

## **RCPE Casenotes: Past & Present Podcast - Respiratory Transcript**

Narrated and curated by Dr Daisy Cunynghame, heritage manager and librarian at the Royal College of Physicians of Edinburgh.

[introductory music]

Welcome to the Royal College of Physicians of Edinburgh's Casenotes podcast. Over the next few months we're going to delve into the different physician branches or specialties.

Just to start off with, what is a physician? Most people know what a GP is, and what a surgeon is, but not everyone knows exactly what a physician does. Well the formal description is specialists in internal medicine, so diseases and complaints that happen inside your body. And even if that sounds unfamiliar, you have almost certainly heard of a lot of the areas that this covers, like cardiology, diabetes, allergies, palliative care, infectious disease and neurology. These are all branches of medicine, or specialties, that physicians are responsible for.

In each coming episode of Casenotes we will pick one of these specialties and delve into its history, looking at its development over hundreds of years, and some of the interesting stories and cases from the past. We'll also talk to a current physician working in that area, to find out what it is like to be working as a specialist physician in the twenty-first century.

[musical interlude]

In this episode of our Casenotes podcast we are exploring respiratory medicine. We'll be looking at the history, and then talking to Dr Wendy Anderson, before finishing up with a case study.

The history of respiratory medicine, covering every disease that affects the respiratory system, is huge and much too big to cover in the time we have here. So instead, we're going to focus particularly on one respiratory disease: tuberculosis.

We have to be careful when we are looking at the history of tuberculosis, because while it is likely there is a lot of crossover with other historical

terms used to describe respiratory complaints – particularly phthisis and consumption – the differences in how these earlier medical terms were used means that when people talked about, for example, phthisis, they probably included a wide range of respiratory complaints, not just consumption or tuberculosis.

The English physician Richard Morton's text on consumptions, published in 1689, brought attention to a disease that at that time had received relatively little study by physicians, despite being a major cause of death. Morton, physician to King James II, was the first doctor who noted that tubercles were always present in pulmonary tuberculosis. He believed the disease was hereditary, but also considered that it might be transmissible by close contact. This book, incidentally, also contains the first description of anorexia nervosa which Morton called "nervous consumption".

The descriptive names given to tuberculosis in the 1800s – including "Captain of all these Men of Death" and the "Great White Plague" – demonstrate the level of public fear of this great killer. Since the 1700s tuberculosis has been a major cause of death throughout the world. The toll of tuberculosis on both its sufferers and their families has been widely recorded, often by artists and writers who were themselves afflicted, including Jane Austen, Franz Kafka, George Orwell and Anton Chekhov. Tuberculosis was seen by some as a 'romantic' or fashionable disease, associated with sensitivity and creativity. The slow death of its sufferers, by comparison to diseases such as smallpox or typhus, allowed them the opportunity to write and create art about their experiences.

Tuberculosis was a serious threat to public health in Scotland in the 1800s. Towards the end of the century there were no facilities to treat it and the death rate was high. Robert Philip, then a house physician in the Edinburgh Royal Infirmary, raised the funds to open the first tuberculosis dispensary in Edinburgh in 1887. The next step was to open a sanatorium, and with continued fundraising it was completed and opened in 1894. It was designed to work in cooperation with the dispensary and to house patients in an environment where they could get plenty of fresh air and exercise.

In 1917 the Royal Victoria Hospital Tuberculosis Trust endowed a Chair of Tuberculosis in Edinburgh University, the first such chair anywhere and Sir Robert Philip was appointed the first professor. He was also a President of the Royal College of Physicians of Edinburgh and was knighted for his services in the fight against tuberculosis.

Going back for a moment to the 1880s, when the German physician Robert Koch developed a staining method to examine the sputum of tuberculosis patients which allowed, for the first time, the bacterium which caused the disease to be identified. Although Koch failed in his attempts to provide a cure for the disease, his work enabled the effective identification of sufferers.

Increased study of the disease and understanding of its highly contagious nature led to the development of isolated institutions for sufferers. The sanatoriums, such as the Edinburgh Sanatorium, which were developed provided patients with relaxing surroundings in which to recover. And, more importantly, their exposure to fresh air and sunlight assisted recovery by increasing vitamin D and nitric oxide levels, thereby improving their immune systems.

