades one to three in elementary schools, and shopping malls, museums, cinemas, and other public access places should be closed again. This includes hotels, tennis courts, and swimming pools.

27 February

– Remote teaching at universities until 30 September 2021, except for classes where remote teaching would be difficult.
– New restrictions in the Warmińsko-Mazurskie Province until 14 May – such places as cinemas, theaters, hotels, and shopping malls are closed; children in elementary school grades one to three will return to remote learning starting from Monday.

2 March

Start of registration for COVID-19 vaccinations for teachers and university teachers aged 69 and below.

4 March

– The first coronavirus case was detected in Poland one year ago.
– Changes in the vaccination program.
  - Those previously infected with SARS-CoV-2 will be vaccinated with one dose six months after the infection.
  - The authorities extend the time between the first and second doses for everyone else, with the second dose of AstraZeneca's vaccine being given 12 weeks after the first; for Pfizer's vaccine, this period is extended to 42 days.
  - Registration for vaccination for patients with chronic diseases will begin on 10 March, and the vaccinations will start on 15 March.

8 March

Poland's National Health Fund (NFZ) recommends that **scheduled health services should be** limited to the necessary minimum or **temporarily suspended**. The limitation should not apply to scheduled diagnostic tests and treatment of cancer.

WORLD

22 February

– United States – half a million deaths from COVID-19 according to NBC News. This is the world's highest death toll.
– The UK eases restrictions – all schools will return to in-person teaching from 8 March.

25 February

Czech laboratories confirm the detection of **the Beta variant of SARS-CoV-2** in the country.

26 February

– Slovakia extends the state of emergency until March 19.
– Israel: more than 50% of the population of 9.3 million people have been vaccinated with at least one dose of COVID-19 vaccine. 35% of the population received two doses of Pfizer's vaccine.

28 February

Thailand starts vaccinations with the Chinese vaccine.

1 March

Finland declares a state of emergency.

3 March

The German government extends the lockdown until 28 March, but at the same time eases some restrictions.

7 March

Austria decides to halt COVID-19 vaccinations using one of the batches of AstraZeneca's vaccines after the death of a 49-year-old woman.

2021

POLAND

10 MARCH

The number of patients on ventilators reaches a new record – **more than 1,900 hospitalized patients**.

12 MARCH

The WHO has **approved** a single-dose COVID-19 vaccine manufactured by **Johnson & Johnson.**

15 MARCH

- Restrictions in the **Mazowieckie Province and Lubuskie Province until 28 March.**
  - The operations of saunas, solariums, casinos etc. are suspended.
  - Hotels are closed except those providing accommodation for workers and business travelers.
  - Sports facilities are also closed.
  - Stores that include grocery stores, pharmacies, and drugstores may remain open in shopping malls. Services that include hair salons, as well as opticians, banking, and laundry services may still be provided there.
- Poland ranks second in the EU and 10th in the world in terms of vaccination rates. By 12 March, 4.2% of the Poles were fully vaccinated. The only country in the EU with a better result is Malta (8.7%). In Europe, higher vaccination rates are only recorded in Serbia (10.9%), Norway (4.6% – the situation as of 11 March) and Switzerland (4.3% – by 10 March).

WORLD

9 MARCH

- The Japanese government decides that this year's Olympics in Tokyo will be held without overseas spectators.
- The Chinese authorities announce the introduction of electronic health certificates with information about vaccinations and COVID-19 test results for citizens planning to travel abroad.

10 MARCH

More than 300 million doses of COVID-19 vaccines have already been administered in over 100 countries:

- Israel ranks first – 101.1 doses per 100 inhabitants;
- it is followed by the United Arab Emirates (63.4 doses), Bahrain (30 doses), the UK (35.2), the United States (27.3), as well as Chile (24.2) and Serbia (24.3);
- over 4 million doses of COVID-19 vaccines have been administered in Poland, which works out as 10.4 doses per 100 people.

11 MARCH

- **AstraZeneca vaccinations halted in more countries:**
  - the Italian Medicines Agency (AIFA) has banned the use of one batch of AstraZeneca's COVID-19 vaccine;
  - similar decisions have been made in Norway and Iceland;
  - the vaccine was previously temporarily suspended in Denmark and Austria.
- **The European Commission has granted marketing authorization for Johnson & Johnson's vaccine in the EU.**
- Chile has the world's highest vaccination rate per 100 people.

