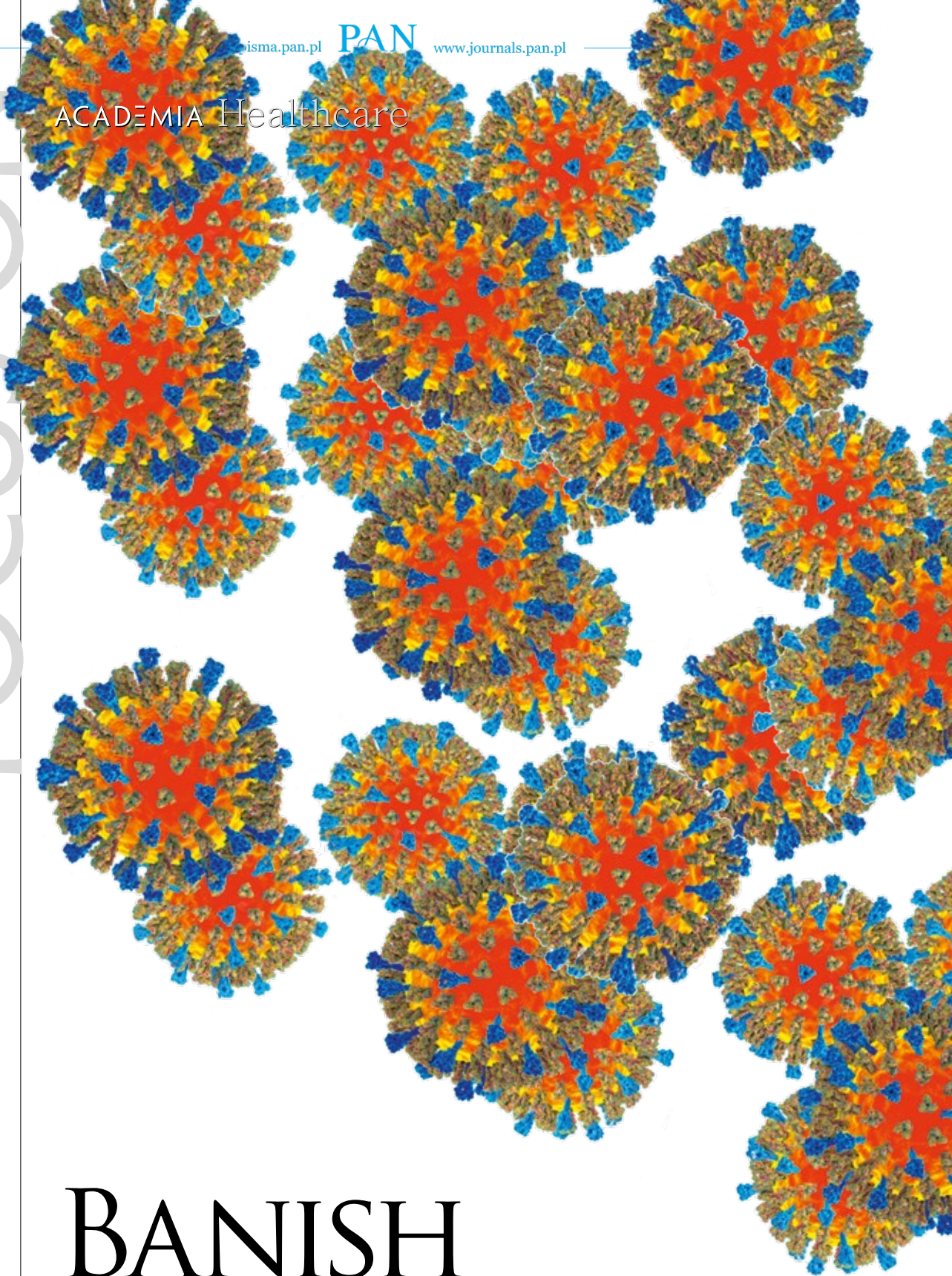
