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# VACCINE-PREVENTABLE RESPIRATORY DISEASES

## CHALLENGES AND RECOMMENDATIONS FOR THE FUTURE



Instytut Praw Pacjenta  
i Edukacji Zdrowotnej



**POLSKA ZDROWO ODDYCHA**  
SOJUSZ NA RZECZ ZWALCZANIA  
CHOROÓB ZAKAŻNYCH  
UKŁADU ODDECHOWEGO

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# INTRODUCTION

In recent years, respiratory diseases have become one of the most important health challenges of the modern world. Even before the COVID-19 pandemic, the World Health Organization (WHO) was pointing to this urgent health problem and calling for long-term strategies to combat these diseases. Numbers show that the problem is serious for both individuals and health systems. Only in 2018, according to Central Statistical Office data, pneumonia was the 4th most common cause of death in the population of people over 65 years of age (approx. 5% of all deaths). It is also one of the most common reasons for hospitalization of adults, contributing to huge direct costs related to treatment, reaching approx. PLN 169 million per year. We have learned about how great a burden respiratory diseases are on health systems in the last two years, when due to the SARS-CoV-2 infection, health systems were completely paralysed and millions of people around the world did not survive the virus-induced disease, usually manifested by severe pneumonia.

Experts and available scientific data point out that many respiratory diseases can be reduced at a relatively low cost by means of preventive vaccinations, e.g. against influenza, pneumococci, whooping cough, COVID-19. Vaccination remains the most effective form of protection and a pillar of modern public health. In order to maximize the resilience of our society and health system to future pandemics and the growing problem of respiratory diseases, it is necessary to give high priority to prevention, public education as well as significantly expand vaccination programmes, develop and implement a life-cycle vaccination strategy to include adults.

The effective fight against infectious respiratory diseases will not be possible without a long-term action plan that will identify priority areas in terms of prevention, patient pathway and reliable education on infectious agents - influenza, pneumococci, whooping cough or COVID-19, which pose a high risk of diseases respiratory system. A new look at this health problem is needed, going beyond narrowly understood medical problems - a comprehensive system of actions - including extending vaccination programmes to all



Not every epidemic can be predicted and prepared for. However, the growing problem of respiratory diseases was noticed by experts and health organizations in time, and the alarm was raised on time. Therefore, today we cannot afford not to seize the opportunity and do everything in our power to prevent lung diseases that can be prevented by vaccination.

stages of life, providing special protection to people from risk groups, e.g. chronically ill and seniors, and the implementation of the so-called fast track for patients with such conditions.

Not every epidemic can be predicted and prepared for. However, the growing problem of respiratory diseases was noticed by experts and health organizations in time, and the alarm was raised on time. Therefore, today we cannot afford not to seize the opportunity and do everything in our power to prevent lung diseases that can be prevented by vaccination.

I hope you will find this report interesting and that we all will be able to implement constructive systemic solutions that improve the health safety of patients in Poland.

Rev. Arkadiusz Nowak, PhD,  
president of the Institute of Patient Rights and Health  
Education

# VACCINE-PREVENTABLE RESPIRATORY DISEASES AS A CURRENT HEALTH PROBLEM

Vaccine-Preventable Respiratory Diseases (VPRDs) will be an increasingly urgent health challenge for patients, physicians and health systems. In the light of a rapidly aging society, infections caused by an infectious agent – influenza virus, *Streptococcus pneumoniae* bacteria or SARS-CoV-2 – and related complications will be an increasingly common health problem in Poland and Europe. In this context, the priority will be to maintain good condition and good health in old age as long as possible.



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Preparing for the challenges of the future, public health strategies must focus today on preventing respiratory diseases that can be prevented, for example, by vaccination. Increasing the availability of vaccinations, in particular for adults with a higher risk of infection, is one of the factors mitigating the effects of unfavourable demographic changes.

The etiology of infectious respiratory diseases can be bacterial or viral, and the group of diseases that we must pay special attention to include, among others: pneumococcal pneumonia (caused by the pneumococci bacteria), flu complications (caused by the influenza virus), COVID-19 (caused by the SARS-CoV-2 coronavirus), whooping cough (caused by the pertussis bacteria) and tuberculosis (caused by the bacteria - mycobacterium tuberculosis).

Today, medicine is getting better at dealing with these diseases. The basis is primarily prophylaxis in the form of protective vaccinations, but also appropriate habits - compliance with



Infectious respiratory diseases are an important epidemic threat, especially in the context of our modern lifestyle. We live in increasingly crowded cities, we work in ever-larger population centres. We breathe one air, we use common means of transport, we can easily move from one end of the world to the other. Distance is no longer a barrier for viruses, and infections are transmitted very quickly.

epidemiological rules, a healthy lifestyle that increase the immunity of our body. Equally important is the access to effective antiviral or antibiotic therapy, the effectiveness of which is also becoming a greater challenge in combating, among others, antibiotic-resistant pneumococcal pneumonia.

Vaccination remains crucial and the most effective in preventing infectious respiratory diseases. When planning long-term strategic solutions or introducing vaccination plans for adults, one should take into account, above all, those infectious agents that are associated with the greatest risk of causing serious respiratory diseases: pneumococcal pneumonia, COVID-19, whooping cough and influenza. Vaccines reduce the risk of infection, and in the event of a pandemic or seasonal epidemic, they effectively limit



We must be aware that in the near future Poland will face not only an increase in COVID-19 cases, but also a heavy flu season and infections caused by other respiratory pathogens.

the transmission of the virus. Last but not least, vaccination reduces the possibility of virus mutations, which are the most unpredictable and therefore dangerous.

Infectious respiratory diseases are an important epidemic threat, especially in the context of our modern lifestyle. We live in increasingly crowded cities, we work in ever-larger population centres. We breathe one air, we use common means of transport, we can easily move from one end of the world to the other. Distance is no longer a barrier for viruses, and infections are transmitted very quickly. The COVID-19 pandemic, but also a number of other diseases, such as influenza, have already shown us that outbreaks of upper respiratory tract infection are moving at a very fast pace, not only from city to city, but also from continent to continent, and despite restrictions.

We must be aware that in the near future Poland will face not only an increase in COVID-19 cases, but also a heavy flu season and infections caused by other respiratory pathogens<sup>1</sup>. How we deal with this problem in a given country, whether there will be many hospitalizations and deaths caused by severe COVID-19 or pneumococcal pneumonia, will depend on the level of vaccination of a given population. Poland is one of the countries where, unfortunately, still too few people are vaccinated. We have a low level of vaccination against flu and apparently declining interest in vaccination against COVID-19.

The effects were and are visible. We have too many hospitalizations and deaths due to COVID-19. There is a high intensive transmission of the virus among school children, and young people are also getting infected more and more often. We also see a lot of family cases. However, the elderly, burdened with many diseases, are those who the most often have to be hospitalized. If they are unvaccinated, COVID-19 is very dangerous for them, often with unfavourable results.

Other than SARS-CoV-2 pathogens causing respiratory infections are also of concern. Probably due to the COVID-19 pandemic, there were some unusual phenomena. Our sensitivity to other respiratory pathogens may have increased. Co-infections are also dangerous, i.e. a situation when we become infected with two viruses at the same time.

1 Coronavirus pandemic: predictions for the future. The European Commission. Office in Poland. 2021  
[https://poland.representation.ec.europa.eu/news/pandemia-koronawirusa-prognozy-na-przyszlosc-2021-11-19\\_pl](https://poland.representation.ec.europa.eu/news/pandemia-koronawirusa-prognozy-na-przyszlosc-2021-11-19_pl)

The COVID-19 pandemic is certainly not the last pandemic that we will face. There are many factors that contribute to this: climate change, the issue of very poor biodiversity, the increasing expansion of man into areas that were previously inaccessible, and are both fascinating and dangerous. This makes respiratory diseases caused by infectious agents an increasing problem. To this let's add an aging society, and so we have an increasing population at risk of severe lung diseases. There is also the worryingly fast-growing problem of antibiotic resistance, which we can already see, for example, in the treatment of complications caused by pneumococcal bacteria, which are extremely resistant to antibiotic therapies.

It should also not be forgotten that respiratory diseases leave long-term effects, may cause some respiratory disability, and thus become a burden for the health care system. Therefore, it is worth taking all possible preventive measures that are cheap and effective today. We should especially care for people from the groups most at risk of severe complications of infectious respiratory diseases. Pneumonia is most common in people over 65 and adults with underlying health problems. Chronic diseases, especially COPD, heart, liver, kidneys diseases, nephrotic syndrome, diabetes, cancer and all conditions of impaired immunity, regardless of their cause, favour the development and severe course of pneumonia.

In my experience during the worst moments of the COVID-19 epidemic, the patients who were hit the hardest by the virus and who died were patients with additional diseases such as obesity and diabetes. Bacterial and viral infections in patients with chronic diseases occur more often than in the general population, and their course is usually more severe in these patients and complications occur more often.

Each case of pneumonia is dangerous, and the disease is associated with a high risk of complications, especially in the elderly and chronically ill. The health consequences can be both temporary and long-term, but in some cases they can last for life. In patients who have survived pneumonia, there is an increased risk of hospitalization, exacerbation of the underlying disease, and an increased risk of cardiovascular disease (both among people who have and those who have not had it before). There is also a high probability of a recurrence of the pneumonia, and thus also another hospitalization and reduced quality of life. Therefore, the latest recommendations and recommendations of scientific societies as well as advisory bodies recommend prophylaxis in the form of preventive vaccinations as a priority in groups particularly susceptible to the disease.

How to prevent infectious respiratory diseases? First of all, we must start with primary prevention - that is, leading a healthy lifestyle, taking care of our condition and thus preventing future diseases, such as overweight, diabetes, hypertension, asthma. The next step is vaccination not only for children, but also for adults, who must be easily accessible. The most important of them are those against pneumococcus, influenza, and still also

against COVID-19. I think that building trust in vaccination is also an important step - it is worth focusing on education and providing reliable data in a credible and understandable way.

Another important element is the good organization of the health care system that will cope better in times of crisis, which may be not only a pandemic, but actually every difficult autumn and winter season, when infections causing lung diseases accumulate, which are the most common reasons for hospitalization in Poland. It is also necessary to strengthen the structures supporting the health care system that already exist, not to build new units. It is worth relying on what has already been built and equipping laboratories so that they are prepared not only for current issues such as registration, research and detection of new cases, but also for the new challenge related to new pathogens, mutations and new tests. We have a network of health departments that have a fantastic track record in supervising, administering vaccinations and have a lot of experience in this field. Thanks to them, typhoid fever and tuberculosis were eliminated in the post-war times, and polio vaccinations were introduced very efficiently. However, funds must be allocated to strengthen these structures, equip them and implement strategic plans.



We can and must prepare ourselves to counteract infectious diseases that we can prevent – drawing, of course, from the experience we have from all the previous epidemics, but also prepare the system, procedures and education accordingly.

Therefore, we have a whole set of factors and causes that boil down to the question - how to prepare for the future and how to prevent infectious respiratory diseases?

I think that Poland is able to cope with the next pandemic, although it will largely depend on how the whole world copes with the epidemic - viruses and pathogens know no borders. Coronaviruses are nothing new and traces of their past epidemics have been found in the genome of the Asian population. The diet of the local nations, rich in various animal proteins, is responsible for this. However, due to the fact that there was no such migration of people in the past, the spread of coronaviruses was limited to Asia. In recent years, the SARS virus surprised us when it appeared in the Guangdong market in 2002 and caused an epidemic. It seemed that we knew everything about it, that there was cooperation between laboratories, that the problems were over. Meanwhile, a dozen or so years later, exactly the same scenario repeats itself - we have the Asian market and illnesses again. With the difference that the SARS-CoV-2 virus showed much greater strength and within 3 months it covered all continents. So we can

prepare ourselves, of course, from the experience we have from subsequent epidemics. But what else nature will surprise us with is still a big question mark.

What can we do today? We can and must prepare ourselves to counteract infectious diseases that we can prevent - drawing, of course, from the experience we have from all the previous epidemics, but also prepare the system, procedures and education accordingly.

# VACCINATIONS AGAINST VACCINE-PREVENTABLE RESPIRATORY DISEASES FROM A PUBLIC HEALTH PERSPECTIVE

Just a few years ago, infectious diseases seemed to be quite well controlled by us. And although both experts and health organizations warned from time to time about a dangerous virus that could cause a global pandemic, we focused primarily on civilization diseases. The COVID-19 pandemic has dramatically changed our thinking.



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We were reminded in a very painful way that infectious diseases exist and to what extent they can paralyze health systems. After more than two years of experience in trying to control the chaos caused by the SARS-CoV-2 virus, we will certainly look at infectious diseases more closely in the near future. We can also draw conclusions from the experience of recent months.

We have learned to use personal protective equipment, hygiene, keeping distance. We have also proven, as humanity, the effectiveness in discovering vaccines, medicines, and organizing the space in which the virus can be transmitted. The COVID-19 pandemic has shown where we have deficiencies in the health care system. We don't have enough infectious disease specialists, not enough epidemiologists. Fortunately, we have a hospital structure to help the most seriously ill and it seems that we have a strengthened State Sanitary and Epidemiological Inspection as a service. Therefore, there is something to build on and in the battle against microbes we are in an increasingly stronger position. Above all, when it comes to infectious diseases, we have a very good way of prevention - i.e. protective vaccinations, which are not only the most effective tool in the fight against infectious diseases, but also one of the most cost-effective interventions at the population level.



Preventing disease through vaccination programmes, while saving lives of millions of people around the world, generates tremendous public health value. These are not only significant health benefits at the individual and population level, but also savings for health systems.

Unfortunately, we forget about them in the case of the adult population, especially those who are at risk of complications of infectious diseases, such as pneumonia or myocarditis. And we can protect ourselves from them. We have vaccines against COVID-19, influenza, pneumococcus and whooping cough. Especially the elderly or those who suffer from many chronic diseases or have impaired immunity should be vaccinated.