15 MARCH

Germany, Italy and France are halting vaccinations with AstraZeneca's vaccine.

PAUL MCMANUS/PIXABAY

ACADEMIA CALENDAR 2021

POLAND

17 MARCH

Distance learning for elementary school grades one to three until 9 April. A decision on a potential return to in-person learning will be made after the Easter holidays. Preschools and day-care centers operate normally.

18 MARCH

Start of registration for COVID-19 vaccinations for those aged 67–68 years. Registration is open from 18 to 20 March.

20 MARCH

More severe restrictions. They remain in effect until 9 April, including the Easter (4 and 5 April):

- Grocery stores, pharmacies, drugstores, newsstands, bookstores, pet stores, and stores with building supplies are open in shopping malls.
- Service providers such as hair salons, opticians, banks, and laundries are open in shopping malls.
- Cinemas, theaters, museums, and art galleries are closed.
- Cultural institutions may hold rehearsals and online events.
- Saunas, solariums, baths, weight loss salons, ski slopes, and casinos may not operate.
- Swimming pools are closed, except for those providing medical services and those providing training services for the national team.
- Fitness clubs, gyms, and other sports facilities are closed.
- Elementary school students in grades one to three who previously received in-person or hybrid instruction will switch to remote learning.
- The government also recommends working online "wherever possible."
- Churches are open with the attendance limit of one person per 15 square meters.
- Preschools and day-care centers will operate normally.
- People are still required to wear masks to cover the mouth and nose in public places.

21 MARCH

– Germany considers Poland to be a high-risk country in terms of the COVID-19 spread – those arriving in Germany must have a negative coronavirus test taken no earlier than 48 hours before arrival.
– Czechia has classified Poland, Cyprus, Denmark, and Norway as countries with the highest epidemic risk. Individuals arriving in Czechia from these countries must have a negative COVID-19 test taken no earlier than 72 hours before arrival.

24 MARCH

The start of vaccinations for the uniformed services.

WORLD

18 MARCH

– European countries are resuming vaccinations with the AstraZeneca product:
  - Italy was the first to announce the resumption of vaccinations. Vaccinations will be restarted on 19 March.
  - Vaccinations with AstraZeneca will also resume in Germany.
  - Spain, Lithuania, Latvia, and Cyprus have also announced the resumption of vaccinations.
– Gibraltar is the first place in the world to vaccinate its entire adult population.

MANOEJ PAATEEL/SHUTTERSTOCK.COM

2021

POLAND

26 MARCH

The daily number of new infections hits another record high – **35,143 people**.

27 MARCH

New safety rules from 27 March to 9 April 2021:

- Large furniture and home improvement stores of over 2,000 square meters are closed.
- Shopping centers and malls are closed. Exceptions include grocery stores, pharmacies and drugstores, newsstands, and bookstores.
- There will be new customer limits in retail establishments at marketplaces and in post offices:
  - one person per 15 square meters – in stores up to 100 square meters;
  - one person per 20 square meters – in stores of more than 100 square meters.
- Places of worship – one person per 20 square meters. The requirement to cover the mouth and nose and maintain distance of 1.5 meter.
- A nationwide ban on the operations of hair, beauty, and cosmetic salons.
- Preschools and day-care centers are closed, but they are open for children whose parents work in healthcare and law enforcement services.
- Sports facilities will be open to professional athletes only.
- Online work is recommended wherever possible.

Other restrictions remain unchanged.

29 MARCH

- Nearly 17,000 new cases; the number of patients in hospitals and on ventilators reaches a new record.
- The government makes quarantine mandatory for all travelers returning from non–Schengen countries. Exemption from quarantine is possible on presentation of a negative test taken no later than 48 hours before arrival.
- The Ministry of Health has asked medical universities to make lists of students ready to work with COVID-19 patients. Heads of provinces will use them to assign students to specific healthcare centers as needed.

30 MARCH

– Changes in the vaccination program:
- Vaccination sites, including drive-through sites and pharmacies; vaccinations may be administered by nurses and paramedics.
- Eligibility to receive a vaccine may be determined by doctors, dentists, nurses, midwifes, feldshers, paramedics, laboratory diagnosticians, pharmacists, or final-year medical students, among others.

