



## Season 7, Episode 4

### Clearing the Air

#### **Prof. Neville Berkman:**

Pneumonia is still probably the commonest cause of death worldwide. It's just the people who die of pneumonia have changed, it's different populations.

#### **Maayan Hoffman:**

Hello, and welcome to Hadassah On Call, New Frontiers in Medicine. I'm your host Maayan Hoffman. Growing up, I remember my mother warning me, dry your hair, it'll catch pneumonia. It always sounded like this mysterious, frightening illness that could appear out of nowhere, and the stories didn't help either. We all heard of older adults who just caught a cold, and then suddenly it turned into pneumonia.

And that was it. Even as a medical reporter, I'll admit, I never fully understood what pneumonia really is, how it develops, or why it is considered so dangerous even in the modern age. For something so common, especially during the winter, it's remarkable how misunderstood it remains. In this episode of Hadassah On Call, New Frontiers in Medicine, we're going to clear the air literally with Professor Neville Berkman, Head of the Pulmonary Institute at Hadassah Medical Organization. We'll talk about what exactly pneumonia is, who's most at risk and how it's treated. And the myths that persist about this lung infection that has been both feared and fatal throughout history will also look at how new advances from vaccines to AI assisted diagnostics are changing the way doctors treat and prevent pneumonia. And what we can all do to keep our lungs healthy, especially in the colder months. So, grab a warm drink, breathe easy, and join me for this timely and important conversation.

Welcome Professor Berkman.

#### **Prof. Neville Berkman:**

Happy to be here. Thank you.

**Maayan Hoffman:**

So, I wanna get started with, actually a very simple question. I'm hoping that you can define pneumonia and how does that differ from other respiratory illnesses like the flu or bronchitis?

**Prof. Neville Berkman:**

So pneumonia is an infection of the lung. The lung is made up of the bronchi or the airways, which, um, really is a kind of system of tubes that brings air into the lung. And the second component of the lung is the alveoli, which is the actual lung tissue where the, what's important happens, which is gas exchange.

Oxygen goes into the blood and carbon dioxide comes out. Infection or inflammation in pneumonia is in the lung tissue itself rather than in the bronchi, which would then be called bronchitis. There are a lot of causes of pneumonia. A virus can cause pneumonia, so viral infection may cause bronchitis, it may cause sinusitis, it may cause pneumonia if it's infecting or causing inflammation in the lung tissue.

So really definition, definition of pneumonia is more where the infection inflammation is rather than what the cause is.

**Maayan Hoffman:**

Okay, so now why is it still considered so dangerous? Many fewer people are dying today of pneumonia than in the past, for sure. What's changed in terms of public health?

**Prof. Neville Berkman:**

So I'm, I'm not sure that, that it's, that it's changed in a bad way. I think it's changed in terms of demographics and epidemiology. Pneumonia is still probably the commonest cause of death worldwide. It's just the people who die of pneumonia have changed its different populations, so. Uh, whereas in the past, pneumonia was very common in, you know, the average in Joe, so to speak.

It's now more common, much more common, I would say, in populations that are, uh, a specific population. So, the elderly population, for example, who are at higher risk, people who are malnourished, people who've got chronic other chronic illnesses, certainly immunosuppressive problems, cancers, treatment with chronic steroids. And, and people who've got other chronic illnesses like chronic lung disease, chronic heart disease, chronic kidney disease, diabetes, dementia, all of those things are, are predisposing factors for, for pneumonia. So, so it's not in people who are young and relatively healthy, it's not uncommon to have pneumonia as well, the ramifications or the significance is different. So, large, large majority, if we take a total population of people who have pneumonia, they cope okay without coming to hospital. They'll get an antibiotic and sometimes they won't and they'll be fine.

**Maayan Hoffman:**

So, is it still considered then an older person's disease? Is that what you're saying? That those if in terms of the risks?

