CONFERENCE REPORT

Healthy Future, Polish Deal, National Recovery Plan - key initiatives for strengthening Poland's healthcare system

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The health of Poles after COVID-19 – how to tackle the epidemic of civilization diseases and how to pay off the health debt?

Prof. Marcin Grabowski – Head of the Department of Electrocardiology and Department of Cardiology at the Medical University of Warsaw

I would like to point out that we act as if the COVID-19 pandemic is over, but it is still there. We are ahead of the fourth wave of the pandemic; however, we have already incurred a health debt in the fight against the epidemic of civilization diseases. In terms of cardiac complications, we were prepared for a larger-scale of the problem. Fortunately, enough, we don't witness a bigger number of post-COVID cardiac complications. Nevertheless, the health debt we have gathered is primarily an issue related to chronically treated cardiac patients. These are patients with chronic heart failure, hypertension, and coronary artery disease, who were scheduled for hospitalization, cardiac diagnostics, and vascular interventions – because of the „lockdown" in healthcare, these procedures were postponed.

The next problem is the issue of closure of outpatient specialty care (AOS). Telemedicine and e-prescriptions have saved the situation a bit, but many patients had to discontinue therapies or primary care treatment. Those patients with urgent cardiac conditions, e.g. myocardial infarction, or acute heart failure, often did not survive to see rapid care interventions. We tried to appeal with initiatives, such as „Don't stay at home with a heart attack. We have a feeling that a few months after, patients have become a little bolder when it comes to making contact with healthcare institutions, but this will be an issue that will have to be paid as part of the health debt. In cardiology, this debt primarily relates to neglected heart failure or coronary artery disease cases. Patients, who will now visit the doctor, will have a much more severe course and, of course, a less optimistic prognosis for these diseases. I would, as a last resort, look for the causes in the patients, because looking even at the positive things that happened in the pandemic, there is paradoxically a group of patients who, thanks to the pandemic, became interested in their health. In isolation, many patients who until then had no time to think about their health suddenly started visiting the medical facilities.

In terms of coordinated care programs, in cardiology, we have a well-described program for coordinated care after myocardial infarction, and another one pending to be introduced – this is the coordinated care program for heart failure patients. This program is still awaiting approval from the Ministry of Health. We are also waiting for several procedures that already have positive opinions from AOTMiT. This includes, inter alia, telemonitoring of implantable devices, which received a positive opinion in 2018, with a detailed reimbursement description. Such telemonitoring, for those patients with pacemakers, when dealing with the COVID-19 pandemic, results in all patients being cared for 24 hours a day. These are the highest-risk patients, whom we told to stay at home, and not to come to outpatient clinics where they might catch a virus, and on the other hand, we had no way to telemonitor them. The implantable arrhythmia recorder also received a positive opinion from the AOTMiT. These are patients who are at risk of stroke – thanks to early detection of atrial fibrillation, they will not be incapacitated and will be productive for the system. Another important decision in cardiology is the introduction of artificial left ventricular support in patients as a destination therapy. These patients will travel and return to work – for them this procedure is not available. In the guidelines, we should be using optical coherence tomography – we don't have it enshrined in the basket. Prevention of cardiovascular disease should be the foundation of our activities. It is indicated, whereas we generalize it a lot as education

in basic health-promoting behavior. We should remember that the boundary of prevention is fluid – for instance, in cardiology, in prevention in a patient before myocardial infarction, some procedures reduce the risk of myocardial infarction, but in a patient after myocardial infarction, we still have heart failure prophylaxis. In a patient with heart failure, we still have prevention of sudden cardiac death, so depending on which perspective we look at the problem, these interventions mentioned above are highly cost-effective interventions.

Prof. Adam Antczak – Vice-Rector for Clinical Affairs and Scientific Management of the Medical University of Lodz, Vice President of the Polish Lung Association

COVID-19 is primarily pneumonia, i.e. damage to the respiratory system, which fortunately passes in 90% of patients. Most patients after COVID-19, however, require pulmonological rehabilitation. We have a system problem with it – while there are 100 pulmonology hospitals and 1000 pulmonology specialists in Poland, the number of units that provide pulmonary rehabilitation services is limited. Let's remember that there are about 60 thousand physiotherapists in Poland, and their average age is about 36 years. Hence, this is a community whose potential is incredible. These are highly educated people who can play a very relevant role in the healthcare system. Moreover, in terms of outpatient rehabilitation products reimbursed by the National Health Fund, such pulmonary rehabilitation products are certainly not enough.