WORLD

27 MARCH

– New Zealand, Singapore, and Australia are the countries that have coped best with the pandemic, according to a Bloomberg ranking from March. The countries that vaccinate their residents quickly, such as Israel and the UAE, have gone up the ranking.
– In France, authorities have stepped up checks of compliance with the travel ban.

ANDREW ATKINSON/SHUTTERSTOCK.COM

30 MARCH

All travelers who wish to arrive in Germany by plane must take a COVID-19 test.

POLAND

– Sanitary controls, in place since February on the borders with Czechia and Slovakia, will also apply to Poland's other land borders, which are the EU's internal borders, which means the borders with Germany and Lithuania. Quarantine will be mandatory for all people arriving in Poland regardless of the type of transport they use.

1 April

35,251 new confirmed cases.

7 April

Restrictions extended until 18 April:

- Large stores selling furniture and building supplies are closed, and so are hair and beauty salons.
- Limits on the number of people in retail establishments, at marketplaces, or in post offices: one person per 15 square meters in stores up to 100 square meters and one person per 20 square meters in stores over 100 square meters.
- The limit of one person per 20 square meters also applies to places of worship.
- No change in the requirement to cover the mouth and nose and to keep a distance of 1.5 meter from other people.
- Shopping centers and malls remain closed. Exceptions include grocery stores, pharmacies and drug stores, newsstands, and bookstores.
- Hotels remain closed (except for hotels offering accommodation for workers, medical professionals, professional drivers, and soldiers, among other professions).

19 April

Preschools and day-care centers will resume work. Outdoor sports are again allowed.

21 April

– Restrictions are maintained in the five provinces with the most difficult epidemic situation.
– In 11 provinces, students in elementary school grades one to three return to blended learning starting from 26 April.

WORLD

2 April

The Netherlands is temporarily halting vaccinations with AstraZeneca's vaccine for people under the age of 60.

8 April

Germany is running short of intensive-care beds.

12 April

London is easing restrictions – restaurants and pubs in the city can serve alcohol and meals in outdoor gardens. Stores, gyms, as well as hair and beauty salons are also open in the UK.

13 April

COVID-19 deaths in Europe have exceeded one million. According to official statistics, the largest number of COVID-19 deaths has been reported in the UK – 127,100. More than 100,000 deaths were also reported in Italy (114,612) and Russia (103,263).

14 April

Denmark is the world's only country that has decided not to use the AstraZeneca vaccine.

19 April

– Slovakia is lifting some restrictions – stores have opened for the first time in four months. Such places as hotels, ski resorts, outdoor sports facilities, zoos, and botanical gardens will be open.
– India: over 250,000 new coronavirus infections (278,000).

24 April

More than 893,000 new infections have been reported worldwide. This is the highest daily number of cases since the beginning of the pandemic.

2021

POLAND

26 April

– Beauty, hair, tattoo, and piercing salons reopen in 11 provinces. In the remaining five provinces (Śląskie, Dolnośląskie, Wielkopolskie, Łódzkie, and Opolskie) the same restrictions still apply due to a high number of infections.
– First case of **the Delta variant** in Poland.

4 May

The easing of restrictions:
- Art galleries and museums, home improvement stores, furniture stores, and shopping malls reopen.
- Church attendance limits: one person per 15 square meters in places of worship. It is recommended that masses should be held outdoors.
- In-person instruction for elementary school grades one to three under a strict sanitary regime.

6 May

The Gamma variant is detected in the Śląsk region.

11 May

The government has decided to shorten the interval between the first and second doses of Moderna, Pfizer, and AstraZeneca vaccines to 35 days. The shortened interval will automatically apply to those who will receive vaccines starting from 17 May.

15 May

The easing of restrictions:
- The requirement to wear masks outdoors is lifted. However, it is necessary to cover the nose and mouth in closed spaces, including public transport vehicles, stores, churches, cinemas, and theaters.
- Limits of passengers in public transportation vehicles: 100% of the number of seats or 50% of the number of all places (standing and seated).
- Outdoor dining services are allowed.

WORLD

25 April

A record-high number of cases in India, which is in the worst situation in terms of the epidemic.

26 April

Turkey is imposing a full lockdown until 17 May.

27 April

About one million Italians dine at restaurants for the first time in six months as restrictions are eased in most regions of the country.

NINA EVENSEN/PIXABAY

8 May

400,000 infections per day in India.