**Prof. Neville Berkman:**

Yes, as well as the populations at risk and also, we were very concerned about pneumonia. It's, it's, it can be dangerous of course, in children under five, as well as in babies, in children under five, it's also a high-risk group.

**Maayan Hoffman:**

Which is very reminiscent of the flu, where the younger and the older populations tend to be most risk of severe flu.

**Prof. Neville Berkman:**

Exactly.

**Maayan Hoffman:**

Also COVID for example?

**Prof. Neville Berkman:**

Absolutely.

**Maayan Hoffman:**

Interesting. So, are you seeing any trends that are unique to Israel, whether regarding the climate or the unique populations that live here? Maybe the lifestyle in Israel that relate to who or how pneumonia developed?

**Prof. Neville Berkman:**

Not, I would say not really. I think that, uh, trends in Israel are similar to Western countries. Okay. Um, you know, I think, I think the general standard of living in the country is good. The health service is good. Another factor, which is really important in terms of how frequent the disease is, is vaccinations. Influenza is a common cause of pneumonia actually.

**Maayan Hoffman:**

So, meaning you get the flu ...

**Prof. Neville Berkman:**

You get the flu, and the flu itself can be the cause of pneumonia, but flu, um, often predisposes to a secondary bacterial infection, and that's probably the biggest danger of influenza flu. So since there've been vaccines and effective vaccines for flu, and there are also vaccines for pneumonia in, for pneumococcus, which is one of the bacterial causes of pneumonia, so that they, that and, and those vaccines are widely available in Israel, so that, that's quite similar, I would say to most of Europe and, and, and the states as well.

**Maayan Hoffman:**

Who takes that pneumococcus vaccine and like, when do you get it? As a, as a childhood or is that an adult vaccine?

**Prof. Neville Berkman:**

So, so, um, present recommendations are children below age five, adults over age 65, and the populations that are mentioned who are at high risk ...

**Maayan Hoffman:**

Right. When I grew up, my mama used to always say, don't go outside with, um, you know, without a coat, or don't go out in the rain or you're gonna catch pneumonia. Is that, is there any reality to that or is that just sort of like a bubbly myth?

**Prof. Neville Berkman:**

Yeah, I mean, strangely enough, hundreds of years later, we still don't have a good answer to that to be honest. Um, it seems that cold weather does influence. Susceptibility to viral infections, and that also is due to various reasons, one of the reasons is that the ability of the bronchi to clear in pathogens, for example, viruses is, is not as effective when it's really cold.

Another fact, which is probably the most important factor, is that. In cold weather in the winter, people go out less and so there's more crowding and people are more in contact with other people who have infections, so that one passes from one to the other, so maybe going out the house is actually protected from that point of view.

But we all know that if one goes out, certainly the changes in weather and cold weather do often predispose to viral infections. Um, to some inflammation of the bronchi, which then may be a, a lead, uh, in time to pneumonia.

**Maayan Hoffman:**

What about other lifestyle factors, diet, exercise, maybe smoking or not smoking? Could these things impact pneumonia?

**Prof. Neville Berkman:**

So, I didn't mention previously, I didn't mention smoking, but that's certainly a very important risk factor for pneumonia.

**Maayan Hoffman:**

really.

**Prof. Neville Berkman:**

Yes, absolutely. So, we see patients certainly who are chronic smokers, have chronic inflammation of their bronchi are at much higher risk for pneumonia.

In terms of specific foods, no. Uh, in terms of overall, uh, nutrition status, certainly yes. People who eat. Less well who are malnourished at high risk. People who've got poor dental hygiene, for example, are also at high-risk people who have problems with swallowing, of course, but as, as far as food is concerned, I would say it's malnourished. Obesity may also be a factor. So people who are significantly overweight, that also may be. Increase the risk for, for pneumonia.

**Maayan Hoffman:**

Seems like every disease we always hear, you know, diet and lifestyle. People need to just be healthy, eat right, and exercise. And most of the diseases can be tucked away ...