Preventing disease through vaccination programmes, while saving the lives of millions of people around the world, generates tremendous public health value. These are not only significant health benefits at the individual and population level, but also savings for health systems. Therefore, in the face of new health challenges such as infectious diseases and their consequences, primarily respiratory diseases, it is necessary to



The scientific evidence is clear, vaccination is an essential health tool, and getting vaccinated is everyone's duty and responsibility. In turn, it is the responsibility of national systems to ensure equal access to effective vaccination programmes, which should ensure the possibility of a long and healthier life for all, regardless of gender, age and social group.

develop a strategy to expand vaccination programmes that protect more people at all stages of life. Expanding access to currently available and future vaccines can bring many benefits - savings resulting from disease prevention, added economic value to society by improving the health of individuals and populations, helping to solve the problem of antibiotic resistance.

Vaccination, considered one of the most important medical discoveries of our time, having saved millions of lives and significantly reduced disease, disability and inequality worldwide, is also an essential element of health care and a major preventive measure to protect societies from the effects of the spread of infectious diseases. Despite this, only a small percentage of health budgets in individual countries is allocated to prevention (widely covering both vaccination and healthy ageing, prevention of obesity, etc.). As you may read in the study "Vaccination budget in Europe" covering seven countries of Western Europe, from 0.90% to 4.66% of health care expenditure was spent on prevention in 2005-2016, while less than 0.5% was spent on vaccines (except for Germany, which allocated 0.62%).<sup>2</sup>

While there is some recognition of the direct and indirect benefits of vaccination, funding for National Immunization Programmes (NIPs) in many European countries remains insufficient, hindering the introduction of new innovative vaccines and jeopardizing access to existing ones.

The problem was noticed long before the COVID-19 pandemic. Back in 2018, the European Commission made recommendations on enhanced cooperation in the fight against vaccine-preventable diseases (VPD), calling on Member States to develop and implement plans to increase vaccination coverage,

2 Ethgen et al. (2018): Vaccination Budget in Europe: an update. *Human Vaccines & Immunotherapeutics* 2018, Vol. 14, (12), 2911-2915. <https://www.tandfonline.com/doi/full/10.1080/21645515.2018.1504528> (access 10.2022)



including also provisions on sustainable financing and supply of vaccines, as well as implementing a life-cycle approach to vaccination, crisis response capacity, communication and advocacy.<sup>3</sup>

The scientific evidence is clear, vaccination is an essential health tool, and getting vaccinated is everyone's duty and responsibility. In turn, it is the responsibility of national systems to ensure equal access to effective vaccination programmes, which should ensure the possibility of a long and healthier life for all, regardless of gender, age or social status.

In the future, there will certainly appear more than one dangerous pathogen for us, but how we will be prepared for it depends to a large extent on what solutions we implement today. Medicine will probably be up to the task - we have modern technologies for creating vaccines that have been refined, and preparations tested in practice, we have antiviral drugs. It will be necessary to implement systemic solutions and extend vaccinations at least in groups with high risk of complications from the respiratory system. However, no implemented systemic solutions will work sufficiently if we do not restore faith in medical authorities and restore the belief in the value of vaccinations.

3 Official Journal of the European Union. Council Recommendation of & December 2018 on strengthened co-operation against vaccine-preventable diseases [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H1228\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H1228(01))

# SYSTEMIC CHALLENGES IN THE PREVENTION OF INFECTIOUS RESPIRATORY DISEASES

In 2019, in OECD countries, more than 3 million premature deaths among people under the age of 75 could have been avoided with a better prevention or access to effective treatments. This accounted for more than a quarter of all deaths. Of these deaths, approximately 1.9 million were considered preventable through effective prevention and more than 1 million as preventable through more effective treatment.



**DR JAKUB GIERCZYŃSKI, MBA**  
HEALTH SYSTEM  
EXPERT

Respiratory diseases can also be prevented in this context. They account for about 8% of all preventable deaths (vaccinations, epidemiological principles) and 9% of all preventable deaths due to effective therapies.<sup>4</sup>

## Infectious respiratory diseases as a challenge for health policy

In the European Union in 2018, there were 339,000 deaths due to respiratory diseases, which corresponded to 7.5% of all deaths. It means that almost every thirteenth citizen of the European Union died of a respiratory disease. Therefore, infectious respiratory diseases such as COVID-19, influenza, pneumococcal pneumonia and whooping cough should be the focus of health systems when it comes to their prevention and treatment. In terms of prevention, vaccinations are the optimal tool, while in terms of treatment, it is the access to effective drugs and care at all levels of types of health services.<sup>5</sup>

According to the World Health Organization (WHO), vaccination is a success story in health and development around the world, saving millions of lives every year. Today's medicine has vaccines to prevent more than 20 life-threatening diseases, helping people of all ages to live longer and healthier lives. Vaccination prevents 3.5-5 million deaths from infectious diseases every year. It is a key element of basic health care and an indisputable human right to health. Vaccination is also one of the best investments in health, forming the basis of global health security. However, despite tremendous progress, vaccination rates, which have stabilized in recent years, have declined sharply since 2020.

The COVID-19 pandemic and its disruptions over the past two years have strained healthcare systems. WHO reports that 25 million children missed vaccination in 2021 - 6 million more than in 2019 and it is the highest number since 2009. By the end of 2021, almost all countries had vaccinated against COVID-19, and by early 2022 1 billion doses of COVID-19 vaccines delivered.<sup>6</sup> Strong vaccination systems will be needed in the future to ensure that people around the world are protected against COVID-19 and other diseases. The World Health Assembly, with the support of countries and partners, endorsed a new global vision and strategy, called Immunization Agenda (IA2030), to meet these challenges over the next decade and save over 50 million lives.<sup>7</sup>

4 OECD (2021), Health at a Glance 2021: OECD Indicators, OECD Publishing, Paris, <https://doi.org/10.1787/ae3016b9-en>.

5 Respiratory diseases statistics. EUROSTAT [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Respiratory\\_diseases\\_statistics&oldid=576401](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Respiratory_diseases_statistics&oldid=576401)

6 Vaccines and immunization. WHO [https://www.who.int/health-topics/vaccines-and-immunization#tab=tab\\_1](https://www.who.int/health-topics/vaccines-and-immunization#tab=tab_1)

7 Immunization Agenda 2030: A Global Strategy to Leave No One Behind, WHO, 2021. [https://cdn.who.int/media/docs/default-source/immunization/strategy/ia2030/ia2030-draft-4-wha\\_b8850379-1fce-4847-bfd1-5d2c9d9e32f8.pdf?sfvrsn=5389656e\\_69&download=true](https://cdn.who.int/media/docs/default-source/immunization/strategy/ia2030/ia2030-draft-4-wha_b8850379-1fce-4847-bfd1-5d2c9d9e32f8.pdf?sfvrsn=5389656e_69&download=true)



The success will depend on building and strengthening partnerships in the health sector and beyond as part of a coordinated effort to improve access to high-quality, affordable primary health care.

IA2030 sets out an ambitious, overarching global vision and strategy on vaccines and immunization for the 2021-2030 decade. It builds on lessons learned, recognizes the ongoing and new challenges posed by infectious diseases, and explores new opportunities to address these challenges. IA2030 positions vaccination as a key contributor to people's fundamental right to enjoy the highest attainable physical and mental health, and as an investment in the future, creating a healthier, safer and more prosperous world for all. IA2030 is designed to ensure that we keep our hard-fought profits, and that we achieve more – leaving no one behind, in any situation, at any stage of life.

IA2030 aims to inspire and align the activities of communities, national, regional and global stakeholders - national governments, regional authorities, global agencies, development partners, healthcare professionals, academic and research institutions, vaccine developers and manufacturers, private and civil sectors, the society. Its impact will be maximized through more efficient and effective use of resources, innovation to improve performance and measures to achieve financial and programmatic sustainability. The success will depend on building and strengthening partnerships in the health sector and beyond as part of a coordinated effort to improve access to high-quality, affordable primary health care.

## European Commission perspective

In the document entitled “EU response to COVID-19: preparing for autumn and winter 2023” the European Commission calls on Member States to implement the necessary strategies to avoid a sharp increase in COVID-19 and other infectious respiratory diseases in the upcoming autumn and winter season.<sup>8</sup> The Commission proposes greater widespread vaccination against COVID-19 and other infectious respiratory diseases. Closing gaps in vaccination rates should be a top priority in every country.

8 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. EU response to COVID-19: preparing for autumn and winter 2023. Brussels, 2.9.2022 COM(2022) 452 final [https://health.ec.europa.eu/latest-updates/eu-response-COVID-19-prepa-ring-autumn-and-winter-2023-2022-09-02\\_en](https://health.ec.europa.eu/latest-updates/eu-response-COVID-19-prepa-ring-autumn-and-winter-2023-2022-09-02_en)

In order to monitor the development of virus mutations, it is necessary to establish surveillance systems, develop strategies to re-introduce effective epidemiological measures (if necessary) and strengthen the capacity of health systems to respond quickly and efficiently. Currently available vaccines and medicines offer a high level of protection against hospitalization, severe illness and death from COVID-19 and other infectious respiratory diseases.

**The key actions  
that the European Commission considers  
that Member States should take  
on national vaccination strategies are:**



Define **which vaccines should be used** in which patient populations, including vaccines against new virus variants;



Increasing **vaccination coverage** by increasing logistical opportunities for access to vaccinations and increasing public confidence in vaccinations;



Focus on **primary vaccinations and first boosters** for eligible individuals, while providing additional boosters for those most at risk;



Consider **combining COVID-19 vaccination campaigns with influenza vaccination**;



Providing **transparent and regularly updated communication**, based on epidemiological trends, behavioural insights and public perception

Coordination between Member States on surveillance, prevention, preparedness and response remains essential to mitigate the effects of the new wave of the COVID-19 pandemic and future health crisis. Member States should be ready to:



**Integrated surveillance systems** for infectious respiratory diseases;



Possible **reintroduction of non-pharmaceutical interventions**, including wearing masks and limiting the size of gatherings, depending on the epidemiological situation;



**Strengthen health systems;**



**Joint procurement** of COVID-19 vaccines and medications;



Collaborating on safer, more transparent international **clinical trials**;



**Optimization of care in the field of "long COVID"**, i.e. the persistence of complications after the initial coronavirus infection for more than four weeks;



Facilitate the **safe, free movement of people and goods** within the European Union

Finally, it should be emphasized that vaccination against infectious respiratory diseases is an extremely cost-effective intervention from a social and health system perspective, which justifies the implementation of full reimbursement of vaccinations for adults.<sup>9</sup> Vaccination of adults against infectious respiratory diseases is economically justified and highly cost-effective health strategy for adults aged <65 with high-risk diseases.<sup>10</sup>

## Polish perspective

Strategy for the development of the health care system in Poland entitled “Healthy Future. Strategic framework for the development of the health care system for 2021-2027, with a perspective until 2030.” is the implementation of the vision of a friendly, modern and effective health care system contributing to the improvement of the well-being of society. The aim of the activities presented in it is to provide

“Vaccination of adults against infectious respiratory diseases is economically justified and highly cost-effective health strategy for adults aged <65 with high-risk diseases

citizens with equal access to high-quality health services, adequate to their health needs, through a friendly, modern and effective system. The expected effect of the implementation of the changes indicated in the "Healthy Future" is to extend the life expectancy in health and improve the health of the society. The document is focused on actions aimed at improving the situation in the Polish health care system, which are divided into four main areas: patient, processes, development and finance, defining goals for each of them, which in turn translate into specific directions of intervention. "Healthy Future" is also a well-defined strategy for the deinstitutionalization of healthcare.

9 Leidner AJ, Murthy N, Chesson HW, Biggerstaff M, Stoecker C, Harris AM, Acosta A, Dooling K, Bridges CB. Cost-effectiveness of adult vaccinations: A systematic review. *Vaccine*. 2019 Jan 7;37(2):226-234. doi: 10.1016/j.vaccine.2018.11.056. Epub 2018 Dec 4. PMID: 30527660; PMCID: PMC6545890.

10 Wateska, A.R., Nowalk, M.P., Zimmerman, R.K. et al. Cost-effectiveness of increasing vaccination in high-risk adults aged 18–64 Years: a model-based decision analysis. *BMC Infect Dis* 18, 52 (2018). <https://doi.org/10.1186/s12879-018-2967-2>

According to this strategy, infectious diseases of the respiratory system are a significant problem for the health care system in Poland. They accounted for a total of 37% of the DALY values among all respiratory diseases. It should be noted that the presented estimates have been prepared assuming an unchanged epidemiological situation. However, due to the SARS-CoV-2 virus pandemic in 2020, the presented values may change. The development of the virus in our country has undoubtedly contributed to both the increase in the incidence and the number of deaths due to respiratory diseases, as well as the development of diseases that are complications after infection. In this aspect, vaccinations are an effective and generally socially accepted method of preventing infectious diseases, both in terms of preventing infections in a person subjected to vaccination (individual prevention) and shaping the immunity of the entire population to diseases (collective prevention). Awareness of the importance of vaccination played a large role in carrying out the National Vaccination Programme against COVID-19.<sup>11</sup>



It seemed that infectious diseases were a relatively controlled problem of the health of the Polish population, but the current COVID-19 pandemic fundamentally changes this picture.

The strategic objectives of the National Health Programme for 2021-2025 are to ensure an increase in the number of years lived in health and a reduction in social inequalities in health, as well as raising awareness of the factors determining health, shaping environments (work, residence, leisure) that are conducive to health and providing tools that allow make the pro-health choices that seem necessary to minimize the negative trends reflected in the overload of the health care system. The operational objectives of the NHP for 2021–2025 also include environmental health and infectious diseases.<sup>12</sup>

Also the report of the National Institute of Public Health - PZH entitled "The health situation of the Polish population and its determinants 2020" emphasizes the slowdown of the long-term trend of improving the health of the Polish population, measured by a decrease in the death rate from preventable causes and life expectancy.