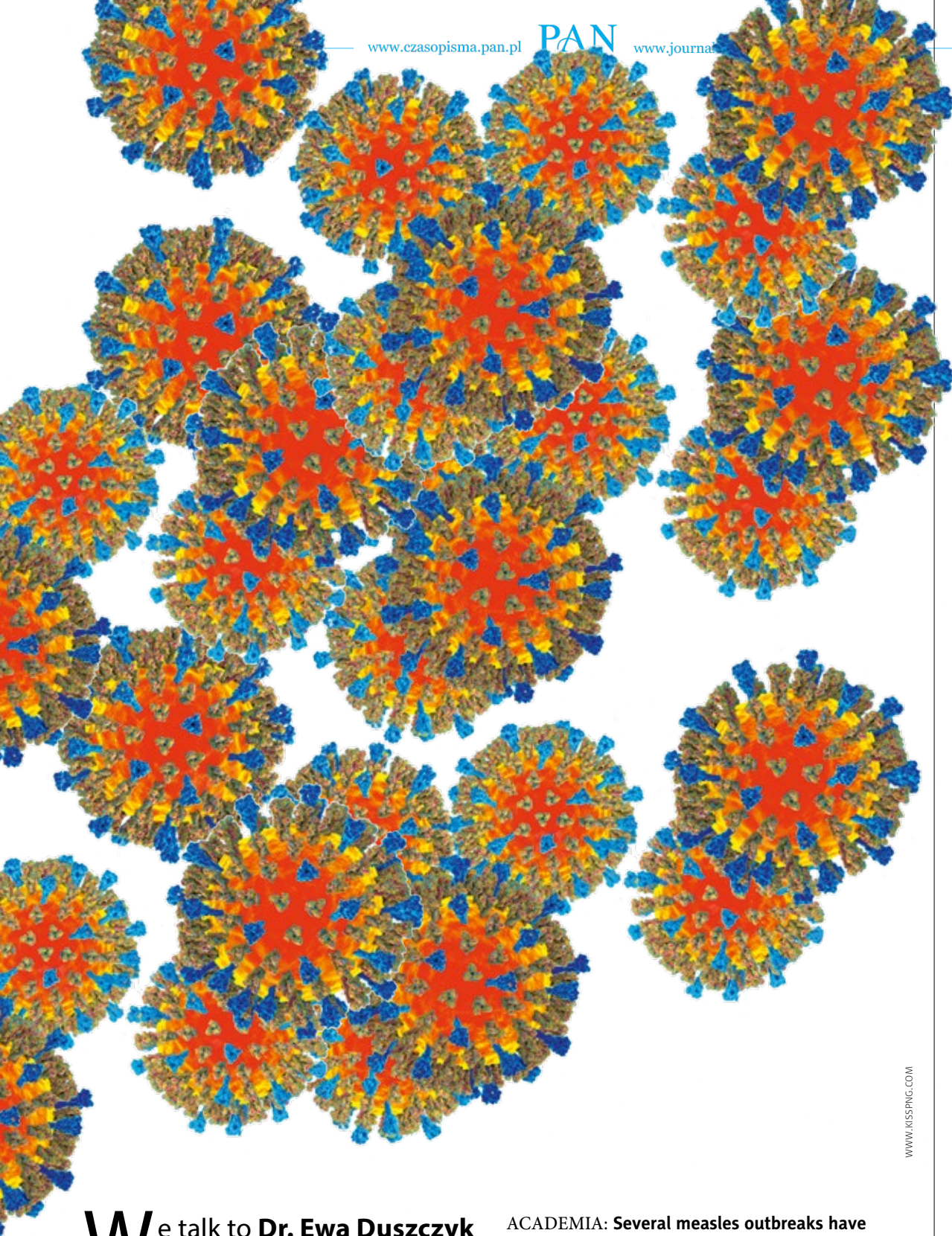