**Prof. Neville Berkman:**

Absolutely, absolutely true.

**Maayan Hoffman:**

Yeah. So now what about in terms of early warning signs that you might be on the verge of getting a pneumonia at the early stages of a pneumonia, so that you would say to yourself, maybe I should go and seek medical help right now and stop it before it's got farther.

**Prof. Neville Berkman:**

So that's tricky because. As we know, common infections that we all get several times a year are, are usually of the nose and of the bronchi. So, all of us, you know, have a cough here and there. So, it's often tricky to know when a. You know that cough is part of a pneumonia. Certainly, fever is a, is a factor. So, fever over, uh, um, well, 38 degrees in, in Celsius. Yeah. That is a factor. If the cough is persistent, if there's a lot of sputum, certainly if there's chest pain, if the patient or the person is feeling generally unwell, they should be checked out.

**Maayan Hoffman:**

If you are enjoying this episode, you'll love our previous episode to Your Health. The Best of Hadassah on Call.

In this special best of edition, we'll revisit the Hadassah moments from ***Below The Belt Prostate Matters***, featuring Dr. Ofer Gofrit. ***Ageless Intimacy*** featuring Dr. Anna Wolinski Wruble. ***Unpacking Trauma*** featuring Dr. Shiri Ben David. ***Navigating the Autism Spectrum*** featuring Dr. Ariel Tenenbaum and ***Small Patients, Big Emergencies*** featuring Dr. Saar Hashavya. Each of these episodes offered powerful insights, heartfelt stories, but most of all practical and expert advice. And together they capture what our show is all about, taking you behind the scenes at Hadassah Hospitals to meet the healthcare superheroes who save lives every day. So, sit back, relax, and enjoy the best of collection of some of our favorite conversations.

And now back to ***Clearing the Air*** with Professor Neville Berkman.

**Maayan Hoffman:**

What does the cough sound like with the pneumonia?

**Prof. Neville Berkman:**

So that's very, very, very variable because, um, pneumonia can be viral, as we said before, influenza COVID or corona, which is, it actually causes pneumonia. So, the cause is COVID, but the inflammation is in the, is in the lung. So, it is really a kind of pneumonia. Um, not in everybody, but in most cases, the people certainly who died in the pandemic, the deaths were related to pneumonia or inflammation of the lung due to the COVID vaccine

**Prof. Neville Berkman:**

itself. So, if someone who's, you know, coughing a lot, not settling, those are the people that should be seen.

**Maayan Hoffman:**

Now, let's say somebody does come here to Hadassah to get, uh, treatment. When they come in, how do you determine whether the pneumonia is bacterial, viral, or even fungal? And then how would that affect the kind of treatment that they receive?

**Prof. Neville Berkman:**

So, I think it's important for people to know that probably 90% of pneumonias do not come to the hospital. So, community, quite pneumonia is Pneumonia in somebody who's obviously in the community and the large majority people will get, get, um, an antibiotic or as I said before, may not, and it settles and that's the end of the story.

In about 10% of people, pneumonia is more severe, usually in the high-risk populations, but not only. It turns out that in the majority of pneumonias, we actually do not manage to identify a specific cause. So, I would say out of the people who are coming to hospital, who are admitted to hospital with pneumonias, obviously the more severe patients, only in these big studies have been done on that only about 38% of pneumonias.

We actually can identify the course, and about 40% of those are viral. Around, uh, another 40% of those that we can identify are bacterial. The most common bacteria is the streptococcus pneumonia, or what we call pneumococcal. That's the most common, but it's not. So the majority of patients do not actually identify the cause. And strange as it may seem in 2025, we treat pneumonia empirically. In other words, we treat it based on clinical features with antibiotics that we think will most likely be effective without identifying the specific cause of infection. Now, things like viruses and common causes of pneumonia, fungi are very uncommon, certainly in healthy people and people who have got immune issues, or you know, immune suppression, that's a different story.