11 Healthy future. Strategic framework for the development of the health care system for 2021-2027, with an outlook until 2030. Annex to Resolution No. 196/2021 of the Council of Ministers of 27 December 2021 <https://www.gov.pl/web/zdrowie/zdrowa-przyszlosc-ramy-strategiczne-rozwoju-systemu-ochrony-zdrowia-na-lata-2021-2027-z-perspektywa-do-2030>

-przyszlosc-ramy-strategiczne-rozwoju-systemu-ochrony-zdrowia-na-lata-2021-2027-z-perspektywa-do-2030

12 Regulation of the Council of Ministers of 30 March 2021 on the National Health Program for 2021-2025. Journal of Laws 2021, item 642. <https://dziennikustaw.gov.pl/DU/2021/642>



It seemed that infectious diseases were a relatively controlled problem of the health of the Polish population, but the current COVID-19 pandemic fundamentally changes this picture. Despite the high percentage of people vaccinated observed for years, the unfavourable tendency of lowering the vaccination status of children and adolescents continues. Wide promotion of vaccination in the society as the best method of preventing infectious diseases is still a current challenge. Accurate recognition of the epidemiological situation of influenza, and thus planning and conducting rational prophylaxis in the field of preventing this disease on a national scale, requires unification of influenza supervision carried out in various voivodeships. Considering the huge economic and social costs incurred each year related to influenza, efforts should be intensified to significantly increase the percentage of people vaccinated against this disease in Poland. Effective prevention and combating of infectious diseases requires effective counteracting the narrowing of the scope of laboratory diagnostics performed for epidemiological purposes, i.e. for the needs of public health, and not for the purpose of determining therapeutic procedures.<sup>13</sup>

## A new approach to COVID-19 is necessary

COVID-19 is an infectious disease caused by SARS-CoV-2 virus. As a result of infection, most people who get COVID-19 will develop mild to moderate symptoms. Such people will recover without specialist treatment. Other people, especially those suffering from chronic comorbidities and over 60 years of age, may become seriously ill and will require treatment.<sup>14</sup> According to data from the Ministry of Health, from March 3, 2020 to October 17, 2022, i.e. over two and half years of the COVID-19 pandemic, 6,327,033 people fell ill and 117,900 died.<sup>15</sup>

The SARS-CoV-2 virus also indirectly contributed to 200,000 excess deaths caused by limited access to healthcare. The highest relative increase was recorded among people suffering from cardiovascular diseases - 16.69%, diabetes - 15.88%, neurological diseases - 14.63%, digestive system diseases - 13.54%, psychiatric diseases - 12.69%, lungs - 10.33% and cancer - 4.7%.<sup>16</sup> According to the data of the Ministry of Health, as of October 17, 2022, 57,172,703 vaccinations against COVID-19 were carried out in Poland. 22,793,865 people received the first dose of vaccination and 19,738,501 people received the second dose. The number of fully vaccinated people is 22,567,258, of which 14,444,802 received a booster dose.<sup>17</sup>

13 "The health situation of the Polish population and its determinants 2020" report of the National Institute of Public Health - NIH <http://bazawiedzy.pzh.gov.pl/wydawnictwa>

14 Coronavirus disease (COVID-19): How is it transmitted? WHO <https://www.who.int/news-room/questions-and-answers/item/coronavirus-disease-COVID-19-how-is-it-transmitted>

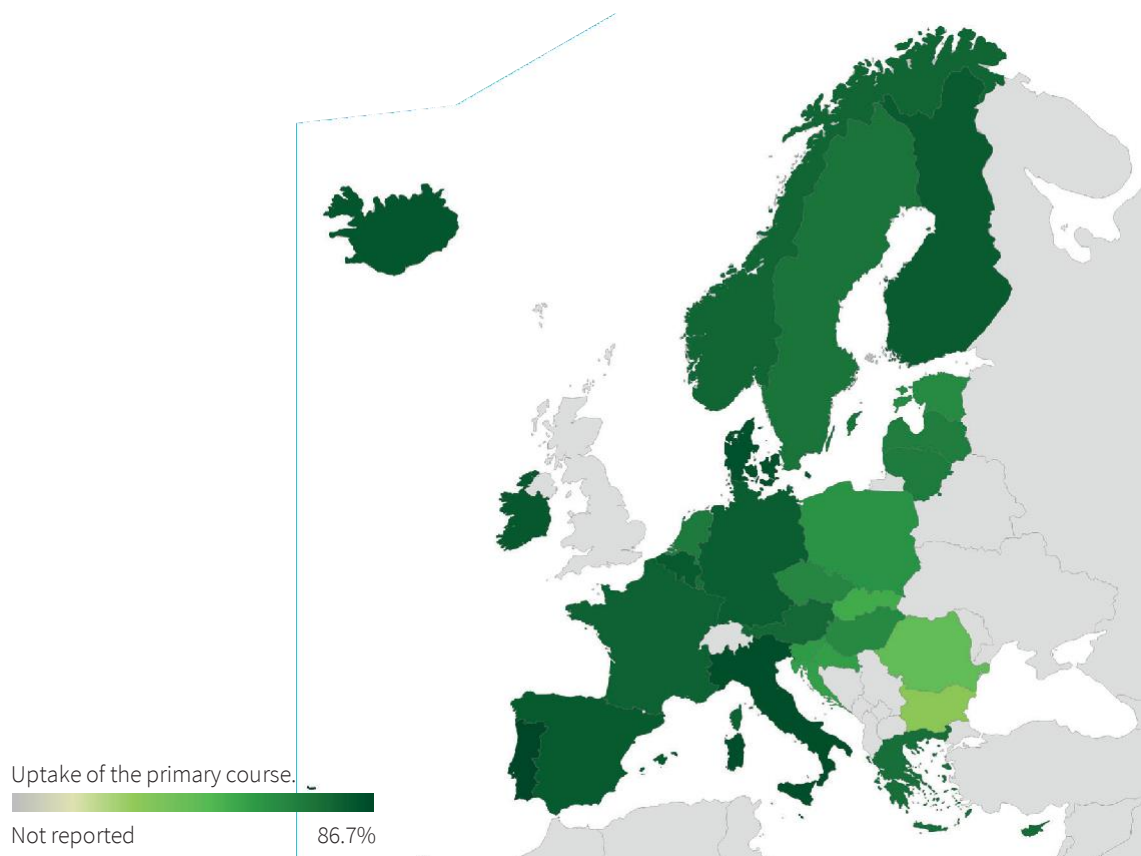
15 Report on SARS-CoV-2 infections in Poland in 2020, Ministry of Health 2022 <https://www.gov.pl/web/koronawirus/wykaz-zarazen-koronawirusem-SARS-CoV-2>

16 Report on deaths in Poland in 2020, Ministry of Health 2021, <https://www.gov.pl/web/zdrowie/raport-o-zgonach-w-polsce-w-2020-r>

17 <https://www.gov.pl/web/szczepimysie/raport-szczepien-przeciwko-COVID-19>

In turn, according to ECDC (European Centre for Disease Prevention and Control), vaccination with one dose was performed by 60.5% of the Polish population vs. 75.3% of the population of the European Union (EU) Member States and the European Free Trade Association (EFTA) Member States, full vaccination was performed by 59.8% of the Polish population vs. 72.7% of the EU/EFTA population, booster vaccination (with the first booster) was performed by 32.8% of the Polish population vs. 53.9% of the EU/EFTA population, and booster vaccination with the second booster was performed by 5.3% of the Polish population vs. 6.2% of the EU/EFTA population.<sup>18</sup>

**Pic. Percentage of EU/EFTA population fully vaccinated against COVID-19 as of 10/12/2022**



Source. European Centre for Disease Prevention and Control

18 European Centre for Disease Prevention and Control.  
<https://vaccinetracker.ecdc.europa.eu/public/extensions/CO-VID-19/vaccine-tracker.html#uptake-tab>

According to the report entitled "Diagnosis and Treatment Pathway for COVID-19 Patient", COVID-19 is an interdisciplinary disease, therefore its diagnosis and treatment involves physicians of different medical specializations.<sup>19</sup> COVID-19 is not only a disease of the lungs, but also of the heart, vessels, skin, kidneys, nervous system, liver and endocrine organs. Today we know a whole constellation of diseases that worsen the prognosis of COVID-19. This is crucial for referral to the hospital, but it is also crucial for the use of oral medications that inhibit the development of COVID-19.

With vaccines and oral medications available, a new approach to COVID-19 is needed. Although recent data indicate that the situation has calmed down, the threat from this virus is not over. COVID-19 should be treated as a dangerous seasonal infection, much more dangerous than the common cold or flu. This change should also be followed by a modification of the diagnosis and treatment of this disease. It is necessary to properly prepare for the next waves of the pandemic. Among the necessary actions, before the possible next wave of COVID-19, it is necessary to complete vaccinations, also among refugees from Ukraine, rebuild the testing system and implement oral therapy against COVID-19, especially in the case of people from high-risk groups. It is also necessary to introduce other ways of accounting for tests within primary care and hospitals, and to equip GPs with rapid tests (differentiating COVID-19 and influenza, which often have similar symptoms).

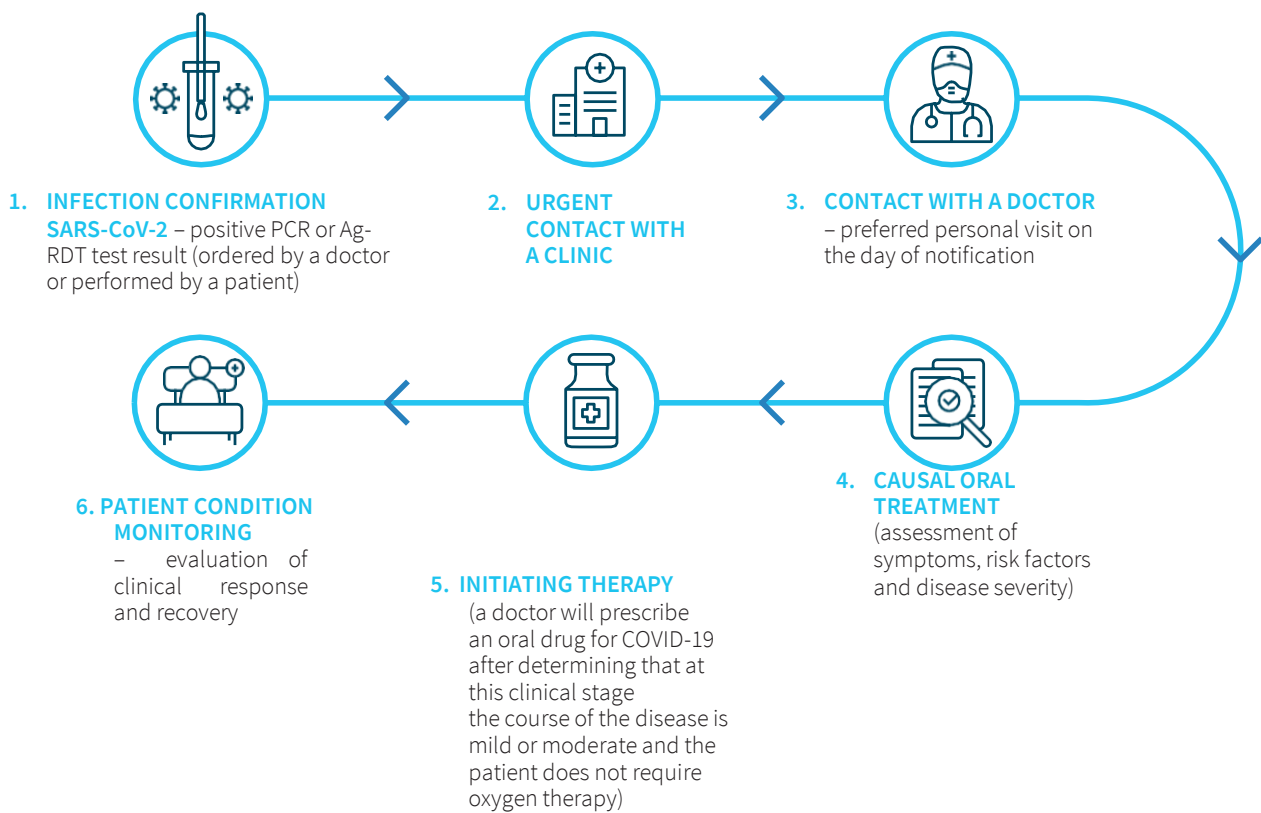
Quick and correct diagnosis is a prerequisite for initiating appropriate antiviral treatment. Thanks to this, it will be possible to shift the burden of treating this disease from hospitals to primary care and homes. It should be remembered that antiviral drugs only work when the SARS-CoV-2 coronavirus multiplies, that is to say, very early. In COVID-19, as in other infectious diseases, the virus multiplies for a short time. Therefore, we have a very short therapeutic window – that is why antiviral treatment must be applied as early as possible, optimally before symptoms appear, preferably immediately after infection, within five days of the onset of symptoms at the latest. This is a very important and demanding assumption that directly affects the distribution of such a drug, because the patient must receive the drug by the fifth day after the onset of COVID-19 symptoms.

The exemplary diagnosis and treatment pathway for a patient with COVID-19 has been developed by the World Health Organization and is regularly updated on the WHO website. It is intended to be a tool to support healthcare professionals in visualizing current clinical and therapeutic recommendations that should be included in the care plan for patients with COVID-19. Local diagnosis and treatment pathways should be based on clinical guidelines of scientific societies that are developed according to evidence-based medicine (EBM) and should be followed by interdisciplinary care teams to ensure effective and safe patient care.

19 Diagnosis and Treatment Pathway for COVID-19 Patient. Institute for Patients' Rights & Health Education 2022  
<https://ippez.prowly.com/193226-sciezka-diagnostyczna-terapeutyczna-pacjenta-z-COVID-19>

Pic.