9 May

Other European countries are easing sanitary restrictions: Slovakia, Czech Republic, Germany.

11 May

Slovakia halts vaccinations with AstraZeneca's vaccine.

12 May

The Norwegian government has opted out of AstraZeneca's and Johnson & Johnson's vaccines.

15 May

A rise in infections in Taiwan – 180 new cases of local SARS-CoV-2 infections have been recorded.

ACADEMIA CALENDAR 2021

POLAND

- Cinemas, movie screenings, theaters, operas, open-air philharmonic performances – maximum 50% capacity.
- Community and culture centers, day-care facilities, educational and leisure activities conducted by cultural institutions outdoors under a sanitary regime.
- Blended learning for elementary school grades four to eight and high school grades one to four.
- Outdoor sports facilities – maximum 25% of the audience.
- Sports activities and events outside of sports facilities – a limit of 150 people.

17 May

Students in grades four to eight of elementary schools, secondary schools, continuing education institutions, and vocational training centers switch to blended learning.

28 May

The easing of restrictions:

- dine-in services – maximum 50% capacity of the premises;
- special-event gatherings held indoors (including weddings and first communion parties) – up to 50 people;
- indoor sports facilities, swimming pools for everyone + 50% capacity of the facilities (this also applies to the audience);
- sports activities and events outside of sports facilities – limited to 250 people;
- gyms, fitness clubs, solariums – a limit of one person per 15 square meters.

29 May

Primary and secondary schools – in-person instruction for all students under a sanitary regime.

HALFPOINT/SHUTTERSTOCK.COM

WORLD

16 May

Italy no longer requires a five-day quarantine upon arrival from EU countries, the Schengen Area, the UK, and Israel. The only requirement is a negative test result.

18 May

Austria abandons vaccinations with AstraZeneca's vaccine.

19 May

The Taiwanese authorities have tightened the restrictions.

28 May

The EMA recommends the approval of vaccines for use in children aged 12 and older. The Committee for Medicinal Products has approved the use of Pfizer's vaccine in children aged 12–15 years.

29 May

Europe is loosening restrictions. Restaurants, beaches, and museums are open in Hungary, Austria, and certain regions in Germany.

31 May

The European Commission grants authorization for the use of the Pfizer/BioNTech vaccine in children aged 12–15 years.

1 June

Almost all restrictions have been lifted in Israel over a continued decline in infections.

2021

POLAND

6 June

New regulations easing numerous epidemic restrictions come into effect:
- The attendance limit for outdoor events and meetings, either on the premises or in a designated area, has increased from 50 to 150 people.
- In public transport vehicles and on local and regional trains, 75% of the capacity may be occupied. In long-distance transport, the limit is 100% of the seating capacity, while all standing places must remain unoccupied.
- Gyms and fitness clubs can operate with a limit of one person per 15 square meters.
- Places such as puzzle rooms and dance areas reopen.
- Trade shows, conferences, and exhibitions may be held with a limit of one person per 15 square meters.

7 June

The start of vaccinations for adolescents aged 12 to 15.

13 June

Changes in restrictions:
- In churches and places of worship, half of all seats may be occupied (this does not apply to vaccinated individuals).
- Snacks and beverages may be sold and eaten in cinemas and other cultural institutions.

15 June

In Poland, 9,747,952 people have been fully vaccinated with Pfizer/ BioNTech, Moderna, and AstraZeneca vaccines or with the Johnson & Johnson single-shot vaccine.

17 June

Infections in Poland are dominated by the Alpha (British) variant, but there are other variants as well. According to data from Poland's National Sanitary Inspectorate, 12 cases of the Gamma (Brazilian) variant, 84 cases of the Delta (Indian) variant, and 33 cases of the Beta (South African) variant have been identified so far.

WORLD

4 June

- The Delta variant in Australia.
- More than 6,000 new infections have been reported in the UK – the highest count since late March.

5 June

COVID-19 vaccines are in short supply in Brazil, and the country's medical regulator has conditionally approved imports of Russia's Sputnik V and India's Covaxin.

DIY13/SHUTTERSTOCK.COM

10 June

In India, COVID-19-related daily deaths have hit a record of 6,148.

15 June

- **The Delta variant spreads despite lockdowns. It has already reached 74 countries. Outbreaks have been identified in China, the United States, Scandinavia, African countries, and Oceania.**
- Israel lifts the requirement to wear masks indoors. This does not apply to people who have not been vaccinated or have not recovered from COVID-19, individuals going into quarantine, as well as airline passengers.