**Maayan Hoffman:**

With the antimicrobial resistance, that's becoming much, much more of an issue, obviously, and supposed to be maybe even one of the largest, uh, issues, challenges in the medical community in the next few decades. Doesn't just giving antibiotics without identifying the cause potentially lead to more problems there.

**Prof. Neville Berkman:**

We spend a lot of our time trying to rationalize and if possible, reduce antibiotic use. When the clinical features are more suggestive of a viral infection, certainly, in people who are relatively healthy, we may often decide or prefer to withhold antibiotics when there is clear evidence for pneumonia, and we didn't, I didn't mention this up until now, but an actual diagnosis of pneumonia requires an x-ray.

So, if you do a chest x-ray and see that there's what we call an infiltrate mm-hmm. That would. That, that together with appropriate clinical signs or symptoms like fever, cough, um, you know, or high white cell count, for example, those that, that would be diagnostic of

**Prof. Neville Berkman:**

pneumonia. To be honest, in the community, often the general, you know, the general physician may put a stethoscope on the patient's chest and if he has signs that are suggestive of pneumonia. And that is good enough when we can, when we are fairly sure that it is pneumonia rather than bronchitis or viral bronchitis cetera, then, then we would give antibiotics. And as I said before. You know, we kind of go according to what we think is most likely to work. Uh, and in terms of, uh, antibiotic resistance, big, big, big issue.

I think doctors need to be very careful about overprescribing. And I think that there are a lot of countries, certainly in, in Europe and in the states. Where there's a lot of overprescribing. Um, when one gives antibiotics for pneumonia, the right thing to do is to give antibiotics that we would consider to be common garden variety antibiotics rather than more sophisticated or broader spectrum antibiotics.

So antibiotics that are good are antibiotics that have been around for 50 plus years. So simple Amoxicillin, for example, or doxycycline. There's not simple antibiotics that are effective in the large majority of people with pneumonia, so, so ideally, we would like to know what we're treating. The reality is that that doesn't happen in the large majority of people. And in those cases, when it's justified to give an antibiotic, simple antibiotics are the right way to go.

**Maayan Hoffman:**

Is there any trajectory of innovation or research that would help doctors to be able to identify the cause of the pneumonia, or is that something that we're not focused on?

**Prof. Neville Berkman:**

No. So there, there, there is a lot of, there are a lot of attempts to, to do that and uh, so again, it sounds a little absurd that in 2025 we're still treating, you know, empirically. But yes, there are a lot of attempts looking, for example, that, um, there, there, there ways of. Checking in the urine, checking in the blood, checking in the sputum, um, to identify bacteria or to identify antibodies that would be suggestive of specific infections. The thing is to say again, that the large, large majority of people with pneumonia come to their GP and they're treated without doing those tests. The problem really is the patients who are more severe, those are the patients who would be admitted. Uh, I say against about 10% overall of patients with common pneumonia will be admitted to hospital of those some need intensive care. Now there's more severe patients would need intensive care when the patients are admitted.

A patient who's in intensive care, who's got the most severe pneumonia, we do all those tests in order to try and identify the cause. But who would treat you before because your treatment as soon as possible for certainly for severe patient because you cannot wait. There are molecular techniques to try and say and identify, uh, causes, but it's not something that's in common use at the moment. It's not something that's ready for use for widespread use yet.

**Maayan Hoffman:**

And I wanna jump back to something you said at the beginning related to these severe patients. You said about 10% will check into the hospital, but you also said. Those pneumonias

**Maayan Hoffman:**

continues to be the number one killer worldwide. So how many people are dying of pneumonia in, you know, every year And, um, and I guess, uh, in Israel specifically, if you have that number.

**Prof. Neville Berkman:**

So yes, I actually looked for that and didn't find it. I know that the numbers, the numbers in the states, uh, um, are around, uh, somewhere around 7 million cases per year, of which. About 750,000 people are hospitalized, about 1.5 million go to the emergency room. About 750,000 are hospitalized. And the death from pneumonia depends on the age of the patients and this and this specific, you know, whether it's communicated pneumonia, where patients are healthy, the death rate is very low.