FOCUS ON



# BANISH VIRUSES FOREVER



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**W**e talk to **Dr. Ewa Duszczek** from the Polish Society of Epidemiology and Infectious Diseases about diseases lurking just out of sight and about how vaccines save lives and protect communities.

**ACADEMIA:** Several measles outbreaks have been noted in Poland recently. The media has even gone so far as to use the word “epidemic.” Is the situation really that serious?

**EWA DUSZCZYK:** We are currently observing outbreaks of the disease. The virus arrived in Warsaw from the east, but it also reached the Wielkopolska and Lower Silesia regions from the west. Along its route, it encountered individuals susceptible to infection. Is that dangerous? Yes, it is: a single person can transmit the infection to up to 18 people they come in contact with. And measles can lead to serious complications and even death. There is currently no treatment able to halt the development of the measles virus.



JAKUB OSTALOWSKI

### **Ewa Duszczyk, MD, PhD**

is a specialist pediatrician. She has worked at the Department of Childhood Infectious Diseases at the Medical University in Warsaw and the Children's Ward at the Voivodeship Infectious Disease Hospital. A member of the Polish Society of Pediatrics, the Polish Society of Epidemiology and Infectious Diseases, and the Polish Society of Vaccinology.

People sometimes say, "What's the big deal with measles? I had it and it never did me any harm." Of course we've all had our bits of luck in life, so there are certainly people who have gone through measles unscathed. But I am from the generation of doctors old enough to have treated a lot of cases, and I know exactly how bad it can be.

#### **How bad are we talking about?**

One of the most serious complications is encephalitis – inflammation of the brain. The virus can also result in other serious neurological complications, which are often delayed. The measles virus can manifest again many years later as subacute sclerosing panencephalitis (SSPE), which is basically a death sentence. The group at the highest risk of this complication are children who contracted measles before they turned two.

**And yet some parents perceive the vaccine to be worse than measles itself.**

That's right – mainly since Andrew Wakefield made the false claim that vaccines can lead to autism, many parents have become afraid of inoculations. I suppose I can't blame them – they want their children to be healthy, and they are more afraid of autism than of an illness they aren't familiar with.

#### **Fear is a key issue with vaccines, isn't it?**

That's right. People read that vaccines contain some incredibly toxic substances, that they can halt or even reverse their child's psychomotor development, that they will make them aggressive or develop allergies. These are all myths which simply fuel confusion. Vaccines are some of the most rigorously tested drugs we have.

#### **Are they completely safe?**

There are always some downsides. Just like all medicines, cosmetics or even foods, vaccines can have side effects. There is sometimes pain, swelling or reddening

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at the injection site, general discomfort, raised temperature, muscle pain, headache, occasionally reduced appetite. A high fever can sometimes lead to fits or seizures. Very occasionally the patient experiences an anaphylactic response.

#### **That doesn't sound too encouraging.**

First of all, all these effects are extremely rare. Second of all, doctors are prepared: we always monitor the patient after administering vaccines.

#### **Have vaccines become the victim of their own success?**

Very much so. We have a whole generation of parents who have never encountered infectious diseases such as diphtheria, polio, or neonatal tetanus. And so they ask questions: "If those diseases aren't around anymore, why vaccinate?" The answer is, of course, simple: They aren't around BECAUSE we vaccinate. Since the immunization level has reached over 95% of the population – what's known as herd immunity – we have been able to almost forget about them.

#### **But have they actually been eradicated?**

No, they exist, and they can still be found not far from Poland. Viruses know no borders or boundaries, and thanks to the quick and easy means of transport available today, they could arrive at any moment. We don't exist in a vacuum: we travel, we receive visitors, we frequently come into contact with new pathogens and we must be ready; we must have ways of preventing problems rather than reacting after the event.

#### **And in fact the outbreaks mean that interest in the measles vaccine has increased again.**

There are parents who are regretting that they are only thinking about it now. But we shouldn't just be thinking about children – we should also be concerned about adults. The measles vaccine was introduced in Poland in 1975, so a high number of adults who have not had it and have never contracted measles in the meantime are at risk. I should add that a single dose is frequently not enough, with between 2 and 5% patients not reaching a sufficient level of immunity. Fortunately the second dose doesn't need to be followed up with boosters, and the protection it offers is really excellent.

#### **Say someone is sixty years old and can't remember whether they'd had measles or the vaccine.**

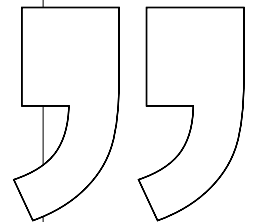
The best thing to do is have a blood test for antibodies against the virus. If they are present, that's fine. If not, they should be vaccinated.

#### **We could do with a system recording everyone's vaccination status, past diseases and so on.**

The system is already in place, at least in pediatrics. Each new baby is issued with a booklet for recording their health, development and vaccinations. Additionally, all health centers hold records of all administered vaccines. The trouble is that when the child reaches the age of 19 and is given the final free mandatory vaccine for diphtheria and tetanus, the booklet frequently gets lost. I always remind my patients and their parents to guard it with their lives. Everyone is at risk of an injury or accident, and in those cases records of up-to-date vaccinations – such as tetanus – are absolutely essential. They mean doctors know whether to administer a booster or even a full cycle of vaccinations, and what the patient's adaptive immunity status is. But there isn't and won't be a legal requirement to ensure parents look after their children's medical records.