17 June

Russia: the highest daily number of COVID-19 deaths since March – 416 people.

POLAND

WILLIAM.VACCARO/SHUTTERSTOCK.COM

22 June

Mandatory seven-day quarantine for those arriving from the UK. Release from the quarantine is only possible based on the negative result of a test taken no earlier than after one week.

PHOELIXDE/SHUTTERSTOCK.COM

WORLD

18 June

- **WHO: the highly-contagious Delta variant begins to dominate the world. This variant is mainly observed in the UK, Germany, and Russia.**
- Moscow reports a daily record of infections – 9,056 new cases of COVID-19.

19 June

- Europe is easing restrictions:
  - Curfew lifted in France on 20 June.
  - Italy to lift curfew on 21 June; gatherings are still banned and masks are required also outdoors.
  - In Germany, starting from 21 June, the requirement to wear masks will be lifted on the streets of Berlin. However, masks will be required in places where social distancing is impossible.
- A full lockdown in Uganda – nearly 12,000 new cases.

20 June

Taipei receives 2.5 million Moderna vaccines donated by the United States.

22 June

Europe eases the restrictions for tourists – no COVID-19 test, certificates, and quarantine are required to travel to Croatia, Spain, Czechia, Romania, Albania, and Cyprus, among other countries. Children below 12 years may enter Portugal and Greece without tests.

23 June

Israel: the highest count of infections in two months – 125. The Delta variant is responsible for 70% of these cases.

24 June

The Portuguese government has announced the return of anti-epidemic restrictions, including a ban on the movement of citizens in the regions hardest hit by the pandemic.

25 June

- The Israeli authorities have announced the return of the requirement to wear masks in enclosed public places after a surge in infections.
- A week-long lockdown has been imposed in downtown Sydney and the city's eastern suburbs following detection of infections with the Delta variant.

2021

POLAND

26 June

Government is easing restrictions ahead of summer vacations. Limits do not apply to vaccinated individuals:

- gyms, fitness clubs, casinos, retail establishments, post offices, libraries, trade shows, conferences – one person per 10 square meters;
- places of worship – limited to 75% capacity; from June 13 – limited to 50% capacity;
- dance clubs – no more than 150 people;
- events and meetings held outdoors, indoors, or in a designated food service area – no changes, limited to 150 people; gatherings – limited to 150 people;
- transportation – 100% capacity; passengers should wear masks that cover the mouth and nose;
- cinemas and theaters – limited to 75% capacity;
- hotels – no more than 75% of rooms may be occupied by guests; the limit does not apply to organized groups of children and adolescents under 12 years of age;
- restaurants – limited to 75% capacity,
- audience at sports facilities – limited to 50% capacity.

1 July

The EU's COVID Certificate becomes available to use. It entitles its holders to travel freely in the Community during the pandemic.

6 July

Slovakia has closed some of its border crossings with Poland.

19 July

Infections with the Delta variant of SARS-CoV-2 confirmed in 185 individuals (47% of all new mutations in Poland).

WORLD

26 June

Delta infections in Portugal on the rise.

LEXANDRE ROTENBERG/SHUTTERSTOCK.COM

1 July

The government of Portugal has announced a nighttime curfew in 45 municipalities.

6 July

The Lambda variant reaches Australia.

8 July

With a state of emergency declared in Tokyo until 22 August, the organizers of the Olympics have decided to hold the games without spectators.

13 July

Daily deaths in Russia reach 780, the highest count since the beginning of the pandemic.

15 July

- The highest number of new COVID-19 cases (48,553) and deaths (63) in the UK since the start of the third wave of infections.
- In Greece, Portugal, and France people are only allowed into restaurants, cinemas, and dance clubs with a COVID-19 certificate or a current negative test result.

ACADEMIA CALENDAR 2021

POLAND

23 July

The EMA recommends the authorization of **Moderna's COVID-19 vaccine for use in children aged 12 to 17 years**.

MILANMARKOVIC78/SHUTTERSTOCK.COM

13 August

The Ministry of Health has announced that children may be vaccinated with the Moderna vaccine.

WORLD

21 July

New restrictions in France to affect only the unvaccinated – they will not be allowed into certain stores, shopping malls, cinemas, and restaurants.