It's less than 1% in people who are admitted to hospitals, but not too intensive care. The, the percentage that would die of pneumonia is somewhere around 10%. People who are in intensive care are certainly on ventilators, the chances of dying are about 50%. So overall, it's still because it's such a common, uh, uh, disease, um, as the worldwide figures are somewhere around 400 million cases of pneumonia a year, because it's such a common disease, it's still a very common cause of death.

What often happens is that people who have other illnesses, for example, someone who's got cancer, or someone who's got severe kidney disease or diabetes, that they will die because they develop a pneumonia towards the end of their lives. So the pneumonia is what actually is the, the cause of the cause of death, even though of course the predisposing disease would maybe be, be, you know, an important factor. So, you know, we all know the adage that pneumonia is a, you know, old man's best friend because. Frequently, that is what actually causes patients to, to, you know, to die at the end of the day.

**Maayan Hoffman:**

the end of their lives.

**Maayan Hoffman:**

For the past six seasons, our listeners have heard about the incredible work Hadassah doctors are doing. We've explored Javi. They're closing in on a cure for cancer. Examine the common causes of something as simple as a headache, investigated a possible cure for allergies. And even provided a glimpse into how Hadassah hospitals are helping the most severely wounded patients and their families who are still healing from the October seven attack and the subsequent war with Hamas.

Hadassah on Call has been a platform with purpose, so let's keep the momentum going as we kick off Season seven. By donating to Hadassah, you can ensure that our hospitals remain global leaders in medical care, treatment and research. And we can ensure that Hadassah On Call continues to amaze you month after month. Visit the podcast web page at [hadassah.org/hadassahoncall](http://hadassah.org/hadassahoncall) and click on the red donate button at the bottom of the page. Thanks so much for listening and for helping us make a great impact!

And now back to our episode with Professor Neville Berkman.

**Maayan Hoffman:**

In terms of, you know, we always talk about heart health, how to keep our brains active, what about lung healthy? Are there certain things that we can be doing to ensure that we just have healthier lungs day to day, beyond the diet and exercise that we talked about?

**Prof. Neville Berkman:**

Well, you know, no smoking, do the exercise. Do the right diet, get the vaccines if you're in the right groups, uh, uh, influenza vaccine is like really important for everybody. Pneumo Pneumococcal vaccine is important for the risk groups that we, we spoke about. There are more, there is more and more use of other vaccines as well there. RSV vaccine, a respiratory sial virus vaccine, which is, um, also in in high-risk populations can and is important and can reduce the risks of infect, of, of lung infections. So, so yeah, that they're simple things and, and they make the difference.

**Maayan Hoffman:**

Now, I know that you also lead the multidisciplinary post COVID, uh, clinic here at Hadassah, and I'm curious if you've seen any link between the COVID-19 and, um, pneumonia or any lasting, um, repercussions or complications that have happened as a result of COVID too.

**Prof. Neville Berkman:**

So, yeah, we, we are all. Haven't quite got over the scars, over the COVID pandemic, and it's still with us. We're still seeing, you know, up surges of COVID, but it seems to be a different disease. It behaves very differently in 2025, um, but it does cause infectious infections of the lungs. Mm-hmm. So, the most common manifestation, there's still cough, respiratory infections, pneumonia per se: is not present. We're not seeing a lot of pneumonia. Now with the newer, uh, uh, COVID, uh, um, episodes, people who have immune deficiency, those are the people who we are most concerned about. It is very important. To check for COVID in people who have, even in 2025 we have cough who have uh, symptoms that might be suggestive pneumonia to check for influenza and check for COVID because those are things that we can actually treat. So there are two viruses for which we actually have treatment options.

**Maayan Hoffman:**

right.