## Diagnosis and Treatment Pathway for COVID-19 Patient in Poland



Source. Diagnosis and Treatment Pathway for COVID-19 Patient. Institute for Patients' Rights & Health Education report 2022

The experience of more than two years of the COVID-19 pandemic and the progress that has been made in the field of COVID-19 diagnosis and therapy allow us to formulate key recommendations regarding the strategy before the expected next wave of COVID-19 in autumn 2022. The following ten key elements of the strategy have been formulated:

1. Further promotion of vaccination against COVID-19.
  - a. Full vaccination - still a significant number of unvaccinated;
  - b. Booster - still only 30% of Poles took a booster dose;
  - c. Vaccination of children and adolescents aged 5-17 - still low vaccination coverage;
  - d. Second booster - the need to change the adopted Polish criteria (only 80+ in Poland vs. all 55+ in the US).
2. Vaccination of refugees from Ukraine.
3. Education and fight against anti-vaccine movements.
4. Rebuilding testing system
  - a. Introduction of other methods of settling tests in primary health care and hospitals;
  - b. Equipping GPs with COVID-19/flu rapid tests.

5. Educational campaign indicating the current state of the pandemic in the world based on theses:
  - a. The pandemic is still active, but current knowledge and data indicate that we are now moving from a pandemic state to a dangerous seasonal infection phase;
  - b. A large part of the population has acquired immunity, but it depends on vaccination and illness and probably lasts 6-12 months;
  - c. Immunity acquired a significant part of the population, but it happened at the cost of about 118,000 deaths from COVID-19, as well as at the cost of over 200,000 excess deaths, partly due to not enough access to healthcare;
  - d. COVID-19 is a much more dangerous disease than the seasonal cold or even the flu;
  - e. Educational activities to increase awareness about COVID-19, based on current data (new mutations, need for further boosters).
6. Determining the patient's diagnostic pathway.
7. Implementation of the recommendations for dealing with SARS-CoV-2 infections of the Polish Society of Epidemiologists and Infectious Diseases Specialists in all healthcare system facilities.
8. Educational campaign informing about drugs registered against COVID-19 in the European Union.
9. Widespread availability of oral antivirals, required to be taken for five days, starting on day five of symptoms:
  - a. Oral drugs in hospital treatment - available in the hospital formulary;
  - b. Oral drugs fully reimbursed under an open list for groups of patients of specific risk - dispensed on the basis of a doctor's prescription;
  - c. Full-priced oral drugs on a list open to all other patients who want to use an antiviral drug - dispensed on the basis of a doctor's prescription.
10. Creating a framework for the functioning of specialist care and rehabilitation of long-term COVID-19 and post-COVID patients.

The above recommendations do not exhaust all issues and challenges for the COVID-19 strategy for autumn 2022, but they should certainly be included in it. Experts also emphasize the need to adapt strategies, recommendations and actions to the changing genotype of the SARS-CoV-2 virus and the external environment (social, geopolitical and other conditions).<sup>20</sup>

In addition to the health aspect, the COVID-19 pandemic translates into gigantic costs for society and the economy. According to the "Report on the implementation of the Act of March 2, 2020 on special solutions related to the prevention, counteracting and combating COVID-19, other infectious diseases and related crisis situations", the planned public

20 Diagnosis and Treatment Pathway for COVID-19 Patient. Institute for Patients' Rights & Health Education 2022 <https://ippez.prowly.com/193226-sciezka-diagnostyczna-terapeutyczna-pacjenta-z-COVID-19>

expenditure related to the COVID-19 pandemic in 2021 amounted to PLN 55 billion.<sup>21</sup> In 2021, 273,000 Polish enterprises suspended their operations, compared to 108,000 in 2019. Moreover, in December 2021, inflation increased by 8.6 percent compared to the same period in the previous year. In the years previous to the pandemic, 70-80 percent of enterprises in the catering and hotel sector were profitable. In 2021, this percentage fell to 45%. The restrictions also affected the retail trade. At the end of 2021, 20 percent of small business owners estimated the cost of surviving their business at less than three months. Some branches of transport also suffered significant losses. For example, the aviation industry in 2020 recorded a decrease in revenues by 60% and in the number of passengers by 80% compared to the year before. Mortality caused by the COVID-19 disease led to a decrease in Gross Domestic Product (GDP) and losses in Polish GDP of PLN 954 billion.<sup>22</sup>

## Let's not forget about the flu

Among all infectious diseases covered by epidemiological supervision in Poland, influenza has the highest incidence. Every year, during the peak of the epidemic season, which in Poland is most often observed in the period from January to March, influenza and flu-like illnesses cause a serious overload of the health care system and become the main cause of sickness absence, generating huge economic and social costs. In the light of data from routine supervision, after 2015, every tenth Pole visited a doctor every year in connection with influenza and flu-like diseases.

In 2018, when the highest number of cases was reported in the last three decades, over 5 million people accessed medical services. Although influenza cases rarely require hospitalization (in 2019, primary care physicians referred 0.38% of patients to hospitals) and rarely lead to serious complications and deaths, due to the millions of cases, these small percentages lead to thousands of cases hospitalized (18,198 in 2019) and a significant number of complications and deaths (in 2018 - according to the Central Statistical Office - 110 deaths were registered; data for 2019 has not yet been published).

Serious consequences of influenza can occur in patients of any age, but are particularly common in people over 60 years of age and in infants. In the light of preliminary data collected by sanitary and epidemiological stations as part of the Statistical Research System of Public Statistics, in 2019, a total of 1,020,768 people were vaccinated against influenza throughout Poland, i.e. only about 2.7% of the population. Although the number of those vaccinated increased compared to 2018, it was an increase of only 1.1%, which did not affect the significant improvement in the vaccination status recorded

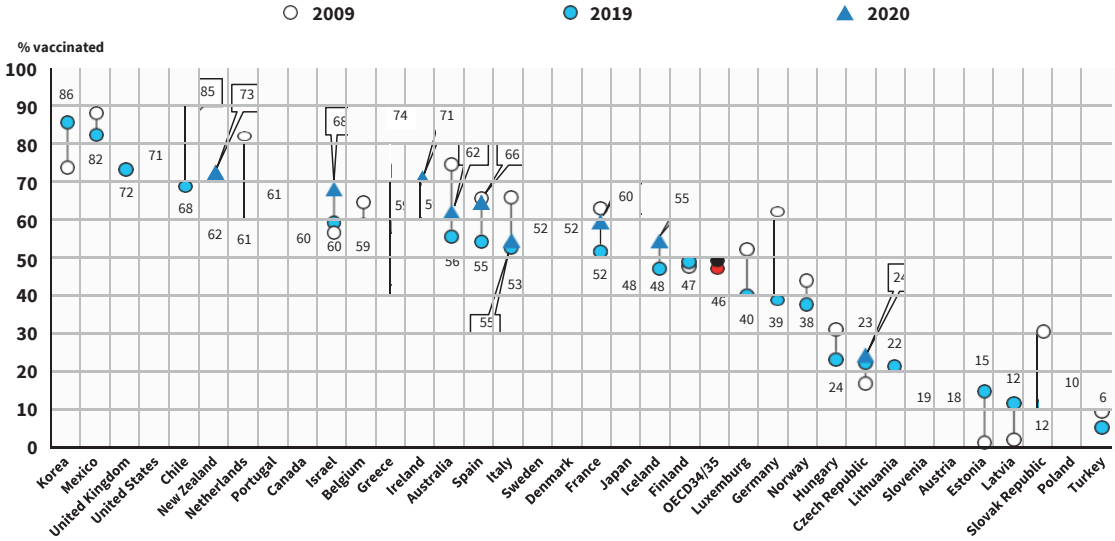
21 Report on the implementation of the Act of March 2, 2020 on special solutions related to the prevention, counteraction and combating of COVID-19, other infectious diseases and related crisis situations. <https://orka.sejm.gov.pl/Druki9ka.nsf/0/1BE4FF93AD95198EC125865C00564958/%24File/875.pdf>

22 The costs of the pandemic and the costs of fighting the pandemic - Ordo Iuris economic report. 2022 <https://ordoiuris.pl/wolnosc-gospodarcza/koszty-pandemii-koszty-walki-z-pandemia-raport-ekonomiczny-ordoiuris>

in previous years. People over 65 years of age were most frequently vaccinated. In total, 557,461 people of this age were vaccinated, i.e. 8.02%. In the groups of children aged 0-4 and children and adolescents aged 5-14, with the highest incidence of influenza, vaccination covered only 17,145 (0.89%) and 39,897 people (1, 01%). Even assuming that the data of the sanitary inspection may be seriously underestimated, as there is no legal obligation for health care to report vaccinations other than mandatory ones, it should still be stated that these numbers are very low compared to other European countries.<sup>23</sup> Poland in comparison with the most developed countries who are members of Organisation for Economic Co-operation and Development (OECD) in the category of flu vaccinations looks really weak.<sup>24</sup> In 2019, the average vaccination rate among adults over

65 was 46%, and Poland recorded only 10% of the population over 65 vaccinated against influenza. Countries with a similar GDP to Poland recorded higher rates. Portugal – 61% vaccinated, Greece – 59%, Hungary – 24%, Czech Republic – 23%, Lithuania – 22% and Slovakia – 12%.<sup>25</sup>

Chart. Percentage of population 65 years and older vaccinated against influenza, 2009, 2019 (or near future) and 2020



Source. Diagnosis and Treatment Pathway for COVID-19 Patient. Institute for Patients' Rights & Health Education report 2022

23 “The health situation of the Polish population and its determinants 2020” report of the National Institute of Public Health - NIH <http://bazawiedzy.pzh.gov.pl/wydawnictwa>

24 OECD (2022), Influenza vaccination rates (indicator). doi: 10.1787/e452582e-en (Accessed on 14 October 2022)

25 OECD (2021), Health at a Glance 2021: OECD Indicators, OECD Publishing, Paris, <https://doi.org/10.1787/ae3016b9-en>.

It should be recalled that in addition to health risks, influenza generates significant direct and indirect costs. According to the Ernst&Young report from 2015, influenza generated direct costs (i.e. expenses for medicines, doctor visits, hospitalization) of approx. PLN 43.5 million annually in the epidemic-free season. In contrast, the indirect costs of influenza (losses incurred by the economy as a result of sickness absence of employees, their reduced productivity, as well as their possible permanent incapacity for work or death) in Poland amount to approx. PLN 836 million annually.

In the event of an epidemic, they can be several times higher and constitute an even more serious loss for the economy. Assuming the unit cost of vaccination at the level of approx. PLN 25-35 (the greater the vaccination coverage, the lower the unit cost) and the average effectiveness of vaccinations in accordance with the conclusions of the review of studies, from the economic point of view, influenza vaccination turns out to be beneficial for almost every level of vaccination coverage. The results of the simulation show that in an epidemic season with a typical number of flu cases, the greatest net benefits for the economy are achieved for the vaccination coverage of about 45%, when it reaches almost PLN 500 million.<sup>26</sup>

## Pneumococcal infections

Pneumococcal pneumonia is estimated to account for approximately 98% of the pneumococcal disease burden in people  $\geq 50$  years of age. Pneumococcal infection is detected in approximately 35% of patients hospitalized for pneumonia primarily caused by the influenza virus. Pneumonia in adults is a significant burden on healthcare systems worldwide. It is estimated that the proportion of adult patients with pneumococcal pneumonia requiring hospitalization may range from 20% to 50% depending on the country.

Pneumonia has many health consequences, such as an increased risk of death, exacerbation or decompensation of the underlying disease, and deterioration of the overall quality of life. Active prevention of pneumococcal infections in the adult population is recommended in the Protective Vaccination Programme (PVO) for 2022. The PVO recommends vaccination of adults who have risk factors for *S. pneumoniae* infection. However, vaccinations listed in the PVO as recommended are not financed from the budget of the Ministry of Health. From January 2022, the PCV13 vaccine is available under pharmacy reimbursement with a 50% fee in the population of patients aged  $\geq 65$  years at an increased (moderate to high) risk of pneumococcal disease. Persons who meet the age criteria and who have at least one of the following risk factors for infection are eligible for the vaccine reimbursement: chronic heart disease, chronic liver disease, chronic lung disease, diabetes, cochlear implant, cerebrospinal fluid leak, congenital or acquired asplenia, sickle cell anaemia and other hemoglobinopathies, chronic renal

26 Grypa i jej koszty. Ernst & Young 2015 [https://assets.ey.com/content/dam/ey-sites/ey-com/en\\_pl/topics/eat/pdf/03/ey-grypa-i-jej-koszty-w-polsce.pdf](https://assets.ey.com/content/dam/ey-sites/ey-com/en_pl/topics/eat/pdf/03/ey-grypa-i-jej-koszty-w-polsce.pdf)



failure, congenital or acquired immunodeficiency, generalized malignancy, HIV infection, Hodgkin's disease, iatrogenic immunosuppression, leukemia, multiple myeloma, solid organ transplantation. Reimbursement of the vaccine in this population increases its availability to patients most at risk of *S. pneumoniae* infection. Free pneumococcal vaccinations are also provided by some local government units.<sup>27</sup>

According to the report entitled "Pneumococcal Pneumonia in Adults - the situation in Poland. Epidemiology, Consequences, Prevention." vaccination for *S. pneumoniae* infection of the adult population over 65 years of age and adults with risk factors, such as e.g. chronic disease is economically viable.

Each avoided case of pneumococcal infection in adults means reduced expenses incurred for hospitalizations and advice related to the treatment of pneumococcal pneumonia in particular. According to the data of the National Health Fund, only in 2019, due to pneumococcal pneumonia, 384,300 adults were treated on an outpatient basis, and 54,900 were hospitalized. Almost every 10th person hospitalized died (7,500), most of whom were over 65 years of age. Adults hospitalized due to pneumococcal pneumonia were most often burdened with other diseases - cardiovascular diseases (mainly arterial hypertension - 43%), diabetes (18.5%) and other lung diseases (16%). Pneumococcal pneumonia is one of the most common causes of hospitalization in adults, and therefore contributes to high direct medical costs. The annual hospitalization of people with pneumonia/acute lower respiratory tract infection in Europe is around €2.5 billion.