Let's also remember that about 2 million Poles suffer from the chronic obstructive pulmonary disease (COPD). For these patients, the isolation during the COVID-19 pandemic was very disadvantageous, because they did not go out of the house, were not physically active and sometimes the control of their disease deteriorated irreversibly. So, we have a huge group of chronic COPD patients, which is the largest group of patients in Poland, after those with hypertension, diabetes, bronchial asthma, and heart failure. This is a serious problem, and here improvement in pulmonary rehabilitation is key. In the case of asthma, we have a large group of patients, but we should remember that the majority of patients are those who have mild diseases that, when properly managed and controlled, can live a normal life with the disease. There is a small group of patients who have severe forms of asthma, in whom getting the disease under control is undoubtedly a challenge for the system, as well as for doctors. Here, I refer to the joint position of the Polish Respiratory Society and the Polish Society of Allergology on the latest GINA recommendations for the introduction of new drug combinations. We do our best to have triple-drug therapies in asthma reimbursed in Poland. An important aspect of pulmonology and oncology at the same time is composed of patients with lung cancer. Most of these people first go to a pulmonologist and are diagnosed in pulmonology centers. We see a very high percentage of people who come to us in the late stages of lung cancer – the third and fourth stages of the disease. It is tough to treat lung cancer in these stages. For sure, it is always necessary to do everything to help these patients effectively.

Anna Janiczek – President of the Management Board of PZU Health

Powszechny Zakład Ubezpieczeń Spółka Akcyjna, PZU is an insurer, but also a medical operator, owning 140 medical facilities. During the COVID-19 pandemic, we were open all the time, and the facilities operated practically in a normal manner, with more telemedicine, of course. At the moment, our facilities are full. There is a very high interest in diagnostics and treatment. We currently see a very high interest in prevention, but also in post-COVID diagnostics, as our

patients are already well-educated and know what to examine after COVID-19 is gone. The most popular test at the moment is lung ultrasound – here practically all schedules to pulmonology doctors are filled. In terms of the positive aspects of the pandemic, we are a company that has acquired new competencies in, for example, the home healthcare program. Our consultants and doctors were taking care of COVID-19 patients remotely. Patients were monitored with a pulse oximeter on a telemonitoring basis. In the PZU Group, preventive healthcare was included in the latest strategy and is a well-emphasized pillar. I would also like to emphasize the employers' role in this process because these are our main customers and I see that the approach to healthcare has completely altered with them. Health is not just a private matter for employees, but a business pillar for the company. I'm happy to see that employers are turning to us for preventive examinations. Now we have a great 40+ program, so I also encourage everyone to reach out.

Jakub Adamski – Director of the Department of Strategy and System Activities in the Office of the Patient Ombudsman

The Commissioner for Patients' Rights (RPP) has recorded a significant increase in patient reports regarding the availability of services throughout the COVID-19 pandemic period. In 2020, there were more than 110,000 such reports, a significant portion of which ended with the RPP's interventions. The Commissioner does not act only in individual cases, but also where collective patient rights are violated. All these situations translate into real help for patients who found themselves in a difficult, completely new situation in 2020/2021. This support was often provided by guiding them through the system, showing what and how can be done, and interventions in medical entities. I think it was very important and was noticed by patients. We note that in 2021 another significant increase in notifications. The notifications are mostly in primary care and outpatient care, hospital care, and vaccination programs. We also see from patient submissions that prevention and health education are the weakest elements in the healthcare system.

Dr Roman Topór-Mądry – President of the Agency for Health Technology Assessment and Tariff System

One may ask whether the health debt we are now talking about in the context of COVID-19 was not created earlier. In the perspective of the last few decades and the difference between countries that had stable economic development and Poland, we see that we entered a pandemic with health debt. The COVID-19 pandemic has, of course, exacerbated this health debt. We are now faced with the prospect of two goals. First, on an ad hoc basis, we need to arm our healthcare system with tools to prevent these complications, which we call post-COVID. Second, we need to achieve the health indicators of developed countries. We also see that health indicators are very different in Poland, observing the huge disparity between southeastern Poland and northwestern Poland. It is not due to economic differences, but rather to something that is probably the basis of our health, namely lifestyle. Lifestyle, of course, is not just what we think about, i.e. smoking, controlling blood pressure, excess weight, physical activity, but above all awareness and participation in health programs. In this context, we are discussing vaccination against COVID-19. This awareness, this active support of one's health is indispensable. In terms of creating guidelines for COVID-19 management, we have a Team appointed by Minister Miłkowski. We have special IT tools, searching scientific databases. We have analyzed around 90 000 articles related to COVID-19, extracted data, discussed it with clinicians experts, and practitioners, and, as

a result, created guidelines. There will also be guidelines for rehabilitation after COVID-19 and recommendations for local governments to establish these programs. In 2020, we were able, with American colleagues, to do a cross-sectional analysis of the last thirty years, which covered 300 disease entities and 80 risk factors in all occupational groups, by region. We can see that there are provinces that have benefited greatly in terms of health in recent decades, such as the Pomeranian province, but there are also provinces – such as the Lodz province, where such spectacular health effects have not been recorded.