Viruses are out there, nearby.

They know no borders or boundaries, and thanks to quick transport, they can be brought to Poland at any moment.



#### **We are currently dealing with something like an 'epidemic' of anti-vaccination movements.**

Opponents of vaccination have been around since the first vaccines. Edward Jenner, father of contemporary vaccinology, administered the first ever vaccine in 1796 to eight-year-old James Phipps against smallpox using some fluid from cowpox vesicles on the hand of a milkmaid. Opponents argued that he'd made a terrible mistake, claiming the boy would sprout cow-like appendages. In Poland, the first notable anti-vaccination text was published by Father Wincent Piksa in 1904, titled "On the screaming absurdity and appalling harm of smallpox vaccination." He wrote, "The widespread, terrible moral corruption (onanism) among schoolchildren is, according to medics (Burnette, Wolf etc.) often rooted in smallpox vaccination, for the poisonous matter irritates the sexual organs and accelerates sexual maturity."

These examples show that the main problem is a distrust in the unknown. And, combined with belief in conspiracy theories, it makes people react the way they do. What we really need instead is some common

sense. When we look at people involved with the anti-vaccination movement, it turns out that they almost always have no background in medicine or science; they are not healthcare workers and in fact there is no grounding for them to be propagating their unfounded ideas.

#### **Wakefield was once a doctor.**

Yes, but he was a gastroenterologist. He claimed that the measles component in the MMR vaccine caused nonspecific bowel disease, preventing the absorption of some mysterious protein which in turned caused damage to the nervous system. Although many research centers immediately started working on identifying this protein, it has never been found. It later turned out that his paper – published, as it happens, in the highly prestigious journal *The Lancet* – was falsified: from the twelve children included in the study, nine showed no changes in the intestines, and autistic

any argument, even the calmest explanation of the most thorough, convincing scientific research.

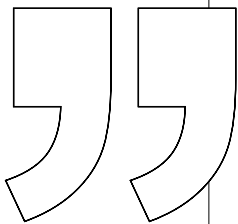
#### **Is refusing vaccination a kind of anarchy? Or perhaps a misunderstanding of the principles of democracy?**

According to anti-vaccination movements, compulsory vaccination violates the principles of democracy and no other country imposes this requirement. In any case the claim is untrue: in light of recent experiences, France and Italy have made vaccination compulsory. Additionally, vaccinations in Poland are free, not compulsory. The only enforced vaccination in humankind's history was against smallpox. Most importantly, the legal onus on compulsory vaccinations is laid out in the Polish constitution. Art. 68 par. 4 states that it is the duty of public authorities to prevent epidemic diseases, while art. 31 par. 3 adds that in a democratic country, the constitutional right to freedom can be restricted through legislation, for example when it is essential to protect public health. I was dismayed when I followed the recent citizen-submitted, anti-vaccination bill being considered in the Sejm. It should have never been proposed in the first place. Fortunately the health committee rejected it; it posed a real danger for the entire population.

#### **The anti-vaccination movement is perhaps the most vivid example of distrust in authority and science in general – or would you say that's going too far?**

Perhaps a little. But there are people who think that vaccines are a big pharma conspiracy to drive profits. The truth is that pharmaceutical companies make the most of their money from dietary supplements, which – according to research – are largely ineffective anyway. According to other opponents, vaccines are a new kind of biological weapon. For example, the HPV vaccination program in Romania collapsed because the media reported that the vaccine is supplied by the EU in order to reduce fertility in young Romanian women. And the fact is that the vaccine prevents the majority of cases of cervical cancer. Unfortunately, many people hearing such preposterous claims feel a niggling worry: perhaps there is an element of truth to them?

Patients generally don't keep up with scientific research and most of their information comes from the Internet, where anyone can publish whatever they want without fear of repercussions. The great sci-fi author Stanisław Lem – who was a qualified doctor – once said, "I hadn't known there were so many idiots in the world until I started using the Internet." When one of the leaders of the anti-vaccination movement, an American actress, was asked whether she had any medical qualifications, she answered she was a graduate from the school of Doctor Google. And, unfortunately, for many people that's enough.