In Poland, hospitalizations of adults cost about PLN 169 million annually. Pneumococcal vaccination of adults also reduces the use of antibiotics, the costs incurred by patients and the payer for their purchase, and at the same time reduces the progressive phenomenon of antibiotic resistance.<sup>28</sup>

## Whooping cough

Prior to the introduction of mass pertussis vaccination in 1960, tens of thousands of cases were reported annually in Poland (in 1960, the highest number of cases was recorded - 95,968). Whooping cough was a common cause of death in children under one year of age (1,580 deaths were recorded in 1950). After the introduction of universal vaccination with the

27 Wysocki, J., Antczak, A., Chorostowska-Wynimko, J., Czupryniak, L., Fal, A., & Flisiak, R. et al. (2022). Szczepienia przeciw pneumokokom pacjentów dorosłych – nowe możliwości. *Lekarz POZ*, 8(4), 253-265. <https://www.termedia.pl/poz/Szczepienia-przeciw-pneumokokom-pacjentow-doroslych-nowe-mozliwosci,48427.html>

28 Pneumococcal Pneumonia in Adults - the situation in Poland. Epidemiology, Consequences, Prevention report, HealthQuest. Institute for Patients' Rights & Health Education 2021 <https://ippe.prowly.com/147746-raport-pneumokokowe-zapalenie-pluc-u-osob-doroslych-sytuacja-w-polsce-epidemiologia-konsekwencje-profilaktyka>

DTP vaccine (against diphtheria, tetanus and pertussis), the number of whooping cough cases systematically decreased, in the best period even 100 times. In the 1980s, less than 500 cases of whooping cough were reported annually.

Since the mid-1990s, an increase in the incidence of this disease has been observed. This unfavourable situation was the main argument for introducing in the 2003 vaccination calendar a booster dose of vaccines for children aged 6 years. After a slight short-term improvement in the epidemiological situation, a high number of cases was observed. 2000-3000 pertussis cases per year were recorded. In recent years, the pertussis incidence rate in Poland is still high, with cyclicity of cases and successive epidemic intensifications of pertussis. In 2012, the highest number of cases in approximately 40 years was recorded, i.e. 4,684, including 1,497 people requiring hospitalization. In 2014, 2,102 cases were recorded, and again in 2015, the number was more than twice as high - 4,956 cases. In 2016, the number of registered cases increased to 6,856, and in 2017 it was 3,034 cases. In 2018 and 2019, it decreased again, with 1,548 and 1,626 cases reported. The highest percentage of cases remains in the group of children aged 0-4 years - every fifth child is diagnosed with whooping cough, while more than half of the cases concern people aged >15 years, with two peaks observed: among teenagers and the elderly.

The results of the National Study of Pertussis Epidemiology conducted at the NIZP-PZH in the years 2009-2011 indicate that the actual number of cases is much higher, i.e. per 1 reported case of whooping cough there are on average 71 cases in all age groups, and among 65-70-year-olds even 320 illnesses. There has been a shift to older age groups and a high proportion of adults. The highest incidence was recorded in people aged 15-19 and 60-64, which indicates the presence of a new reservoir of the microorganism. The reasons for the significant deterioration of the epidemiological situation of pertussis in the world include such factors as the expiry of immunity as a result of the passage of years since the administration of the last booster dose of the vaccine, the evolution of pertussis bacilli conducive to the reduction of the effectiveness of the post-vaccination response and the decrease in acceptance for vaccinations, and thus the reduction of the vaccination status of the population against whooping cough.

To optimize the pertussis vaccination schedule and evaluate the cost-effectiveness of alternative strategies that add or remove boosters, it is worthwhile to develop an age-structured pertussis transmission model. Every effort should be made to encourage mothers to be vaccinated against whooping cough. It is recommended to postpone the first booster until the age of six and consider carefully the need for a second booster.<sup>29</sup> Vaccination is a cost-effective and even cost-saving strategy.<sup>30</sup>

29 Langsam, D.; Kahana, D.; Shmueli, E.; Yamin, D. Cost-Effectiveness of Pertussis Vaccination Schedule in Israel. *Vaccines* 2021, 9, 590. <https://doi.org/10.3390/vaccines9060590>

30 Wolff E, Aronsson B, Hultstrand M, Brouwers L (2019) Cost-Effectiveness Analyses of Different Vaccination Strategies to Reduce Pertussis among Infants in Sweden. *J Infect Dis Epidemiol* 5:065. [doi.org/10.23937/2474-3658/1510065](https://doi.org/10.23937/2474-3658/1510065)

# WHY WE MUST ADDRESS VACCINE-PREVENTABLE LUNG INFECTIONS THIS WINTER

In the current transition to a new phase of the pandemic, it is crucial to act fast and together, and to use the summer window to prepare for possible future pandemic surges next autumn/winter and beyond.<sup>31</sup>



**MARIANO VOTTA,**  
DIRECTOR OF ACTIVE CITIZENSHIP  
NETWORK

We have a trio of vaccine-preventable respiratory diseases (VPRDs) to consider in these preparations. These are pneumococcal pneumonia, COVID-19 and influenza. These diseases place a burden on health systems: every year, VPRDs result in significant illnesses and high levels of hospitalisations in vulnerable populations, putting additional pressure on already strained healthcare systems.<sup>32,33,34</sup>

Community-acquired pneumonia (CAP) is a leading cause of hospitalisation in adults, with the average estimated hospital stay due to the condition at over 12 days.<sup>35</sup> Alongside the immediate impact on hospital bed capacity, VPRDs can cause extra-pulmonary complications, including cardio- and cerebrovascular events, that represent a potential long-term burden of disease following flu infection.<sup>36,37,38</sup>



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In Italy, for instance, a recent surveys revealed a low level of information and awareness of pneumococcal vaccination.<sup>39</sup> Territorial discrepancies in vaccination strategies and lack of monitoring and transparency on vaccine coverage rates were noted. According to a survey, in the 2021-2022 winter season, among those interviewed, one in two citizens had not received pneumococcal vaccination. Among the main reasons given for this were: it was not proposed to me (62.7%), and I have no idea what it is (17.9%). Approximately

34.5% reported having been contacted only for the flu shot and COVID-19 vaccination. Only 1.8% of those eligible for the flu vaccine received an official communication from the ASL (Italian Local Health Authority Unit) inviting them to receive pneumococcal vaccination. The Covid-19 pandemic has seen a decline in vaccinations across all age groups. It was noted that data on vaccination coverage in adults and at-risk groups are not systematically collected, unlike what happens for vaccinations in childhood and adolescence and flu shots.

General practitioners play a central role in adult vaccination. In 65% of cases, GPs were the main source of information on recommended and free vaccinations (e.g. vaccines against pneumococcal disease or flu). 27% of citizens also rely on institutional websites or specialist doctors and pharmacists (22.8%). The family doctor, in 92.7% of cases, proposes pneumococcal vaccination verbally during a visit and only 44.7% do so by phone. Flu shots and pneumococcal vaccination were not offered together in 22.5% of cases.

It is at the national level to develop concrete health policies for adults and people with preexisting conditions. For this reason, uniform and planned monitoring of pneumococcal coverage in adults is immediately necessary in Italy and across Europe. At the same time, however, work has to be carried out on extending the access points to vaccination through the signing of a national agreement with GPs that contributes to countering territorial discrepancies.

We must implement common intervention strategies at a national level, involving pharmacists as an additional point of pneumococcal vaccination administration. All specialists (pneumologists, diabetologists, oncologists and others) should be asked to encourage patients to consider pneumococcal vaccination. The inclusion of the pneumococcal vaccination in Italian PDTAs (Diagnostic Therapeutic Assistance Pathways) is postulated in order to facilitate and simplify access for chronic patients. It is vital to recognize the role of patients' and citizens' associations in building confidence in vaccination and sharing accurate information.

The Italian experience with pneumococcal vaccination has highlighted key action areas which point the way forward in Italy as well as across the EU. To reinforce these recommendations at European level, Active Citizenship Network organized the Towards the next Council conclusions: which role of adult vaccination? conference, as part of the VaccinAction2022 project. EU health ministers will meet later this year, under the Czech Republic's Presidency of the European Council, to discuss EU Institutions' commitment to vaccination. Participants highlighted the need to consider life-course vaccination in these policy discussions.

Our shared hope is to not waste the window of opportunity of the summer to take urgent action ahead of winter 2022/23 to invest in healthcare infrastructure and strengthen immunisation programmes. If we take the right action now, we can protect populations and healthcare systems in future.

- 31 Why we must address vaccine-preventable lung infections this winter. Mariano Votta. Vaccine Today. August 25th, 2022 <https://www.vaccinestoday.eu/stories/why-we-must-address-vaccine-preventable-lung-infections-this-winter/>
- 32 Morbey RA, Elliot AJ, Harcourt S, et al. Estimating the burden on general practitioner services in England from increases in respiratory disease associated with seasonal respiratory pathogen activity. *Epidemiol Infect.* 2018;146(11):1389-1396.
- 33 Choe YJ, Smit MA, Memel LA. Seasonality of respiratory viruses and bacterial pathogens. *Antimicrob Resist Infect Control.* 2019;8:125.
- 34 Smith S, Morbey R, Pebody RG, et al. Retrospective observational study of atypical winter respiratory illness season using real-time syndromic surveillance, England, 2014-15. *Emerg Infect Dis.* 2017;23(11):1834-1842.
- 35 Ostermann H, Garau J, Medina J, Pascual E, McBride K, Blasi F; REACH study group. Resource use by patients hospitalized with community-acquired pneumonia in Europe: analysis of the REACH study. *BMC Pulm Med.* 2014;14:36.
- 36 Wyrwich KW, Yu H, Sato R, Strutton D, Powers JH. Community-acquired pneumonia: symptoms and burden of illness at diagnosis among US adults aged 50 years and older. *Patient.* [2013];6(2):125-134.
- 37 Musher DM, Rueda AM, Kaka AS, Mapara SM. The association between pneumococcal pneumonia and acute cardiac events. *Clin Infect Dis.* [2007];45(2):158-165
- 38 Sellers, Subhashini A., et al. „The hidden burden of influenza: a review of the extra-pulmonary complications of influenza infection.” *Influenza and other respiratory viruses* 11.5 (2017): 372-393.
- 39 The survey „Pneumococcal Vaccination in adults: proposals for fair and informed access. Focus on adults  $\geq$  65 years and subjects with pathologies or predisposing conditions” was conducted by Cittadinanzattiva with the unconditional contribution of Pfizer and presented last 27 May 2022 in Rome. [www.cittadinanzattiva.it/multimedia/files/ Report\\_vac\\_antipneumo\\_final\\_25\\_maggio.pdf](http://www.cittadinanzattiva.it/multimedia/files/Report_vac_antipneumo_final_25_maggio.pdf)

Panellists called on governments to prioritise immunisation for all vaccine-preventable diseases to help ensure protection of the most vulnerable and reduce the burden to healthcare systems. To achieve this, governments of the European Union member countries were urged to:



Commit to maintaining and evolving National Immunisation Plans by improving uptake of existing vaccines and the incorporation of novel ones;



Review, protect and expand budgets for ongoing and novel immunisation programmes, especially for diseases where current recommended targets are not being met;



Build processes into ongoing mass vaccination against COVID-19 to check the broader vaccination status of adults, particularly against VPRD;



In line with calls by the International Pharmaceutical Federation (FIP)<sup>40</sup> to expand pharmacists' scope of practice<sup>41</sup>, it is necessary that governments update legal and regulatory requirements to enable pharmacists to vaccinate eligible patients against all vaccine-preventable respiratory diseases, to protect vulnerable populations and strengthen health system capacity;



Governments and healthcare professionals should seek to improve communication on immunisation, providing clear and targeted communications that respond to local contexts.

40 FIP (2020). Intervention on provisional agenda item 3. Address by Dr Tedros Adhanom Ghebreyesus, Director-General, 73rd WORLD HEALTH ASSEMBLY, Speaker: Ms Zuzana Kusynová, from the International Pharmaceutical Federation (FIP). [www.fip.org/files/content/publications/2020/FIP\\_intervention\\_on\\_3\\_Address\\_by\\_WHO\\_DG\\_final.pdf](http://www.fip.org/files/content/publications/2020/FIP_intervention_on_3_Address_by_WHO_DG_final.pdf)

41 FIP (2020). FIP calls for governments to support pharmacists and pharmacy workers on COVID-19 front line. <https://www.fip.org/files/content/publications/2020/FIP-call-to-action-to-support-pharmacists-and-pharmacy-workers-on-the-coronavirus-COVID-19-frontline.pdf>

# INFECTIOUS RESPIRATORY DISEASES FROM THE PERSPECTIVE OF A PRIMARY CARE PHYSICIAN

At the primary care level, patients should be encouraged to get vaccinated against infectious respiratory diseases such as COVID-19, influenza, pneumococcal pneumonia and whooping cough. We must do everything to return to basic, rational values, to reject anti-vaccine slogans and to alleviate social phobias.



**DR MICHAŁ  
SUTKOWSKI THE  
COLLEGE OF FAMILY  
PHYSICIANS**



We should develop a model immunization schedule for adults. I am not talking about a mandatory programme here, but about convincing citizens of the need to build their resilience, open to all who want to participate. There must also be a rebuilding of trust in the state and public institutions related to health, and in us - doctors. The challenge for us are people who have not been vaccinated, who do not often participate in public and social life and are often e-excluded. Here, not only e-health should be put on, but also various other forms of communication. It all matters.



There must also be a rebuilding of trust in the state and public health institutions, and in us - doctors. The challenge for us are people who have not been vaccinated, who do not often participate in public and social life and are often e-excluded.