Poles' health safety – strategic resources, sovereignty, cooperation

Dr hab. med. Radosław Sierpiński, MBA – President of the Medical Research Agency, Prime Minister's Plenipotentiary for development of the biotechnological sector

The COVID-19 pandemic has demonstrated to us how fragile international relations are and how important the health safety of Poles is in terms of strategic drug and medical device resources. Plasma fractionation is a topic we have been discussing in Poland for a long time. We have been facing a plasma shortage and the problem of dependence on third parties for several decades. These are not only strategic resources but also economic aspects. The market for plasma and plasma-derived medicinal products in the world is spread among several key players. Poland is not among these players. Poland is dependent on commercial players. Looking at the forecasts, we can see that before long Polish patients, and perhaps patients in Central and Eastern Europe in general will have a problem getting access to microglobulins and immunoglobulins, so important in intensive care. Currently, the main producer of plasma is the United States, which not only takes care of its citizens but also buys plasma on world markets. Europe accounts for 25% of the global plasma market. This market has clearly grown over the past few years, but we will face significant shortages of plasma worldwide over the next few years. In 2017, there was a shortage of nearly 4 million liters of plasma. This was a shortfall concerning the demand of patients, people who are seriously ill and require ongoing treatment. If we look at the simulation for 2025, we can expect a plasma shortage of about 8 million liters. I would additionally like to point out that in the coming years, there are plans to expand the clinical indications for the use of plasma products. I am thinking of Parkinson's disease or Alzheimer's disease, among others, so more patients who will need this treatment. Also at COVID-19, studies are underway that may show that antibodies derived from the plasma of recovered patients will become a breakthrough when it comes to treating this disease. In Poland, from the point of view of the need for plasma, we still need a lot of it, but what is very important – almost 20% of plasma can be surplus. In other words, in Poland, we can ensure total sovereignty and security in plasma and plasma products. We can also export plasma abroad and thus join the key players when it comes to international trade. For this, we need to implement new technologies and build a plasma factory that will give us sovereignty and allow us to become a valuable player on the European stage. Poland, having no plasma fractionator of its own, buys blood products on the free market. We sell our plasma abroad and receive finished drugs derived from it as barter. Is this a good solution? Probably not. We are not only talking about medical security, but also economic security. If threats like the COVID-19 pandemic recur, we can only imagine how dramatic the consequences would be if the supply chains of these products got disrupted. That is why, thanks to the decision of Prime Minister Mateusz Morawiecki, we will create a Polish plasma factory and a Polish plasma fractionator in the coming years. This is, in fact, the first comprehensive plan for Polish

plasma to build sovereignty in this area. We would like to see this infrastructure operating already in 2025. The government will allocate about PLN 1.5 billion for its construction and development. We hope that it will be a completely profitable investment, which will additionally provide several hundred jobs and build new Polish competencies. The bill is ready, and the Minister of Health, as the creator of the country's health policy, is responsible for the legislative process of the law in this regard, which I hope will be in parliament in the coming months. Plasma is one of the important pieces when it comes to the country's drug security, but we are also talking about generic drugs here. About medicines that actually account for the health of millions of Poles who have to receive chronic drugs. These patients would be in a life-threatening situation the moment the supply chain is possibly interrupted. I hope that today's debate will address these topics and propose some systemic solutions that will make us able to recommend good solutions for Polish patients, and the Polish healthcare system.

Płk Tadeusz Nierebiński – Chief Sanitary Inspector of the Polish Army

There is no military health service without a public health service – they are two intertwined systems. What the civilian health service achieves, the military health service also achieves – here only the elements are different. A soldier is supposed to be available at any time. During the COVID-19 pandemic, soldiers supported the operation of smear points, vaccination points, or hospitals in terms of administrative activities. We also had to secure the epidemiological and health security activities of soldiers ourselves. All the existing documents, such as recommendations, orders, and guidelines that relate to soldiers, especially those who are sent abroad, also contain provisions or regulations edited by the medical division of NATO countries, for reason that we have to be compatible with our allies. We simply have to operate based on cooperation and mutual requirements, if only in terms of requirements whether we use antigen tests or PCR tests. In terms of vaccinations, we have to implement inoculations on the territory of a given Polish military contingent under the international health law and NATO rules. This results in the mutual development of military as well as civilian services. Because, after all, we cooperate with the Chief Sanitary Inspector, the National Institute of Diagnostics in Puławy, or within the framework of the national antibiotics program with the National Institute of Medicine. It can be said that the soldier and military personnel, whose number already reaches about 200,000, are citizens of the Polish State, and they expect the same medical assistance both at home and abroad. Especially since a soldier, to perform his task, must be fully healthy, but at the same time have a certain guarantee that there is a medical doctor, or a whole medical facility backing him, ready to help him in a situation of danger to his health or life. In both preventive and restorative medicine there is no deviation of one from the other. Although, for example, recently cooperation is based on sequencing the virus and detecting its variants. Let's remember that if it weren't for soldiers if it weren't for territorial defense troops, we wouldn't be able to handle national or provincial emergencies.