**Prof. Neville Berkman:**

In terms of people who had COVID, a very small number, uh, who survived, of course, those who didn't survive obviously had severe lung injury, but of those who survived a very small number, have got significant lung injury, and they would then be predisposed to pneumonias in a similar way to somebody who has chronic smoking, lung disease, or other chronic lung disease. But it's not that common, to be honest, chronic, a lung injury from COVID.

**Maayan Hoffman:**

Because most of the people, I guess, who had that and ended up on those respirators didn't make it. Yes. Through the COVID. That's right. Right. No, that makes sense. Now, looking

**Maayan Hoffman:**

ahead, you know, we talked about some of the, um, new ways for treatment, but are there other, or I'm sorry for diagnosis, but what about in terms of treatments beyond the vaccines? Are there new treatments that are coming down the pike that we should know about?

**Prof. Neville Berkman:**

So, the whole world is at a point of crisis in terms of. Bacterial, uh, resistance as you mentioned previously. Um, so I think one of the things that's we need to stress and I mentioned before is not to give antibiotics unless you, you, need to.

**Maayan Hoffman:**

right

**Prof. Neville Berkman:**

Try and give as narrow spectrum as possible to cover the most likely causes of the infection. Um, there is a trend now to give antibiotics for shorter time. In the past, we treated pneumonia for usually 10 days, seven days. There's now a. Strong trend to reduce the time, uh, of antibiotics up to even sometimes three days.

Um, so those things will reduce exposure. There is a lot of talk and a lot of hype about other ways of altering what we call microbiome. In other words, maybe giving other bacteria, which are friendly bacteria to try and stabilize or overcome the pathogenic bacteria. Again, there is a lot going on with that. Nothing that's close even to use at this present time.

**Maayan Hoffman:**

Now, I remember growing up that if you take not all of the antibiotic dose, like they would give you 10 days and you would take three, they would say that actually built resistance. So now we're moving to short term, actually the opposite recommendation.

**Prof. Neville Berkman:**

Yes. Yes. Um. And, and that's based on good studies. They're now good studies to show that shorter is better for pneumonia. Again, it has to be a case-by-case basis, but if a patient, for example, is admitted to hospital and within a day these fevers come down and there's signs of inflammation are coming down, you know, you can probably.

Stop the antibiotic two days or even, you know, one day after that. And, they're okay. Uh, patients who are high risk have got a lot of comorbidities would obviously be more careful. People who've got immune deficiency, that's a different story of this.

**Maayan Hoffman:**

Right, of course. Now, just wanna end by asking you about your work here at Hadassah. You have the privilege of, um, serving in this role here at the hospital, and I'm wondering if there's anything. Unique or special about doing, um, your role here at Hadassah or even in Jerusalem in general?

**Prof. Neville Berkman:**

I came to Israel 40 years ago. Um, and I've been in pulmonary here for the last 35 years or so, and yeah, I think it's, uh, special experience. Uh, you know, we see patients from both the Jewish and Arab populations and, uh, you know, to feel, of course, a strong identity with the people that we see and who we treat. And we feel like you are at home. I think that Hadassah allows this unique combination of excellent academic medicine together with research, together with teaching.

We're very closely knit, as you well know with the medical school. Mm-hmm. Um, and that's, I think there nowhere else in Israel that gives that, and I think there are not a lot of other places worldwide that have that combination.

**Maayan Hoffman:**

And Professor Berkman, is there anything else that you wanna add or do you feel that our viewers and listeners should know that we didn't get to talk about?

**Prof. Neville Berkman:**

Uh, no. I think that that, just to emphasize the points that we said before, you know, healthy lifestyle. Get your vaccines, don't smoke and, um, you know, don't take antibiotics if not needed. But obviously the flip side to that is don't wait until you're too sick if you need it.

**Maayan Hoffman:**

A hundred percent. Well, Professor Berkman, thank you so much for the insights today.

**Prof. Neville Berkman:**

Thank you.

**Maayan Hoffman:**

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