But a much more effective treatment was to come. Sir John Crofton, respiratory physician, public health campaigner and President of the Royal College of Physicians of Edinburgh, was at the forefront of twentieth-century tuberculosis treatment. Crofton was born in Dublin, Ireland, before studying at the University of Cambridge and taking up posts first in London, and then at the University of Edinburgh in 1952. After a reduction in levels of tuberculosis in the first half of the twentieth century, incidence of the disease increased again, in Scotland and elsewhere, after the Second World War.

Crofton's post at the University of Edinburgh was the same one previously held by Robert Philip – "Professor of Tuberculosis" – and Crofton was tasked with identifying new methods and approaches to treatment of the disease. Crofton, along with colleagues, worked on reorganising tuberculosis services, prioritising waiting lists and coordinating links between inpatient and outpatient care. And, most importantly, they developed what came to be known as the "Edinburgh Method" for treating tuberculosis. Chemotherapy had already been in use to treat this disease for around a decade when Crofton settled in

Edinburgh. Crofton's innovation, in essence, entailed the combining of chemotherapy with the use of multiple drugs simultaneously to reduce the chance for drug-resistant strains of tuberculosis to develop.

Levels of tuberculosis declined dramatically in Edinburgh as a result of Crofton's work and he spent most of the rest of his career travelling around the world teaching other practitioners about his methods.

Tuberculosis, however, is not a disease relegated entirely to the history books. It has emerged again, particularly in poor urban communities and particularly in association with HIV. There are now drug-resistant forms of the disease which require new methods of treatment.

[musical interlude]

Daisy: So we're here talking about respiratory medicine and we have here with us Dr Wendy Anderson. So Wendy, I wondered if we could just start off with you just saying a little bit about yourself, you know, what you do and where you work?

Wendy: I'm a respiratory physician, I also do a little bit of general medicine and I work at the Northern Health and Social Care Trust, which is the largest of the trusts in Northern Ireland. I've been there for about twenty years and I work largely on one site, Antrim, but I also work in Braid Valley occasionally at outpatients and in Causeway. I've had a sort of regional role in lung cancer leadership and I've also worked with UK organisations to promote lung cancer care, and I've led the respiratory team with the Northern Trust for most of the last twenty years.

Daisy: It's quite an impressive list of things. So I guess if we start with the absolute basics, so when we say respiratory medicine, what do we mean? What do you mean by respiratory medicine?

Wendy: I think it's probably exactly as it says on the tin. It's the prevention, diagnosis, treatment and palliative care of lung disease, so that would include infections such as – in history, mainly – TB, and more recently things like COVID but also pneumonia and many other infections. We look at inflammatory things that affect the lungs, like asthma, or that like interstitial lung disease, some vascular conditions like thromboembolism, and malignancy of lungs and the pleura. So that's most of my day-to-day activity.

Daisy: Thank you. So within the specialty of respiratory medicine, are there any sort of stereotypes about what you do or is there anything that would surprise people about the nature of your work?

Wendy: Well respiratory does about one third of the medical take, and we're responsible for about that fraction from day-to-day in the UK. I suppose the interesting thing about that for me is that even in the First World, the majority of that is driven by inequality. So if you divide the population into quintiles, the fifth quintile is maybe three times as often in our patient numbers as the first quintile, and much more likely to die and much more likely to be there, younger. So if we were to fix the inequalities in our population, and this is true of COVID and TB and chronic obstructive lung disease and lung cancer, we would drive down the numbers of people impacted by respiratory disease.

Daisy: Thank you very much. So, you know, thinking back to the days of your youth for a moment here, I wondered if you could explain a little bit about how you got into respiratory medicine. I mean, there must have been a point when, you know, every path in medicine was open to you, so why this one? What was it about respiratory medicine that really attracted you?

Wendy: I have a small brain and respiratory is a relatively small subject and I quite like that about it. And I could get my head around the physiology, it's relatively neat. And if you understand how lungs work then you can understand respiratory disease, and I think that was... Also, different personalities go to into different specialties, I was never a surgeon, never a psychiatrist, it was, I wasn't that kind of a person. And I did like the kind of personalities who I could see in respiratory medicine. We aren't all the same, but as a general rule we're a good bunch.

Daisy: So over the course of your career, are there any particular cases that have stood out as being particularly interesting or unusual? Obviously, we don't want to breach data protection, but is there anything that's sort of stuck with you?