Prof. Robert Gil – Head of the Department of Invasive Cardiology at the Central Clinical Hospital of the Ministry of the Interior and Administration

On March 16, 2020, the Central Clinical Hospital of the Ministry of Internal Affairs and Administration was transformed into a COVID-19 hospital. We had no guidelines on how to organize all this to be safe and to meet all the criteria. I have the utmost respect for the staff of my hospital, because people sat up voluntarily at night, searched for data on the

Internet, and figured out how to adapt a 900-bed multispecialty hospital into an approximately 400-bed COVID hospital. Now we know that setting up single-named hospitals is a mistake. A mistake in the sense that then we are not able to manage patients with other conditions, those whom we acutely admitted and saved their lives. On top of all this, there was a patient's fear of going to the hospital. We are now rebuilding that trust. It seems to me that money from the National Recovery Plan should improve the infrastructure of currently operating hospitals. Also, the modern ones should be rebuilt so that they can operate hybrid. Let 30% or even half of the beds be prepared for a pandemic. So that a patient in an acute condition, even though he is infectious, can't be carted around the region and look for a place for him. Because, as they say, with a stroke or a heart attack, time is life. We should be able to make the appropriate diagnosis and treatment in the same hospital – that patient should continue to be treated in the same hospital. Such investments will enable us to be more efficient. We will be able to secure, both the needs of elective and emergency patients. Infected and non-infected patients will be separated from each other. Our problem, as doctors and the healthcare system, has been the misconception that infectious diseases are no longer a problem in the 21st century. This is a lesson learned for us – we should forget such pipe dreams. There should be a restoration of the prestige and role of the epidemiologist because it is he who should give us advice in such emergencies. Epidemiologists are very scarce in Poland. He also appeals to develop and invest in medical personnel, because they are the greatest asset of the health care system

Maarten Van Baelen – Executive Director of Plasma Protein Therapeutics Association

During the COVID-19 pandemic, it became clear that plasma had become a great asset. For the supply of plasma and plasma-derived medicinal products (PDMPs), we depend very heavily on third countries – mainly the United States. During the COVID-19 pandemic, due to sanitary restrictions imposed, the availability of these materials dropped significantly, as much as twenty-something percent globally. This is now generating supply problems and restrictions on PDMP production. In this regard, we will have to demonstrate much greater independence and resilience. Recent actions taken by Poland should inspire other countries as well. Regarding strategic resources, among others, those related to plasma and the effects of its fractionation, i.e. PDMPs, a clear distinction should be made between these two. PDMPs are stable products that can be successfully used both in their countries of production and in third countries. We also have plasma itself, as a raw material for further processing – examples of which include fractionated plasma, platelet-rich plasma, and alike. We hope that the current shortages will be addressed quickly and the situation will soon be resolved. Many countries are also taking initiatives to manage blood products and prioritize specific patient groups, primarily to optimize treatment methods. Similar initiatives can also be taken in Poland, and we urge policymakers to both optimize therapeutic policies and aim to gradually increase the amount of plasma collected. We believe that this initiative will also be supported by other countries. In the future, an increase in plasma procurement will be necessary, as patients' needs will be greater and the role of blood products will grow. I think it's also worth touching on treatment methods that are still in the research and development stage. This research is a necessary element to bring the therapies under development to the final stage and to make them safely available to patients. When it comes to the treatment of patients with primary and secondary immunodeficiency, in their case we are talking about very common comorbidities, which translate into both a reduction in the quality of life itself and a reduction in its prognosis. PDMPs in this case are a well-established solution in clinical practice – immunoglobulin preparations

can be used for more than 250 clinical indications, and this number is constantly growing. So this is a therapy whose importance continues to grow. I wanted to emphasize those differences that we have been talking about. We, too, in Poland, collected a lot of plasma, created special activities in this direction, and increased plasma production. Today we are really collecting many thousands of liters of plasma in Poland, and this prepares us for the next waves of pandemics. It would be good, however, to increase the volume of collected plasma up to four times.