22 July

Delta accounts for 80% of infections worldwide. The number of SARS-CoV-2 infections worldwide has risen by 25% over the past two weeks, with a daily count of infections now exceeding half a million. Most new cases are reported in Asia, but the figures are growing at the fastest rates in North America and Europe.

30 July

The start of vaccinations with third doses for people over 60 years of age.

1 August

Those who want to arrive in Germany must present a negative COVID-19 test result.

2 August

Only fully vaccinated individuals may enter Slovakia without mandatory quarantine.

6 August

The first day of the Italian "green pass." Italians and foreigners are asked to show their green passes in bars and restaurants, in museums, and in some hotels.

10 August

The UK reports the highest number of deaths since March.

13 August

The US Food and Drug Administration (FDA) has allowed third doses of COVID-19 vaccines produced by Pfizer and Moderna in immunocompromised individuals.

18 August

A surge in infections in Germany – 8,324 new cases.

2021

POLAND

DARSZACH/SHUTTERSTOCK.COM

1 September

The third dose of the COVID-19 vaccine may be taken by people with immune system disorders. The list includes seven groups of patients, including cancer patients, transplant patients, patients with immune system disorders, HIV patients, and patients on dialysis.

5 September

400,000 COVID-19 vaccine doses donated by Poland have arrived in Taiwan.

8 September

- **Nearly 19 million people** in Poland are fully vaccinated against COVID-19.
- Poland sends humanitarian aid to Vietnam (chiefly medical and personal protective equipment).

WORLD

24 August

Malta becomes the world's first country where 90% of the population over the age of 12 has been fully vaccinated against COVID-19.

29 August

Israel's medical authorities have authorized the use of the third dose of the COVID-19 vaccine in all those over the age of 12 who received their second dose at least five months earlier.

30 August

In South Africa, a new potentially hazardous variant named C.1.2 has been identified.

31 August

- The EU has removed six countries from its "safe travel" list: the United States, Israel, Kosovo, Lebanon, Montenegro, and North Macedonia.
- 60% of Germans are now vaccinated against COVID-19.
- Growth in infections in Belgium – over 2,000 infections per day for the first time in many months.

6 September

Portugal withdraws from third doses of COVID-19 vaccines.

10 September

Denmark lifts all restrictions. They have been in effect for 18 months.

14 September

In the UK, healthy children aged 12–15 will be vaccinated against COVID-19.

19 September

Third vaccine doses are administered in France, Germany, Denmark, and Hungary. In Israel, in turn, there are pledges of fourth doses.

ACADEMIA CALENDAR 2021

POLAND

20 September

- The vaccine developed by **Pfizer and BioNTech vaccine may be used in children aged 5–11**.
- A year and a half into the pandemic, Poland ranks second in Europe in terms of excess deaths – there are 140,000 of them.

24 September

Start of registration for third-dose vaccinations for those aged 50+ and healthcare professionals who have regular contact with patients.

27 September

26,000 people in Poland have already received their third COVID-19 vaccine doses.

29 September

The Ministry of Foreign Affairs has announced that a shipment of 100,000 AstraZeneca vaccines has been sent to Cairo.

4 October

EMA: an extra dose of the COVID-19 vaccines may be given to individuals with weakened immune systems **at least 28 days after their second dose**. The new recommendations do not apply to individuals with normal immune systems. According to the EMA, booster doses for such individuals may be considered at least six months after their second dose.

10 October

An application has been submitted to the Food and Drug Administration (FDA) for approval of molnupiravir for the treatment of COVID-19 in adults.

WORLD

20 September

Start of COVID-19 vaccinations for children aged 12–15 years in the UK.

23 September

Mandatory vaccinations for teachers in Israel. Teachers without the COVID-19 certificate will not be allowed to work on school premises starting from 3 October.

25 September

Norway lifts most restrictions, including limits on public gatherings and social distancing recommendations.

6 October

Sweden has partially halted COVID-19 vaccinations with the Moderna vaccine (for those born in 1991 and later) over cases of adverse reactions.

7 October

Finland halts vaccinations with the Modern vaccine in men under 30. A study found that men in this age group had a slightly higher risk of developing myocarditis.

8 October

Over 40,000 daily infections in the UK.

9 October

Russia: a record number of COVID-19 deaths since the beginning of the pandemic – 968 deaths over the past 24 hours.