Health should accompany us in every element of social and public activity for the coming years, and in this way we will slowly rebuild health capital, improve Poland's health parameters, reaching the good statistics that are present in some Western European countries. Of course, vaccinations should be recommended, I have no doubts about that. It should be reminded that the third dose of vaccination against COVID-19 is only 31%, and two doses is 61%, that Europe haven't been reached in this aspect. The low wave of hospitalizations and deaths in Western Europe, despite a very large number of tests, proves that this society is very well vaccinated, thanks to which these waves are lighter.<sup>42</sup>

Vaccination against coronavirus is not everything, we must raise the health culture in the field of vaccination against influenza, pneumococci and whooping cough. In Poland, we do not vaccinate against flu. We vaccinate at the level of several percent of the population, and because of this, 5.5 million Poles suffer from influenza and flu-like diseases with their severe complications. In contrast, in Western European countries, significantly more people are vaccinated - for example, in Germany, over 60 percent. In a population twice as large as Poland, 1-1.5 million suffer from the disease.<sup>43</sup>

42 Dr Sutkowski o „dramatycznie niskim” poziomie wyszczenia osób 80+. Puls Medycyny, 22-07-2022 <https://pulsmedycyny.pl/dr-sutkowski-o-dramatycznie-niskim-poziomie-wyszczepienia-osob-80-1156570>

43 Dr Sutkowski: szczepienie przeciwko koronawirusowi to nie wszystko, musimy podnosić kulturę zdrowotną. <https://oddechzyca.pl/koronawirus/dr-sutkowski-szczepienie-przeciwko-koronawirusowi-to-nie-wszystko-musimy-pod-nosic-kulture-zdrowotna/>

Pneumococcal infections cause acute illness mainly in the winter and spring season, most often among children under 2 years of age and people over 65 years of age. Among non-invasive pneumococcal infections, next to otitis media, sinusitis, exacerbation of chronic obstructive pulmonary disease, the most dangerous is pneumonia without bacteria as the dominant (75% of cases) form of pneumococcal disease. Invasive pneumococcal disease (IPD) is pneumonia with bacteraemia, sepsis, meningitis. It has a high mortality rate. In the case of pneumococcal meningitis and sepsis, according to various sources, it ranges from 15% to even 50%, especially in the elderly and those with chronic diseases. If patients are saved from active infection, permanent neurological complications may occur - paresis, cognitive disorders, psycho-organic syndrome - often observed by GPs.



Vaccination against coronavirus is not everything, we must raise the health culture in the field of vaccination against influenza, pneumococci and whooping cough.

The risk of recurrence of pneumococcal infection increases, too. Increasing resistance of pathogens to antibiotics is a serious obstacle in the effective fight against infections. Pneumococci are the most common cause of co-infection in people infected with SARS-CoV-2, which has been reflected in international and Polish recommendations regarding preventive vaccinations. The Polish Diabetes Society, the Polish Cardiac Society, the Polish Hematologists and Transfusiologists Society and the Polish Rheumatology Society recommend vaccination against pneumococci. This makes deep sense and has clinical, population and ethical dimensions. The benefits of pneumococcal vaccines, which were originally demonstrated in paediatric populations, are therefore obvious in adults.

In order to prevent pneumococcal infections, there are 2 types of pneumococcal vaccines registered for use in adults: the polysaccharide vaccine and the conjugate vaccine. Patients 65 years of age and older with an increased (moderate to high) risk of pneumococcal disease can purchase the conjugate vaccine at 50% cost. Therefore, the refund applies to people from the age of 65 with chronic heart disease, chronic liver disease, chronic lung disease, diabetes, cochlear implant, cerebrospinal fluid leak, congenital or acquired asplenia, sickle cell anaemia and other hemoglobinopathies, chronic kidney failure, congenital or acquired immunodeficiency, generalized cancer, HIV infection, Hodgkin's disease, iatrogenic immunosuppression, leukaemia, multiple myeloma, after solid organ transplantation.

If we apply the definition of a chronic disease according to the WHO or the US National Center for Health Statistics (NCHS), where the threshold value of a chronic disease is considered to be a duration of at least 3 months, the vast majority of them meets these criteria. According to the International Statistical Classification of Diseases and Related Health Problems ICD-10, the codes for chronic heart disease are: I05-I09, I13, I25, I50, I51; chronic lung diseases: J40, J41, J42, J43, J44, J45, J46, J47; chronic liver diseases: K70, K71, K72, K73, K74, K75, K76, K77 - these are just examples of our patients' needs.

When we realize that successive ICD-10 codes are caused by people with e.g. diabetes, kidney failure, generalized cancer (including haematooncological diseases) or immunodeficiencies of various origins, we will be inclined to recognize the pneumococcal vaccination procedure not only considered essential, but often life-saving.

As primary care physicians, we probably know best that often our patients with additional diseases die of infections that are not considered life-threatening outside the medical environment. How many lives could be saved, how many people could be saved from complications, if we introduced the vaccination procedure and promoted it properly. Contraindications to vaccination include hypersensitivity to the vaccine components, severe allergic reaction after its administration and acute fever. A history of IPD before the age of 2 years does not confer lasting immunity, and after the age of 2 it leaves only immunity to the pathogenic serotype. This situation and the fact of being a carrier of *Streptococcus pneumoniae* are not contraindications to vaccination.

Thankful to the Readers for their patience, I would like to make the consideration of these critical vaccinations the beginning of the debate on the creation of a comprehensive, accessible, promoted vaccination schedule for adults. It is time to start intensive educational and systemic activities again.<sup>44</sup> The health service is always subject to reform, because there are always new technologies and new challenges.<sup>45</sup>

44 Szczepienia przeciwko pneumokokom u dorosłych – obudzić świadomość. Michał Sutkowski. Faculty of Medicine, Lazarski University, Warsaw. Lekarz POZ 3/2022. Published online: 2022/07/14 <https://www.termedia.pl/Szczepienia-przeciwko-pneumokokom-u-doroslych-obudzic-swiadomosc,98,47503,1,0.html>

45 Dr Sutkowski: Służba zdrowia jest zawsze do reformowania, bo zawsze są nowe technologie, nowe wyzwania. <https://bydgoszcz.tvp.pl/60578130/dr-michal-sutkowski-kongres-medycyny-rodzinnej-w-toruniu>

# INFECTIOUS RESPIRATORY DISEASES FROM THE PHARMACIST'S PERSPECTIVE

Pharmacies were open during the COVID-19 pandemic. 26 thousand pharmacists have been providing in open pharmacies about 2 million consultations per day.

On average, there are about 2 pharmacists per pharmacy, with the EU average of about 2.5. It should be emphasized that the pace of implementing changes in the healthcare sector and the high involvement of Polish pharmacists in this process meet the expectations of patients.



**ELŻBIETA PIOTROWSKA-RUTKOWSKA**  
PRESIDENT OF THE CHAMBER OF  
PHARMACY

ISSUES, CHALLENGES AND RECOMMENDATIONS FOR THE FUTURE

Since the introduction of e-prescription in January 2020, Polish pharmacies have filled 1.2 billion e-prescriptions. COVID-19 vaccinations have been carried out in Polish pharmacies since April 2021. Vaccination against COVID-19 conducted in pharmacies has actually contributed to increasing the vaccination rate of the population. Almost 2 million vaccinations were performed in pharmacies (1.8 million COVID-19 vaccinations and approximately 8,500 flu vaccinations in the period November 2021 - March 2022). This potential and capital must not be wasted, hence the appeal of the Supreme Pharmaceutical Chamber and the Patient Organization to expand vaccination in pharmacies.

By the end of September 2022, approx. 1.4 thousand of open pharmacies, about 37,000 patients have been vaccinated against influenza. Flu vaccines are available on prescription. For pregnant women and people over 75, the vaccine is free. A partial refund of the vaccine is offered (according to the scope of reimbursement indications and based on the issued prescription and depending on the vaccine), among others, to: patients 18-65 years old and children aged 2 to 5 years - at risk of post-influenza complications, patients over 65 years of age, children from 6 months to 2 years of age and from 5 to 18 years.



Almost 2 million vaccinations were performed in pharmacies. This potential and capital must not be wasted, hence the appeal of the Supreme Pharmaceutical Chamber and the Patient Organization to expand vaccination in pharmacies.

Pharmacists in Poland calls for the possibility of prescribing an e-prescription for an influenza vaccine by a pharmacist in an open pharmacy. From January 2022, it is possible to extend a prescription for a drug by a pharmacist. Thanks to the everyday involvement of pharmacists in open and hospital pharmacies, patients have access to medicinal products and can count on reliable pharmaceutical advice.

I deeply believe that joint actions taken by our professionals will allow us to continue to develop competences and use the potential of Polish pharmacists. Pharmacists have been and still are a strong support for the health care system, and the good of the patient is always a priority for us.

# EPIDEMIC SAFETY - ARE WE READY FOR THE FUTURE?

The COVID-19 pandemic has reminded us how dangerous infectious respiratory diseases are to people and health systems.

Lung diseases are among the most common causes of death and costly hospitalizations. The health problem is therefore serious, and it will also increase due to the ageing of the population and possible further epidemics. At the same time, many of these diseases can be alleviated or eliminated at a relatively low cost by means of preventive vaccinations (e.g. against influenza, pneumococcus, whooping cough, COVID-19).



**IGOR GRZESIAK**  
VICE-PRESEIDENT OF THE INSTITUTE  
FOR PATIENTS' RIGHTS & HEALTH  
EDUCATION

In response to the increasingly urgent health challenges, on the initiative of the Institute of Patient Rights and Health Education, the Alliance for Combating Infectious Respiratory Diseases was established in 2021. Polska Zdrowo Oddycha (PZO ALLIANCE), to which we invited organizations representing patients from high-risk groups of severe respiratory diseases, i.e. Polish Diabetes Association, Amazonki Associations Federation, National Association of Patients with Heart and Vascular Diseases EcoSerce, Polish Federation of Asthma and Diseases Associations Allergic and Chronic Obstructive Lung Diseases.

Our goal is to develop systemic solutions and educate the public in counteracting the health problem of the increasing number of respiratory diseases. In our activities, we focus primarily on Vaccine-Preventable Respiratory Diseases (VPRDs), that is, those that can be largely prevented by vaccination.

The intention of PZO ALLIANCE and this publication is to identify key problems and recommend systemic solutions, e.g. vaccinations throughout the life cycle, care for people at high risk of severe disease, as well as using the potential of all medical professions.

We also talked about this during the Economic Forum in Karpacz in September 2022 during the debate entitled "Epidemic safety - are we ready for the future?", which we organized in cooperation with the Rzeczpospolita daily. The discussion focused on how to prepare the Polish health system for the future and the growing threat of infectious respiratory diseases, as well as how to improve the patient pathway.

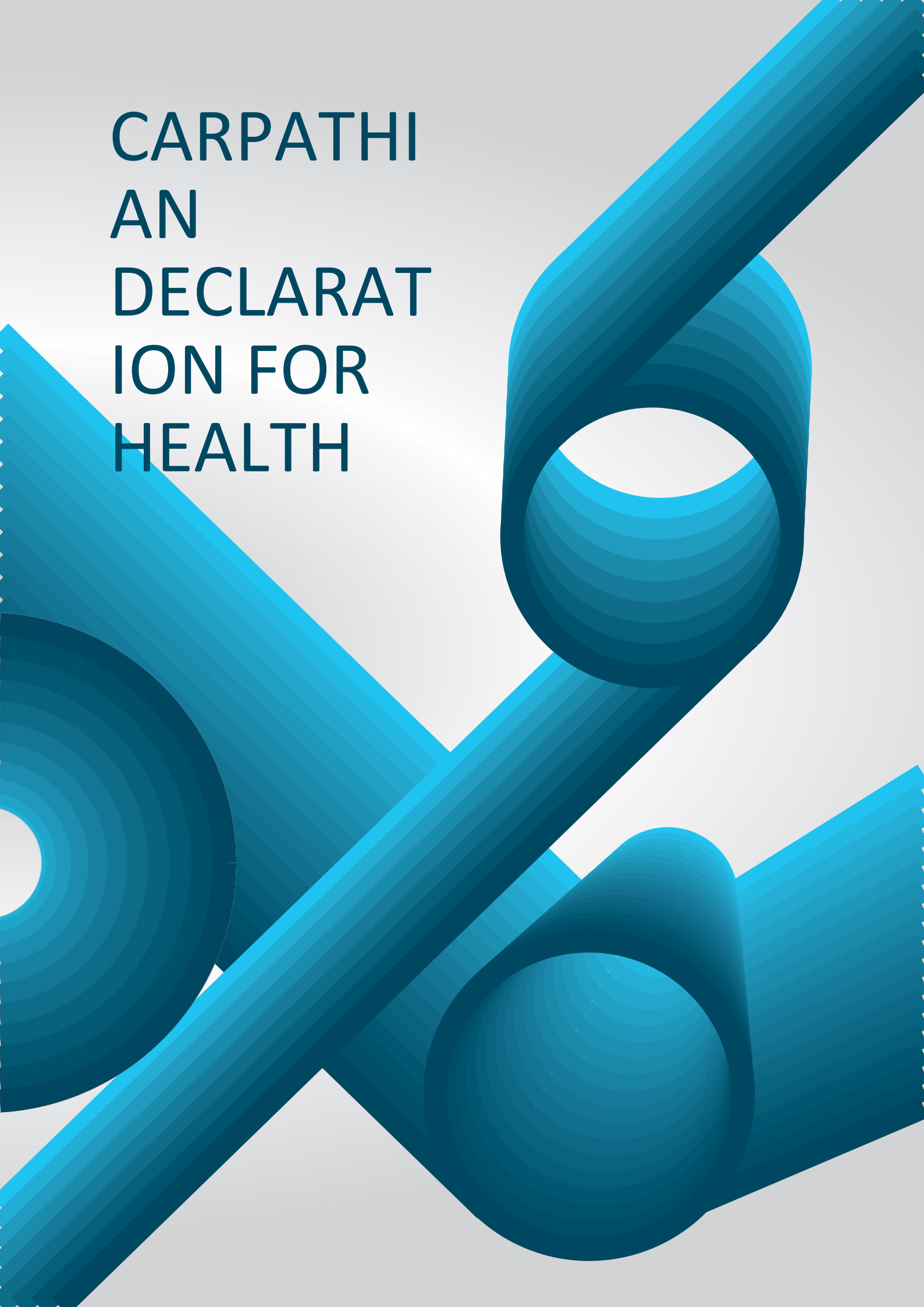
The debate, led by Marcin Piasecki, was attended by (in alphabetical order): Minister Bartłomiej Chmielowiec, Prof. Marcin Czech, MP Barbra Dziuk, Dr. Jakub Gierczyński, Dr. Maria Libura, President Elżbieta Piotrowska-Rutkowska, Dr. Michał Sutkowski and Prof. Joanna Zajkowska. On behalf of patient organizations operating within the PZO ALLIANCE, we appealed to health care decision makers to prioritize respiratory diseases and presented a number of recommendations, included in the Carpathian Declaration for Health. The document was signed by patient organizations gathered in the Alliance for Combating Infectious Diseases of the Respiratory System "Polska Zdrowo Oddycha".