Dr Tomasz Latos – Chairman of the Health Committee of the Sejm of the Republic of Poland

If we are thinking about the plasma fractionation factory and dealing with this issue, we should say – finally. This is the best punchline to the Prime Minister's decision, for which I am very grateful. Let me be clear since I have been in the Sejm of the Republic of Poland – and I have been here for 16 years – this subject has been discussed many times, and many times the need has been indicated for this subject to be dealt with in such a way that Poland would be completely independent and autonomous in this area. I have always been in favor of taking such a decision, and I have expressed this many times during the sessions of the Health Committee – at different times – both when I was in the opposition and for the last two terms. Therefore, I welcome this decision with satisfaction, but of course, all this is insufficient. Concerning the creation of so-called „one-name hospitals" – COVID – experience has taught us that in the future when designing new hospitals or planning renovations of existing facilities, we should take into account the potential impact of events we have encountered in the future. The pandemic showed very strongly that international cooperation is not only about joint EU purchases, but also about sharing experiences and mutual support. When new threats emerge, it may be necessary not only to draw on experience from different geographic regions (including individual European countries) but also through scientific cooperation, jointly, to better cope with future pandemics. There will probably be further waves of pandemics – the only questions are of what strength and how well prepared we will be for them. Another issue is that many people thought we were safe with such modern health care. However, the pandemic has shown that this is not the case, and in the military aspect as well, this should be kept in mind. The issue of possible armed conflicts – even based on what is happening in Ukraine – shows that certain perceptions of conflict have changed. But let's face it, the issue of the pandemic threat prompts us to devote additional financial resources and interest, including from the defense and state security side. We can see potential, completely new threats here – especially since it is no longer a problem today (for medical and military purposes) to fully know the human genome, to know the genome of given populations and the associated so-called founder mutations specific only to a given population – all this generates new challenges. To be fair – the answer to some of these challenges will be ready, unfortunately, only when this danger occurs. Therefore, it is necessary to prepare the military and civil service for new dangers specific to the 21st century. Let's support, including the domestic pharmaceutical industry, because in difficult situations the country's drug security is fundamental.

Krzysztof Kopeć – President of the Polish Association of Pharmaceutical Industry

Poland did not run out of medicines during the COVID-19 pandemic. Drug manufacturers and distributors coped with the crisis, but on the other hand, multi-sector cooperation is still necessary. It is good to have one's drug factories or one's plasma fractionation factories to have independence. Let's also remember that drug factories are first and foremost

the people who work in them. I want to thank all the pharmaceutical workers, doctors, and nurses who took part in the heroic fight against COVID-19. I thank our employees, because they worked three shifts, risking their lives. We did everything to prevent this from happening. We bought protective equipment and isolated more production crews so that infections did not occur and all production did not stop. A patient with COVID-19 would go to the hospital, and if he was on a ventilator he had to be given muscle relaxants and antibiotics. The domestic pharmaceutical industry was the cushion that cushioned drug shortages around the world. At every vaccination point, there was and is an anti-shock kit that a national company manufactures, providing epinephrine so that we can vaccinate safely. We're getting to the point where it's all intertwined, and we have to realize that on the one hand, there are the politicians who create the legal environment, and on the other hand, there's us, with the will and willingness of business to do certain things. At the moment there is an amendment to the reimbursement law, in which the concept of Poland's drug security appears. For 10 years we have been saying that something like this is needed. We have to realize that drug safety is not given to us once and for all, and those drugs that we are taking now just need to stop supplying, and sick people will start dying without any war. We know after the pandemic that this is possible and you have to have your industry. We come back to this interlocking of everything – business will, the state will, and political will. We have to be careful here. There was an element of drug safety in the reimbursement bill – very good – so much so that there needs to be a dialogue in the process. The bill focuses on individual medicine, and the medicine is the basis for safety. However, it is not the medicine, but the factory that produces it is the partner for the government. We would like to point out that this instrument that the Health Ministry is proposing should be deepened and say that the safety partner is the one who manufactures and supplies the drugs. We even developed such a format, where say that if a company produces 25% of the drugs in Poland, it is a partner. If at least 25% of the drugs are produced in Poland by the manufacturers, it shows that they really prioritize this market and they should have more predictable business conditions. Perhaps longer decisions or reimbursement preferences.

The idea is to plan long-term cooperation and become a partner in drug safety in Poland. There is also such a mechanism in the reimbursement law, which says that a drug that is 50% more expensive than the cheapest on the market falls out of reimbursement. Seemingly – everything is correct, but if we consider that a drug produced in China costs PLN 10, a drug for PLN 16 already falls off the list, and this drug is produced in Poland, the situation of drug safety in the country is different. We cannot create in the law such solutions that will demotivate manufacturers in the process of investing in drug production in Poland. Besides, it is not only Polish companies that invest in the production and packaging of drugs in Poland. They are also multinationals and praise them for this. I am very happy that the plasma fractionation factory finally has a chance to be built in Poland. Small companies, and startups, such as the factory in Duchnice, which will produce biological drugs, are also being established in Poland. The more, such factories in Poland, the greater will be Poland's drug security.