13 October

In Italy, over 80% of the population over 12 years of age have been vaccinated with two doses of the vaccine.

2021

POLAND

PRASZKIEWICZ/SHUTTERSTOCK.COM

19 October

Changes in the rules for wearing masks:
- Covering the mouth and nose at universities as well as units educating PhD students and providing postgraduate programs is mandatory unless otherwise decided by the rector or the head of the unit.
- Covering the mouth and nose does not apply to examinees and other individuals participating in such exams as exams for eighth graders, exams for high school leavers (*matura* exams), professional certification exams, as well as competitions for candidates for trainee judges and trainee prosecutors.

25 October

The EMA has concluded that a booster dose of the Moderna vaccine could be considered in people aged 18 years and above.

31 October

Current epidemic restrictions, orders, and prohibitions will remain in effect until 30 November. The most important restrictions are:
- maintain a minimum distance of 1.5 m between pedestrians, except for parents and children, and people who live together;
- the requirement to wear masks covering the nose and mouth: on buses, streetcars, and train, in stores, state offices, and churches;
- a limited capacity of theaters and cinemas.

2 November

Start of registration for booster doses for all adults who were fully vaccinated at least six months earlier.

WORLD

15 October

- **Vaccinated travelers from all countries will be able to travel freely to the United States starting from 8 November.**
- Fully vaccinated foreign tourists arriving in India using charter flights are allowed to enter the country.

16 October

In many European countries, the fourth wave of infections has been weaker than the previous waves. A very bad situation in terms of infections and deaths is noted in Romania, Russia, and Lithuania, among other countries.

18 October

Latvia has imposed a lockdown from 21 October to 15 November – it is one of the EU countries with the lowest vaccination rates.

29 October

- In Ukraine, a record-high number of new infections was reported for two days in a row – almost 27,000 cases.
- South Korean authorities have announced the lifting of all restrictions regarding the opening hours of restaurants and the introduction of the country's first "vaccination passport" in high-risk areas such as bars, gyms, and saunas.

1 November

Australia has opened its borders after nearly 19 months.

POLAND

3 November

The WHO has granted approval for emergency use to India's COVID-19 vaccine, Covaxin. The product has 78% efficacy and is the eighth vaccine with WHO approval.

13 November

The Ministry of Health is extending the validity of covid certificates for individuals who have received their third dose. The document will be valid for one year from the date of the booster dose.

GOV.PL

17 November

24,239 new confirmed cases. Over the past 24 hours, 463 people have died.

WORLD

4 November

- **The UK drug regulator has granted conditional marketing authorization to a drug for COVID-19, making the UK the world's first country where the medicine will be used.**
- Record-high counts of infections and deaths in Poland's neighbors:
  - 27,377 infections and 699 deaths due to COVID-19 have been recorded in Ukraine,
  - a record-high number of infections has also been reported in Germany – 33,949 new confirmed cases,
  - the fourth wave of infections has also affected Russia – 40,217 new confirmed cases and 1,195 deaths over the past 24 hours,
  - infections also hit a record in Slovakia – 6,713 positive test results.

11 November

A new coronavirus variant has been detected in Botswana.

14 November

Europe remains the epicenter of the pandemic – 2 million cases have been recorded in just seven days.

15 November

Due to the continued high number of COVID-19 new cases, Austria has decided to impose a lockdown for unvaccinated individuals.

16 November

With a renewed surge in infections, the Irish government has announced the return of some restrictions. Although 93% of the adult population is vaccinated, Ireland currently has one of the world's highest infection rates.

19 November

The governments of Denmark and Norway are stepping up pandemic-related restrictions. Both countries have noted record-high counts of COVID-19 cases in recent days.

22 November

- A record rise in SARS-CoV-2 infections in Germany – more than 30,600 new cases have been detected over the past 24 hours.
- **Israel is the world's second country after the United States to start vaccinations for children aged 5–11 years.**

2021

POLAND

25 November

The EMA issues a positive opinion for use of the COVID-19 vaccine in **children aged 5–11 years**.

26 November

WHO confirms identification of a new **variant of SARS-CoV-2 named Omicron**.

29 November

The Ministry of Health issues new restrictions:
- a ban on flights to seven countries – Botswana, Eswatini, Lesotho, Mozambique, Namibia, South Africa, and Zimbabwe;
- individuals returning from these countries will be placed under an extended 14-day quarantine with no possibility of shortening it upon the presentation of a negative test result.