This report summarizes the achievements of the PZO ALLIANCE, debates and key documents, such as the Carpathian Declaration for Health or the European Commission document entitled "The EU Response to COVID-19: Preparing for Autumn and Winter 2023".





CARPATHI  
AN  
DECLARATION FOR  
HEALTH



# CARPATHIAN DECLARATION FOR HEALTH

In response to the urgent health problem of respiratory diseases, representatives of patient organizations operating as part of the Polska Zdrowo Oddycha Alliance agreed on the following recommendations regarding the prevention of infectious respiratory diseases and appealed for the implementation of these recommendations in the Polish health care system.<sup>46</sup>

The COVID-19 pandemic has reminded us how dangerous infectious respiratory diseases are to people and health systems. Lung disease is now the 6th leading cause of death in the world, and one in eight people in the European Union dies from respiratory disease.<sup>47,48</sup> It is also one of the leading causes of hospitalization, creating a huge burden on health systems that will struggle for a long time pandemic health debt. In the face of an ageing society, the number of people at increased risk of severe respiratory disease caused by infectious diseases is increasing. In this context, keeping a good health condition in old age will become an increasingly important priority, and public health strategies will increasingly focus on preventing vaccine-preventable diseases. Increasing the availability of vaccinations, in particular for adults with a higher risk of infection, is one of the factors mitigating the effects of unfavourable demographic changes.

46 Carpathian Declaration For Health Sojusz Polska Zdrowo Oddycha 2022 <https://ippez.prowly.com/205070-deklara-cja-karpacka-dla-zdrowia-wzywa-do-bardziej-zdecydowanej-walki-z-chorobami-pluc>

47 <https://www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death>

48 European Lung Foundation, <https://www.rynekzdrowia.pl/Serwis-Choroby-Pluc/Eksperci-choroby-pluc-sa-juz-szosta-przyczyna-zgonow-na-swiecie,200652,1022.html>

Experts and available scientific data point out that many respiratory diseases can be reduced at a relatively low cost by means of preventive vaccinations, e.g. against influenza, pneumococci, whooping cough, COVID-19. Vaccination remains the most effective form of protection and a pillar of modern public health. In order to maximize the resilience of our society and health system to future pandemics and the growing problem of respiratory diseases, it is necessary to give high priority to prevention, public education and significantly expand vaccination programmes, develop and implement a life-cycle vaccination strategy to include adults.

In view of the above, representatives of the Institute of Patient Rights and Health Education, the Polish Diabetes Association, the Amazonki Associations Federation, the National Association of Patients with Heart and Vascular Diseases EcoSerce, the Polish Federation of Asthma, Allergic and Chronic Obstructive Lung Diseases Associations formulated the following recommendations:

**1. The role of the state is to constantly build system solutions that will fully implement the constitutional right to health care**

The role of the state is to ensure equal access to health care, including care for vulnerable individuals. Public policy cannot be designed only from the perspective of large urban centres, which is tantamount to limiting the full pool of benefits in smaller towns, e.g. due to transport exclusion.

**2. Prioritization of prevention and care for the state**

Prevention is a fundamental resource that allows for the early detection of diseases. The availability of preventive programmes is an element of the humanization of medicine - based in this case not only on qualitative and fast treatment (fast track of the patient), but also on avoiding highly invasive treatment. Building good practices based on cyclical preventive examinations, as well as prophylaxis in the form of preventive vaccinations is a challenge and at the same time an obligation of public authorities. Effective prevention also means taking care of the state budget.

**3. The health care system must take special care of especially vulnerable people**

Prevention in the form of vaccinations is particularly important among patients from risk groups, e.g. chronically ill, elderly seniors. Strengthening the protection of these populations should include both the implementation of a life-cycle vaccination programme and the extension of vaccination to other patient groups to reduce the risk of infectious disease transmission.

#### **4. A strategic approach to vaccination throughout the life cycle should be implemented**

Scientific evidence supports the extension of vaccination to all stages of life.<sup>49</sup> Equal access to effective vaccination programmes throughout the life cycle should ensure that all citizens live longer and healthier lives, regardless of gender, age and social group. As part of the elimination of barriers to access to vaccination, working solutions such as occupational medicine should be used and the infrastructure used for vaccination should be developed - so that it meets the needs of a wider population, i.e. adults and the elderly.

#### **5. A strategic approach to vaccination throughout the life cycle should be implemented**

In a dynamically changing world, in a situation of limited medical staff resources, every potential of the system should be used and public policy should be based on good experiences from other countries. In order to increase access to vaccination and knowledge about prevention, it is urgent to expand the possibility of vaccinating against respiratory diseases for pharmacists.

#### **6. Communication plays a key role in building a safe healthcare system based on the subjectivity of the patient (humanization of medicine)**

Modern health care should be based not only on quality, but also on patient empowerment. This is a value that should be additionally rewarded in the health care system. The increase in the humanization coefficient increases the credibility of the profession, builds the prestige of healthcare professionals, and is an effective tool in the fight against disinformation and fake news. Transparent and clear communication, also understood here as educational activities, addressed to all stakeholders about the importance of public health and the benefits of preventive vaccinations, is crucial from the point of view of building social understanding and trust of healthcare professionals.

Our country has achieved a great deal in the prevention of infectious respiratory diseases. The pandemic was a period when innovative solutions were implemented in a short time, such as digitization of the vaccination system or vaccinations in pharmacies. However, much remains to be done. We call on decision-makers, parliamentarians, Polish society and opinion-makers to continue decisive and immediate actions to expand vaccination programmes so as to implement the vision presented by the WHO in the Immunization Agenda 2030, in which "everyone, everywhere, at any age, take full advantage of vaccines, ensuring their health and well-being".<sup>50</sup>

49 P. Bonanni, C. Sacco, R. Donato, R. Capei, Lifelong vaccination as a key disease-prevention strategy, *Clinical Microbiology and Infection*, Volume 20, Supplement 5, 2014, Pages 32-36


50 Immunization Agenda 2030: A Global Strategy to Leave No One Behind, WHO, 2021. [https://cdn.who.int/media/docs/default-source/immunization/strategy/ia2030/ia2030-draft-4-wha\\_b8850379-1fce-4847-bfd15d2c9d9e32f8.pdf?sfvrsn=5389656e\\_69&download=true](https://cdn.who.int/media/docs/default-source/immunization/strategy/ia2030/ia2030-draft-4-wha_b8850379-1fce-4847-bfd15d2c9d9e32f8.pdf?sfvrsn=5389656e_69&download=true)

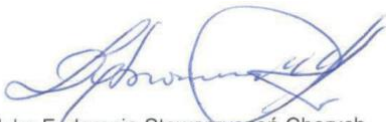
The document was signed by patient organizations gathered in the Alliance for Combating Infectious Diseases of the Respiratory System "Polska Zdrowo Oddycha". The Institute of Patient Rights and Health Education, the Polish Diabetes Association, the Amazonki Associations Federation, the National Association of Patients with Heart and Vascular Diseases EcoSerce, the Polish Federation of Asthma, Allergic and Chronic Obstructive Lung Diseases Associations.

  
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na Astmę i Choroby Alergiczne  
i Przewlekłe Obturacyjne Choroby Płuc

Allergic and Chronic Obstructive Lung Diseases Associations



PATIENT  
ORGANIZ  
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# INFECTIOUS RESPIRATORY DISEASES FROM THE PATIENT'S PERSPECTIVE

The foundation for health prevention is public health education. It must start in kindergarten and school, from the earliest years of human life. The second issue is the issue of social responsibility. An infectious disease is not just "my problem", but a health problem that touches life and death of many people. Not only my health depends on whether I get vaccinated, but also the health of others, because this way I will not get sick and I will not infect people around me. I believe that we have not used the potential of many people we trust, people with high social trust, when it comes to the issues of the social campaign related to the promotion of COVID-19 vaccinations. In principle, this campaign did not really exist, it was barely visible in the media. In this positive campaign for vaccination against COVID-19 (but also against influenza, pneumococcus or whooping cough) we completely missed people whom Poles value, love, idols whose books they read, whose songs they listen to, and whose sporting achievements they support.



**REV. ARKADIUSZ NOWAK, PHD,**  
INSTITUTE OF PATIENT RIGHTS  
AND HEALTH EDUCATION



Perhaps if there was more activity in this regard, more people would get vaccinated. I deeply believe that such a direct message from those we care about, whose personalities we value, is sometimes the only one that can change our way of thinking. We still need to make patient organizations more involved in creating education and building social awareness. Especially in the context of infectious respiratory diseases that affect the whole society, not just selected groups of patients. As the Institute of Patient Rights and Health Education, we initiated the signing of the "Carpathian Declaration for Health". The experiences of patients associated in these organizations motivated us to create such a declaration, hoping that what we indicate in terms of prevention, health education and communication has a great communication potential that can be effectively used. This may not change the system right away, but it will be another step that we take from the bottom up within the rather limited possibilities of patient organization. Such declarations symbolically draw attention to the even greater need for action in the area of health and health education.

# INFECTIOUS RESPIRATORY DISEASES IN PEOPLE WITH DIABETES

Both diabetes and poor metabolic control increase the risk of pneumonia, which, in turn, can lead to complications and even death, especially in the presence of multiple diseases in the elderly and people with reduced immunity. Pneumonia in diabetics is associated with burdening the body with another serious disease and the risk of exacerbation of the underlying disease - so it can have much more serious health consequences than in patients from the general population. In 15-20% of the cases of pneumonia in patients with type 1 diabetes, ketoacidosis occurs, which is a life-threatening condition that most often requires medical intervention. The most dangerous pneumonias are those caused by Gram-negative bacteria and *Staphylococcus aureus*. They are characterized by a severe course and a high risk of death. Such complications as lung abscesses, empyema or pneumothorax are also possible.



**ANNA ŚLIWIŃSKA,**  
POLISH DIABETES SOCIETY

These patients are treated intensively with combined antibiotic therapy. A good metabolic balance of the patient is also extremely important. Influenza patients with diabetes may develop a bacterial superinfection, which increases mortality in this group by 10-15% compared to the general population. Diabetics, especially those with poor metabolic control, are also predisposed to a more severe course of tuberculosis, which in untreated or uncontrolled patients may lead to serous pneumonia.

The increased risk of pneumonia in people with diabetes should encourage these patients to avoid groups of infected people, as well as to prevent getting sick by taking recommended vaccinations against infectious diseases - especially against influenza, whooping cough, pneumococci, tuberculosis and COVID-19. Lower respiratory tract infections, including pneumonia, are responsible for about 50% hospitalizations in adults in Poland due to respiratory diseases.

By getting vaccinated, patients reduce the risk of getting sick, but also of hospitalization - thus relieving the health care system. The ongoing COVID-19 pandemic, which has greatly affected people with diabetes, has reminded us how important it is to protect chronically ill people from dangerous respiratory diseases. Pneumonia caused by bacteria and viruses can be prevented by vaccination. Let's use these achievements of science and protect ourselves from diseases that we can avoid. In order that especially vulnerable patients, including people suffering from diabetes, could fully benefit from the prevention of infectious diseases, it is necessary to create a friendly, equal, free and effective system of preventive vaccinations throughout the life cycle.

# INFECTIOUS RESPIRATORY DISEASES IN PEOPLE SUFFERING FROM CARDIOVASCULAR DISEASES

For many years, cardiological patients have been the largest group of patients, and diseases of the heart and circulatory system are still leading in terms of mortality. The needs of cardiological patients are growing, and so is the health debt understood as a set of all diseases and mounting challenges for the health care system, which have been intensified by the COVID-19 pandemic. And although the pandemic itself may have been a surprise, after more than two years of fighting and the need to reorganize the health care system, we must draw conclusions.



AGNIESZKA WOŁCZENKO, NATIONAL  
ASSOCIATION OF PATIENTS WITH  
HEART AND VASCULAR DISEASES  
ECOSERCE

Patients' needs must be addressed on the spot, because in an emergency situation like a pandemic, as a society we face a dilemma: who to save first? And yet everyone is equal and everyone wants to have the same rights, especially in such fundamental matters as health and life. Respiratory diseases are an additional burden for cardiac patients, but vice versa - infectious respiratory diseases cause stress, reduce the quality of life of patients and can lead to cardiac complications. There can be only one solution – let us not wait for another pandemic. Let us not wait for a situation when we will be pushed against the wall and we will have to choose again whom to save lives. Let's educate the society, let's cooperate to improve access to healthcare, let's prioritize prevention, so that in case of an emergency, like a pandemic, no one has the health and lives of others on their conscience. Because these lives can be saved. Today.

# INFECTIOUS RESPIRATORY DISEASES IN ONCOLOGY PATIENTS

General indications for oncology patients, especially those with lung cancer or women with lung metastases of a breast cancer, in the context of infectious threats (COVID-19, influenza, increased risk of infectious diseases of the refugee population, where there is generally a lower percentage of vaccinated people) are: necessary vaccination with the fourth dose of the vaccine for COVID-19 (the exception is patients in cachexia or frailty phase). If, despite three doses, the patient is infected with the COVID-19 virus, this person can be vaccinated with a fourth dose after three months. In the case of planned or ongoing chemotherapy, this vaccination, after consultation with the oncologist, is performed about two weeks before the start of chemotherapy or two weeks afterwards.