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Dr Anna Kowalczuk – Director of the National Institute of Medicine

It seems that humanity has survived many pandemics and this time it will survive the COVID-19 pandemic. However, we should certainly conclude and learn from our mistakes. However, there is certainly a large dose of the unpredictability of what might happen in the future. What we've all learned is how important correct, simply worded information and communication are, especially within the organization. Already in advance, one should think about procedures and a written form, some sort of skeleton of what processes and actions should be taken in the event of a pandemic or other health threat. We can see that setting up field points, for example, will be a key challenge in the event of a pandemic. We learned that procedures should be clear and understandable to everyone, otherwise a lot of false information creeps in. Procedures are not for the process of suppressing or leveling panic. Preparing in advance means that mistakes are not made. In such a situation, any mistake, any decision that is unnecessary, such as closing the forests to visitors, makes us less credible as experts in subsequent decisions. You have to think in advance. Good decisions during the COVID-19 pandemic, such as the introduction of antigen testing, if we are talking about the testing process itself, or on the other hand, going in the direction of testing sick people and caused some ambiguity and patients did not feel safe, which translated into a negative attitude towards vaccines. The public must be reliably informed of such activities, and pressure from various organizations must be resisted. What we need are certainly advisory teams, defined based on expert competence. Expert teams should be established both at the central level, at ministries, and with governors, and there should be adequate communication within these teams. What we have found out, as a „covid" laboratory, is how important an integrated information system is, that is, collecting data, processing, analyzing, and drawing appropriate conclusions based on this data. However, this system still needs a lot of work. The country's drug security should be ensured by constant access to medicines, whether generic or innovative, but especially those that patients reach for daily. In this process, the diffusion of innovations should be taken care of. The idea is that if there is a demand for new technology, for the creation of vaccines, and somewhere this know-how already exists, the scientific processes should be properly coordinated, so that these activities are not diversified, but together in synergy to fight for the transfer of innovations.

Dimitri Gitas – Managing Director of MSD Poland

During the COVID-19 pandemic, the pharmaceutical industry's contribution was based on securing drug supplies. Parallel to this was the intensive ongoing research work on vaccines and drugs for COVID-19. It was a huge success to bring vaccines against the SARS-CoV-2 coronavirus at a much faster pace than scientists told us to begin with. This was a sign of cooperation between the scientific world and the pharmaceutical industry. This is probably the biggest thing we learned in this pandemic, namely unprecedented partnership and cooperation between all stakeholders in emergencies. Yes, as I mentioned, this cooperation took place along the lines between the medical industry and healthcare providers, between the pharmaceutical industry and the governments of individual countries, and the authorities of the European Union. From the R&D perspective, the partnership between Astra Zeneca and the University of Oxford has allowed for rapid progress and development in coronavirus research. From a regulatory standpoint, the partnership has allowed for rapid product approval and subsequent instant access to vaccines for the public. These are also

unprecedented achievements that allowed this innovation to be made in a very short time and translated into functioning societies. Another partnership in the manufacturing area is the example of MSD and Johnson-Johnson. This partnership in the field of vaccine manufacturing made it possible to conduct manufacturing activities on a global scale. MSD has offered its services to support the creation of Johnson-Johnson's manufacturing capacity on a larger scale to provide vaccines for the global population. We must, of course, strengthen and build this partnership further. It goes to show, to prevent or minimize the impact of future pandemics, we need to invest in medical innovation. I see this on two levels: the infrastructure level and R&D expenditures. In the case of infrastructure, outlays are needed for more efficient and modern systems for distributing health services that limit disruption in the face of a possible next pandemic. In R&D, outlays for vaccine prophylaxis and medical innovation are key. When it comes to vaccine prophylaxis, it is this disease prevention and wide availability of vaccines and sharing of information that allows lowering the level of doubt about vaccination lowering the potential for another pandemic. At the same time, making sure that the most innovative medical products are available to a wide range of patients minimizes the impact of a possible pandemic, reduces hospitalization rates, shortens hospitalizations, reduces the number of necessary procedures, increases productivity, and also lowers the economic impact of a pandemic. We have certainly learned a lot, we now need to learn from this and make sure that the medical and healthcare industry is highly spiro motivated. In building public-private partnerships, the pharmaceutical industry is showing openness and readiness. I think as a healthcare company, we have a certain responsibility to do everything we can in the face of a crisis to respond quickly to minimize the impact of the pandemic on the patient. Our priorities changed rapidly when the pandemic hit. Our number one priority is to continue care and make sure supplies are not disrupted when it comes to drugs that save lives. In addition, as a global organization, we have invested in the development of vaccines, as well as new therapies so that we can bring vaccines or drugs to market as quickly as possible. So, we have made a great deal of investment, and at the moment we are focusing on developing new medical technologies. Poland is one of the key European Union countries participating in clinical trials. We hope to make the new drug for COVID-19 available to people who need it by the end of 2021, or early 2022. So I think we have a sense of responsibility for the patient, and I think we will continue to act in this way until the pandemic is resolved. That's been a key priority and will continue to be so in the future.