The question is often asked: "If infectious diseases aren't around anymore, why vaccinate?" The answer is simple: They aren't around BECAUSE we vaccinate.

traits had been observed in several participants before they even received the vaccine. Wakefield was struck off from the General Medical Council in the UK and he is not licensed to practice in the US where he now lives, and he continues to pay compensation to parents whose children contracted measles encephalitis after they refused the vaccine. These stories never end well. In Spain, a mother – a physiotherapist and proponent of homeopathy – decided not to vaccinate her family. She later stated that she had been deceived by the anti-vaccination movement and regretted her terrible decision. Unfortunately by then it was too late, and her six-year-old child died of diphtheria.

Having spent many years working with patients with infectious diseases and seen their terrible effects, I try to correct false claims about vaccines wherever I can. But we have to remember that parents who refuse vaccinations are generally so deeply entrenched in their belief, they only see me to have their decision validated. Around 3% of parents won't be swayed by

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**There are 38 million people in Poland. Imagine the following scenario: the anti-vaccine movement wins and vaccines stop being compulsory tomorrow. What happens next?**

If everyone stops vaccinating, the effects won't be seen immediately, but infectious diseases which should have been long forgotten will make a comeback. We will see measles, we will see diphtheria, we will see polio, and then we will wonder how we let it happen. I may be exaggerating, but I should stress that infectious diseases haven't disappeared; the only one which has been fully eradicated is smallpox, and that's entirely due to vaccinations. All other diseases are still out there, and unless we continue vaccination programs, they will return.

**What about the flu?**

Flu is here every year. It's a very dangerous and unpredictable infection; the viruses mutate and we have to be ready for complications, so it's extremely important to monitor flu viruses constantly. This is coordinated by the World Health Organization, while the Polish efforts combatting flu are led by Prof. Lidia Brydak.

I take flu seriously and I have the jab every year: I work with sick patients and I need to make sure they don't catch infections from me. And I also don't want to catch flu myself because I have seen its complications and I know how dangerous they are.

**This brings us back to the question of taking responsibility for other people.**

That's right. This is very important, and I would encourage local authorities to buy vaccines for their communities. For example, before the pneumococcal vaccine became compulsory, the municipal authorities of Kielce organized a vaccination drive for children between one and two years old. This benefited the entire local community: not only were the children protected against the infection, but within a few years the number of incidences among adults fell with a dramatic reduction of hospitalizations due to pneumonia. The highly successful campaign was initiated by Dr. Marian Patrzalek.

There have also been other cases of enlightened local authorities introducing vaccination programs, for example against meningococcal meningitis, or protecting girls against HPV. Lublin introduced a catch-up meningococcal meningitis vaccination program for children not covered by the new compulsory schedule. A good local authority can bring genuine health benefits.

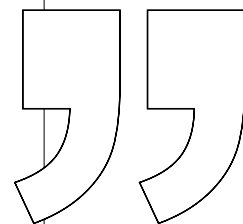
**What else can and should communities do to protect themselves? Should they try to talk to deniers to convince them? Or perhaps introduce strict rules: if a child isn't vaccinated, they can't**

**attend a local school? Although that could be interpreted as ostracism...**

In Italy, children have to have undergone 11 compulsory vaccinations before they can enroll at school. The only exception is medical contraindications, which in any case are rare; under no circumstances does this allow parents not to vaccinate their kids "just because." I think this is a move in the right direction. Of course it needs to be carefully thought through and legally binding to prevent any accusations of discrimination.

But, more than anything, we should educate, educate, educate. The last thing we need is to wake up in a situation when instead of individual outbreaks we find ourselves with a full-blown epidemic on our hands. It's true to say that trust in vaccinations increases dramatically when people see the disease and its complications, when they realize hospital treatment is necessary, and – unfortunately – when they see the resulting deaths. People today can't even imag-

More than anything, we should educate, educate, educate. So we don't wake up with a full-blown epidemic on our hands, instead of individual outbreaks.



ine makeshift burial places for whole generations of children dying of diphtheria, measles or whooping cough. Epidemiology follows its own cycle: the vaccination rate drops, the disease makes a comeback and the trust returns. The problem is that by then it's too late. We have to have a calm, measured conversation and explain the low risks of vaccination versus the real, serious ones of not vaccinating. Many parents change their mind as a result.

When parents express doubts whether to vaccinate, saying that their child is healthy and doesn't get sick, I usually explain that they should think beyond their own families and show empathy. If their child is vaccinated, that protection is extended to any children who may be immunodeficient, perhaps following chemotherapy. When the entire class at school is vaccinated, then those children who can't be immunized are also protected. This argument is also frequently effective.

INTERVIEW BY KATARZYNA CZARNECKA