**KRYSTYNA WECHMANN,**  
AMAZONKI ASSOCIATIONS FEDERATION

Due to the large number of COVID-19 cases and the threat of other viral and bacterial diseases, it is advisable to wear masks in public transport or in any other bigger groups of people - with an indication of minimizing such contacts. Undoubtedly, there is a risk of a more severe course of an infectious disease in the case of respiratory cancers. In fact, we still do not know to what extent the course of COVID-19 can exacerbate the oncological process itself. It's important to have a lung imaging check-up after COVID-19 infection. What we should remember, regardless of the phase of the pandemic and the number of infected people, is that cancer patients should be protected against infection as much as possible.

# INFECTIOUS RESPIRATORY DISEASES FROM THE PERSPECTIVE OF PULMONARY AND ALLERGIC PATIENTS

Patients with chronic obstructive pulmonary diseases (asthma and COPD) constitute approx. 6,000,000 patients in Poland, for whom respiratory infection may be a factor causing exacerbation of the disease. Therefore, the recommendations of the global organization for combating asthma, the Global Initiative for Asthma (GINA) and the global organization for combating COPD, the Global Initiative for Chronic Obstructive Lung Disease (GOLD), recommend vaccination against influenza, whooping cough, pneumococci and of course against COVID-19 as a form of preventive care patients against exacerbations, which may cause serious pneumonia and, consequently, exacerbation and death of the patient. Asthma exacerbations can range in severity from mild



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ASTHMA AND ALLERGIC DISEASES  
AND CHRONIC OBSTRUCTIVE LUNG  
DISEASES





In our practice, we recommend vaccination to every patient and I will say it straight - it seems that vaccinated people get sick less often, and several times less often they develop infectious pneumonia and other complications related to the presence of a dangerous virus in the body.

to severe, and if left untreated can even be fatal. Exacerbation of the disease can develop gradually or rapidly, symptoms occur within minutes (in case of contact with an allergen) or several days in the case of infection. Each case of exacerbation is an unnecessary stress for the patient, which is a significant health burden, but also a social and family problem. Asthma is the most common chronic disease in young adults. Study or work disturbed by an exacerbation has adverse consequences that could be prevented by vaccines.

More serious complications are caused by infections in the respiratory system of patients with COPD. COPD patients catching a flu-like infection or COVID-19 are more severely ill and more likely to require intensive treatment during their illness. Vaccinations are the simplest form of preventing influenza, pneumococcal or COVID complications in patients with chronic obstructive pulmonary diseases.

In our practice, we recommend vaccination to every patient and I will say it straight - it seems that vaccinated people get sick less often, and several times less often they develop infectious pneumonia and other complications related to the presence of a dangerous virus in the body.

Another infection season is now starting. The heating season begins at the same time as the infection season. Millions of tiny particles (so called PM) are released from chimneys of houses and apartments and reach the respiratory system of patients with allergies, asthma or COPD. Scientific research shows that people living in areas with a lot of air pollution are more likely to suffer from respiratory infections. We have little control over the presence of pollutants in the air we breathe, but we do have full control of reducing the risk of infection through vaccination. Let's give ourselves a chance to survive autumn and winter without flu, whooping cough or pneumococcal infection. And if we get sick, we can be sure that the infection will be much milder in our vaccinated body.

# CONCLUSIONS AND RECOMMENDATIONS



# CONCLUSIONS

1. The COVID-19 pandemic showed us how dangerous for people and devastating for health systems respiratory diseases can be and made us realize that the prevention of respiratory infections is an important element of a sustainable health system.
2. Vaccine-preventable respiratory diseases are diseases that can be prevented by vaccination against influenza, pneumococcal, whooping cough and COVID-19.
3. These diseases also put a strain on health care systems, resulting in serious complications and hospitalizations in older, chronically ill populations, putting additional pressure on already strained health care systems.
4. Special care should be extended to people from risk groups, e.g. chronically ill (diabetes, heart and vascular diseases, cancer, lung diseases) and seniors.
5. In case of patients with an increased risk of COVID-19 exacerbation, oral treatment should be used, which guarantees that the course of the disease will be less severe or practically no symptoms of the disease will occur in a short time from diagnosis to initiation of therapy.
6. Communication and education, which are effective tools in the fight against disinformation, play a key role in building a safe healthcare system.



# RECOMMENDATIONS

1. It is important to act quickly and hand in hand, and use the moments between the waves of the disease to prepare for possible future outbreaks in the autumn and winter and beyond.
2. A high priority should be given to prevention, which, in addition to vaccination, includes early detection of diseases and enables a quick start of treatment (the so-called fast track patient).
3. Vaccination programmes - currently focused on children - should be extended to all stages of life - i.e. vaccination throughout the life cycle.
4. The possibility for adult patients to be vaccinated against respiratory diseases such as COVID-19, influenza, pneumococcus in open pharmacies should be extended.
5. A fast diagnostic and therapeutic pathway for a patient with COVID-19 should be introduced at the primary care level.
6. Patients from risk groups diagnosed with COVID-19 should be provided with oral treatment ordered by a doctor.

# COMMENTS TO THE REPORT



**BARTŁOMIEJ CHMIELOWIEC,**  
PATIENT RIGHTS OMBUDSMAN

Today we have over two years of experience in the fight against COVID-19. I think it will help us to cope better with similar challenges in the future. However, there are areas that still require improvement and a thorough analysis of the causes of the problems we have faced, such as restrictions on access to health services. We don't want situations where we focused on COVID-19 patients, forgetting about those suffering from other diseases. Situations where primary health care facilities is unavailable to patients, or hospitals are forced to cancel planned procedures, are unacceptable. In these situations not only the continuity of health care is crucial, but also reliable and efficient information for the patient and extensive public education. We should remember that patients' rights are a fundamental right. The pandemic should not influence these rights – a patient can never be completely deprived of them. These rights may suffer some limitations, of course, adapting to the current epidemic conditions. From the perspective of the Office of the Ombudsman for Patients' Rights, we observed a shortcut in some medical facilities, which resulted in unjustified limitation of patients' rights. Standards that have already been developed - for example in the field of teleconsultations, visits of patients' families in medical facilities, last good bye, cancelling scheduled visits and information offered to patients – should at least kept at the level they are, if not optimized.

Patients with respiratory diseases belong to a particular risk group, which is not always clearly visible. I think we could improve it, for example, by introducing a wider electronic medical records system. Introducing data of patients from especially vulnerable populations into electronic medical records, so that referrals for vaccinations are generated automatically on the individual patient account (IKP), could improve the situation. In my opinion, the computerization of the health care sector, which is progressing very quickly in our country, creates such hopes. We are a pioneer in Europe in the field of effective implementation of e-referrals, e-prescriptions and e-sick leaves. In terms of the issue of compulsory vaccination, this is a complex issue where, on the one hand, we have education and responsibility for another human being. On the other hand, it also requires a serious legal discussion as to whether the introduction of such provisions would be consistent with the Constitution and the principle of proportionality. In relation to the observance of the patient's rights, I believe that we should always take actions that are proportionate and adequate to the state of emergency, also when it comes to a possible temporary limitation of the patient's rights. Hence my postulate that we should review and analyze the regulations currently in force in order to prepare ourselves as best as possible in case there is a need to change them in the future.

*Statement recorded during the "Rzeczpospolita" debate "Epidemic safety - are we ready for the future?", organized during the Economic Forum in Karpacz, 06/09/2022.*



**BARBARA DZIUK,**  
MEMBER OF PARLIAMENT, CHAIR OF THE  
PARLIAMENTARY COMMITTEE FOR RARE  
DISEASES AND THE STANDING  
SUBCOMMITTEE FOR ONCOLOGY

The COVID-19 pandemic has made us look at life differently. What has been happening in the health area so far has been included in the new context of the pandemic, which also makes us look at the issue of prevention differently. I think that all legal regulations introduced in the area of health have shown how quickly we adapt to very difficult situations. It's not like the epidemic is under control now. There are still many people who get sick, and more people have various health problems. Civilization diseases have overlapped the waves of the COVID-19 pandemic. This situation has made us a milestone, both in the IT sector and in health care management. We have introduced e-prescription, e-sick leave and e-referral. We also have a completely different approach to values and life, which is the greatest gift. It should be protected both from the medical side - by doctors, nurses, pharmacists and other medical staff, and from the parties involved in the organization and financing of the health care system - decision makers or hospital directors. We have to be vigilant all the time and solve difficult situations for patients. I always emphasize that health is not political. We should all work together to improve the health of every human being. We must educate the society in the field of health from the earliest years of a citizen's life. Kindergarten, school and workplace should be a place to acquire theoretical and practical knowledge about a healthy lifestyle, diet, disease prevention, the role of preventive vaccinations and regular health check-ups.



**MAŁGORZATA GAŁĄZKA-SOBOTKA**, DEAN OF THE POSTGRADUATE EDUCATION CENTRE AND DIRECTOR OF THE INSTITUTE OF HEALTH CARE MANAGEMENT AT LAZARSKI UNIVERSITY



## Lessons learned from the pandemic - what conclusions can we take for the future?

**The COVID-19 pandemic should be a lesson for us all. The lesson, which will be continuous, it will have a significant and lasting impact on personal, individual competences and attitudes, but it should also be a lesson for the organizers of health entities.**

The knowledge we have today will pay off in the future, if only we are able and willing to use it. However, it is important that these conclusions do not remain only on paper, but translate into concrete actions. What we know today about the virus, about the losses and havoc it can cause, should translate into a change in our behaviour and result in strategies for preventing infectious diseases and managing crisis situations. The more so that the epidemiological threat related to this or any other virus will probably return in the future, which is why both the health care system and medical entities must be prepared to provide health care services in such difficult conditions.

The pandemic experience should encourage us, first of all, to invest in prevention. Specific actions and appropriate tools are needed to effectively prevent or reduce the symptoms of infectious respiratory diseases, which are often associated with costly hospitalizations. There is no doubt that the expansion of access to free vaccinations

as an instrument of effective prevention with proven clinical effectiveness and cost-effective results in vaccination rates.

This approach to prevention is not so much about ensuring vaccination for all citizens, but about expanding access to wider groups whose health is in the public interest. The cost of the vaccine is a barrier for many citizens, which is insurmountable, especially in times of economic crisis. The challenge, however, is primarily a change in the approach to vaccinations, which are quite well implemented among children, but have been completely abandoned for years as far as adults are concerned, especially those at risk of severe course of not only COVID-19, but also influenza, pneumococci or whooping cough.

Vaccination statistics are not encouraging. Interest in vaccinations, e.g. against influenza has not increased as a result of the experience of the COVID-19 pandemic. Therefore, system support is absolutely essential. There is much hope for the development of coordinated care in primary health care, strengthening the importance of health education at the level of a family doctor facility.

Unfortunately, we have to realize that we are a society with very low health literacy. For many years, health education was on the margins of the health care system - we focused on restorative medicine. Until now, the proverbial lesson about health is still a dream rather than a fact, not losing hope that future generations will be more rational in taking care of their health. Of course, the process of building Poles' responsibility for the most valuable capital, which is health, will require time and a patient, consistent approach. It will certainly not be a revolution, but an evolution that can be accelerated, for example, by implementing modern models of organization and financing of prevention. There is no doubt that the effects of investments in this area can be seen much faster than we are often told. Already today, in institutions that encourage active disease prevention through vaccination or other preventive examinations much more effectively, the effects can be seen in the number of infections and their severity, or the level of advancement of the disease at the time of detection.

It is not true that investments in prevention are visible only in the following decades. The prevention of infectious diseases of the respiratory system is a great example of this, because the benefits associated with them can already be seen in a given budget year, often in a given calendar year. The expansion of the group of people using vaccination as an instrument of prevention of respiratory diseases will be reflected in the budget of the Social Insurance Institution - because it will immediately reduce absenteeism. Employers will also feel the change in the costs of presenteeism. These are investments with a return calculated in the calculation of one national budget, and we need to look at it a bit more broadly than just the expenses of the National Health Fund. Let us remember that the second important payer that covers the costs of each disease in Poland is the Social Insurance Institution, where investments in the prevention give a very quick return.



**MARIA LIBURA,**  
EXPERT OF THE ANALYSIS CENTRE OF THE  
JAGIELLONIAN CLUB FOR HEALTH

The most important lesson of the pandemic is the fundamental role of trust in public institutions in crisis management. We could see that the technocratic management of the "health market" is not enough: in democratic societies, there must be a constant dialogue with the public about the objectives of the state's health policy. The lack of communication cannot be made up quickly; the state can buy vaccines, organize their distribution, but when there is no trust a large part of citizens simply will not take advantage of the opportunity offered to them. Similarly, spending on activities for which there is no immediate effect should be negotiated with the public, and prevention is undoubtedly one of such areas. One of the reasons for the high price that Poland paid for the pandemic was probably the initial state of health of our society. We are sorely lacking solid investment in primary health care, which is crucial here. Meanwhile, in some areas of Poland, the access is still difficult - especially in rural areas and smaller towns in depopulated areas. The COVID-19 pandemic is a lesson that also an infectious disease does not threaten everyone equally. It is more difficult for people from the working class to avoid the contact with the virus, e.g. people working physically, as well as in services, serving customers, cannot switch to remote work to reduce the risk of getting sick. Secondly, in Polish conditions, the effective use of the health care system largely depends on the network of contacts, i.e. on this social capital. Also, less affluent people and less proficient in the intricacies of the system have greater difficulties in obtaining medical help, because they cannot find their place in the shrinking resources of Polish health care, and they cannot afford commercial visits. We need an efficient state and efficient institutions that proactively reach those in need,

without shifting the responsibility for an inefficient system onto them. In addition, a state that introduces restrictions and then has trouble finding a legal basis for them and loses in the courts, unfortunately acts against its own interest. The results of a global study on the trust of citizens of individual countries in the health care system turned out to be an absolute sensation. We were the only country where citizens believed more in family and friends than in doctors during the pandemic, and trust in the media and public institutions was very low.

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