Dr Edyta Bielak-Jomaa – Warsaw New Tech University Foundation

The Warsaw New Tech University Foundation realizes the need to combine academic and research experience, as well as education and social work. We say that we are concerned at the Foundation with the human being, who is the highest value, the human being who functions and must function, including in the digital world. We want to point out the need to harness artificial intelligence (AI) to make it serve man. But for this to happen, we need to remember to build mutual trust among all stakeholders in the healthcare market – politicians, entrepreneurs, and medical staff. It is very important to build trust in the relationship between the patient and the patient's family/patient's relatives in medicine understood as people who provide help and in medicine understood as tools to support a person not to getting sick or to pass the disease more easily. We know that we will not avoid dangers, risks, pandemics, and diseases, this is inherent in the existence of man and the functioning of the world. On the other hand, combining all forces, commitment, knowledge, experience, and digitization to serve humanity is key. We keep in mind that this is not possible to

do without the presence of a living human being, who stands next to the patient, or potential patient, builds this relationship, this trust, and helps to go through the hardship of the disease. I think it is precisely in such difficult times, with the encroachment on our private sphere for various reasons, that we need to talk more about privacy, perhaps looking at it differently. Please remember that the right to privacy, is a basic human right, but it does not override other rights. Therefore, there is a clash between „my right" to „my privacy" and the right to health and to the lives of others among whom I reside. This is a difficult issue, especially during a pandemic.

Every Nowhen, questions arise, for example, about whether employers have the right to demand information from employees about whether they are vaccinated. We wonder if we have to show proof that we are vaccinated in the form of a covid passport if we want to use food services, travel, or go to a concert of some kind. These are difficult issues. We have already confronted the problem of where privacy ends, and where to put the limit of privacy when talking about terrorist threats. Perhaps you can't compare these situations, but recall how much we talked about privacy in the context of the WTC attacks when the US services very much encroached on privacy by using technological tools to analyze conversations, records, or internet activity to reduce the risks or increase the security associated with such risks for society as a whole. This issue, the issue of invasion of privacy, the use of tools that invade our privacy without our knowledge, as this is most often the case, needs to be analyzed very thoroughly. Unfortunately, it happens that all kinds of solutions that are supposed to serve the general good and encroach into the private sphere become permanent. They say „for the duration of a pandemic," but some solutions can stay forever. We hear, more and more, about newer and newer solutions that are surveillance in nature. And as long as, they actually serve the welfare and security of citizens, and are regulated in a way that guarantees security, privacy, and secure personal data in the right way, we can come to terms with this situation. On the other hand, we strongly object when someone uses these tools without our consent.

Dr Jarosław Oleszczuk – Member of the Supervisory Board of GENOMTEC

The amazing experience of the COVID-19 pandemic was that thanks to the Internet, we were able to share our own experiences, as well as source and learn from the experiences of others. The pandemic showed us that preventive health care is much more effective than remedial medicine. One of the lessons I wish the world would learn is that there should be a much greater emphasis on healthy living, on prevention, and on greater investment in it. Also key was the introduction of antigen tests, but what we should implement in addition to these tests is a strategy. I think we should these key areas, like education or health, prepare a testing strategy that would allow these key elements of our economy or social life to function properly. And here another thing that seems very important to me is that we have not taken enough from the example of other pandemics that have affected us in recent years.

In the case of HIV/AIDS, the testing strategy is described and states that every adult (between the ages of 16 and 65) should test at least once in their lives, and people who have an elevated risk are to test regularly. That is, we don't say we test sick people, because in AIDS we know that an infected person is asymptomatic for many years, and can infect others. So, if we would translate this strategy from HIV/AIDS to COVID-19, then people at higher risk should test themselves regularly. Implementing such a strategy in these key

places, whether for the economy or social life, that is, regular, even weekly testing would allow them to openly function in society. As we prepare for the next pandemic, we should think about how to support the biotech and med-tech industry in Poland. As Poland, we, unfortunately, don't exist on the world map, and I think this is a good time to exist because we are now seeing significant investment activity precisely in the biotech sector. I'm a strong advocate for public-private partnerships to be bigger and broader, and as a country to approach such partnerships very strategically. I think there are several areas in health care where Poland could be at the forefront. The combination of our huge human potential in terms of IT professionals and the health needs of the world is such a great marriage to create new digital solutions. The med-tech sector, which is much less regulated, is another one we could invest in. Diagnostic medicine should be, as close to the patient as possible.