30 November

- 19,074 new cases and **526 deaths over the past day**.
- **The European Commission has approved** Pfizer/BioNTech's Comirnaty vaccine against COVID-19 for children aged **5 to 11 years**.

1 December

- 29,064 new cases and **570 deaths**.
- New restrictions until 17 December 2021:
  - churches, catering establishments, hotels, cinemas, theaters, opera houses, philharmonic halls, community and cultural centers, concerts, circus shows, swimming pools, and aquaparks – limited to 50% capacity (now 75%);
  - gatherings, weddings, first communion parties, funerals, meetings, dance parties – a maximum of 100 people (now 150),
  - sports events (outside sports facilities) – a maximum of 250 people (now 500),
  - gyms, fitness clubs and fitness centers, casinos, museums, art galleries, trade shows, exhibitions, conventions, conferences, stores, and shopping malls – one person per 15 square meters (now one person per 10 square meters).

WORLD

24 November

- The Slovak government introduces a state of emergency starting from midnight. At the same time, it has imposed a lockdown for two weeks. The regulations will apply to all citizens, including the vaccinated ones.
- A record 4,115 new infections have been reported in South Korea, and the number of patients in critical condition is the highest since the outbreak of the pandemic.

25 November

A state of emergency is declared in Czechia.

26 November

- **WHO: a new coronavirus variant named Omicron.**
- **A coronavirus variant has been detected in Israel and Belgium.**

29 November

- Japan is closing its borders for fear of Omicron infections.
- The United States will ban travelers from eight African countries from crossing its border.

30 November

- 42 cases of Omicron infections in 10 EU countries.
- The first infection with the Omicron variant has been confirmed in Japan.

3 December

South Africa is hit by a fourth wave of COVID-19 infections driven by the Omicron variant. The number of cases has tripled in three days.

5 December

The first two infections with the Omicron variant have been detected in Latvia.

7 December

The UK returns to the requirement of pre-arrival tests.

POLAND

11 December

Vaccinations against COVID-19 for children aged 5–11 will begin in Poland on 16 December.

15 December

- Cinemas have a 30% occupancy limit, and viewers cannot be seated immediately next to one another. No consumption of drinks and beverages during screenings. The limit does not include people who have been vaccinated on the condition they present the EU's certificate, a negative test result, or a COVID-19 recovery certificate.
- There is still a limit of one person per 15 square meters in enclosed spaces without designated audience seats – concerts, community centers, libraries, museums, and art galleries.

16 December

- Start of COVID-19 vaccinations for **children aged 5 to 11**.
- First case of the Omicron variant in Poland.

19 December

The first shipment of COVID-19 drugs has arrived in Poland. The EMA recommended the authorization of Ronapreve and Regkirona on 11 November.

20 December

From 20 December 2021 to 9 January 2022, remote learning in elementary and secondary schools.

MOHAMED HASSAN/PIXABAY

31 December/1 January

The number of guests in indoor venues limited to 100 (excluding vaccinated individuals).

WORLD

14 December

- Italy extends the state of emergency until the end of March.
- The Chinese public health authorities have confirmed the first Omicron infection.
- **Director-General of the WHO: Omicron is now present worldwide; no coronavirus variant to date has spread as fast as Omicron.**

16 December

The use of molnupiravir, the COVID-19 oral drug by Merck & Co., has been approved in Denmark, making it the first EU country to officially authorize the use of the drug.

19 December

A strict lockdown in the Netherlands: stores, restaurants, bars, hair salons, gyms, cinemas, theaters, and museums are closed.

21 December

The European Commission has adopted rules establishing an acceptance period of nine months (270 days) from the primary vaccination for the EU Digital COVID Certificate. A booster dose will be required to renew the document. The new rules will apply to the 27 EU countries starting from 1 February.

27 December

Israel is speeding up the administration of the third doses of the COVID-19 vaccine. They will be administered after just three months. The new rules will apply to two-dose vaccines produced by Pfizer, Moderna, and AstraZeneca.

29 December

A record-high number of SARS-CoV-2 infections in Italy – 98,000. It is the highest daily count of COVID-19 cases in Italy since the beginning of the pandemic.

UNDERSTANDING COVID-19

www.academia.pan.pl

ACADEMIA

www.pan.pl