Wojciech Miedziński – President of the Board of ARP Leasing Ltd

Looking ahead to the coming months, it will be crucial to maintain liquidity in the business sector, but also to manage cash and funds rationally. You can't stop investment in the future, i.e. innovation, but on the other hand, you need to keep a reserve for the difficult time of coming out of hibernation. We all talk about investment, technology, development, and innovation, and all this is connected with financing. To sum up, the first half of 2021 in the leasing area is returning faster than we thought to an upward curve, especially in the area of machinery and equipment. Medical equipment financing is also on the rise. We will prepare properly for the next pandemic, provided we learn from experience and build our strategies on them. At the same time, we must pick up early warning signals all the time. This lies, both on the side of the institutions responsible for support, and on the side of entrepreneurs in a broad cross-section of industries, including the medical industry. Certainly, without investment, we are unable to get back on an upward curve, particularly with infrastructure, technology, and innovation investments. Remote communication is key in this. Before the pandemic, only 2% of our employees worked online from home. During the pandemic, 90% of employees worked this way, and now 65% of employees want to maintain this work model. So investment in infrastructure, technology, digitization, in industrial robotics, which we specialize in, is essential. Our financial instruments have been excellent – we have lent, refinanced loan obligations, leasing obligations, given grace periods, and very long financing periods. Today, these repayment schedules are starting, because we are exactly in July/August, and we borrowed the money last June. That is, jobs – yes, supply chain – yes, major contractors – yes, senior liabilities – yes, but new investments maybe not yet at this point.

Michał Kuczmierowski – President of the Government Strategic Reserve Agency

We are constantly preparing for the next challenges, while there are some lessons we have learned from the COVID-19 pandemic, and they are worth mentioning because they build your resilience to the types of crises we can expect in the future. First, one such important area that requires absolute coordination is management skills and resource information. We are building together with the Government Security Center an information management system to know all the resources that are in different institutions in one place. We want to respond quickly to needs from hospitals and other healthcare facilities. The second area is the flexibility of operation and decision-making procedures.

This is important because we can't predict future crises and we can't predict all the required resources. The Netherlands has accumulated over a billion protective masks, which they

must dispose of due to certain expiration dates. It is worth emphasizing that the State must have such tools that, in a crisis, will allow out-of-the-box, non-standard, but very proactive and responsible actions to secure the very resources that are needed in a crisis. Another area that is particularly important to us, and we have placed a very strong emphasis on it since the beginning of the pandemic, is the area related to shortening production and logistics chains. From the beginning, we have been building such competencies on the side of domestic industry. I can confidently say that all the personal protective equipment from the government's Strategic Reserve Agency that goes to hospitals and various institutions comes from Polish production. These are Polish manufacturers who have accumulated machinery and know-how very quickly. Today, in the case of a demand for 100 million masks, we are mobilizing the appropriate resources to obtain these masks within a week.

This is also crucial because we are currently preparing another government program for strategic reserves. In this program, we will want to pay attention not only to the resources that we will keep in our reserves, because for the treasury means it costs – it has to be prepared, but it also has to be maintained, it has to be properly managed. We will want to buy such production capacity, precisely the services that commercial producers could provide to us in a crisis. You can see in the actions of the public administration that we don't have to have only state-owned entities that can respond quickly, but we can rely on commercial resources and services. We had this approach when we prepared the COVID-19 vaccine distribution program. There were ideas about whether we should buy a thousand refrigerated trucks to conduct vaccine distribution throughout the country. We preferred to use pharmaceutical wholesalers, which have excellent service standards, have experience, and are efficiently managed, and today we carry out this type of task with such commercial instruments. Similarly, in other areas, where strategic reserves do not have to be the domain of the state, the public, but are coordinated by the public, but lie on the side of private, commercial entrepreneurs, and this is also such an invitation that we are very keen to prepare well for the next pandemic, the next crisis, and today we are also betting on the collection and reasonable preparation of such resources if only active substances that could be used in the production of drugs, medicines.

Here as well it is an invitation to Polish entrepreneurs that if they have something exceptional, which in their opinion would be worth including in such a government program of strategic reserves, well, we are ready to include such competencies, such services, such opportunities, and so that this crisis, which may befall us in the future, let's hope it doesn't, but if a crisis is to befall us in the future, it shouldn't be the task of state administration alone, but also of the entire social potential, which in our country is exceptionally well-developed and gives us very great opportunities.

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