Wendy: I guess probably my most interesting case was within the first four months of graduating. I was working in a small hospital and I was covering ED at night. I was the only person living in the hospital, which

wouldn't happen now, as a houseman you wouldn't be left on your own to be the only doctor on for ED. And on a Sunday morning, within ten minutes – ten to six and six o'clock, something like that – I had two interesting cases. One of them was a gunshot wound to the floor of the mouth, and that was interesting in one way, but within ten minutes I then had a young woman who had had a row with her boyfriend and taken his insulin syringe and drawn up some mercury out of an old thermometer and injects it into the vein of her arm. So obviously as the only junior doctor in the hospital and at four months off, you know, just having gone through, graduated four months previously, I found these relatively challenging and I obviously sought help with both of them fairly quickly. But for the case that injected themselves with mercury, I phoned the Poisons Bureau, which is what we were supposed to do at that point, and they basically said, "don't worry, dear, she can't have done that". So I came back and said, "well, I've got a venogram of her arm and an x-ray of her chest that says she has done that". And they said, "well you tell us what happens".

So I did, follow her. Interestingly, mercury salt is poisonous, but actually mercury, the metal, metallic mercury is inert. So it didn't do her any immediate harm, but when I looked it up in the literature I discovered there'd been several accidents with mercury and mercury had got into people's circulation; in the twenties, you know, twenty-seven or twenty-eight cases were documented, and it can go through the microcirculation, so goes up the vein into the right side of the heart, through the microcirculation into the left side of the heart, and it can embolise systemically. I followed this girl up for a few years and that didn't happen. But I think that's probably my most interesting case.

Daisy: When I asked you about interesting cases, I couldn't have predicted that that was what you were gonna answer with, so I think that can definitely fit into the category of interesting. So kind of sticking in the same vein of sort of looking back into your past, how do you feel respiratory medicine has changed over the course of your career or how has it developed, would you say?

Wendy: I think junior doctors (in respiratory as in everywhere else) and medical students are less hands on. They, you know, they're higher up the system before they get the experiences that we would have got as medical students and as housemen. And I think the intensity of our

experience probably generated some camaraderie, as well as the hundred hour weeks when we were junior doctors and, although there were clearly downsides of that way of working, I think there was something positive about that experience as well. And I often think that juniors maybe are more anxious and more depressed now, despite the fact that they are working fewer hours so, yeah, that would be my reflection on what might have changed.

Daisy: Thank you. So, you know, we've looked back, so look, trying to look forward now, you know, you've talked about how respiratory medicine's changed in the past. What do you think comes next? What do you think will be the changes in five or ten years in respiratory medicine?

Wendy: Well I haven't really got a crystal ball. I know what I hope we can do. One of the things about respiratory medicine and respiratory physicians is that we're all interested in social inequalities and how they drive health care needs, because the diseases that we are responsible for are in reality generated by social inequality or often generated by social inequality. So if we could address things like smoking, things like weight, healthy eating, exercise, in particularly the poorest quintile of our population, we could... If that quintile could get up to the best quintile, they would have fifteen years more on average of good life, life without disability, and five years' more actual life. So it makes both ethical sense and economic sense to try and do that. The word 'levelling up' has been used in, it's come under the political domain in the last couple of years, but I hope we actually can do that. If we can do that, that will make dramatic differences to the prevalence of respiratory illnesses and to the people who are affected by that. To say, people in the poorest quintile get sick, they get disabled, they get lonely, they get socially isolated, they're unable to work for preventable reasons and it would be really nice if we could address that in the next decade. I hope, I can hope.

Daisy: Thank you. So the next question I have to ask is basically me sneaking in a question that I really want to know the answer to personally, which is imagining that somebody gave me lots of money to set up a museum of medicine, and I got to pick one object that represented each specialty, you know, one tool, one item that you use in your work. What one object would you pick to represent respiratory medicine?

Wendy: I think it would have to be a stethoscope.

Daisy: Good, I'm glad, no one else has said that and I need a stethoscope! You can't have a medical museum without a stethoscope, so... So I've been asking everyone, every specialist I've spoken to about, you know, the elephant in the room, being as it's mid 2022, I've been asking people about the impact of the pandemic on their work. And of course, you know, respiratory medicine more than any other branch of medicine is so clearly connected with that. So I wondered if you could talk a bit about your work during the pandemic, what you experienced?

Wendy: It was the privilege of my life to be part of the management and to be able to do something about the pandemic, but it was challenging and it wasn't most challenging for me. I mean, if I talk about some of the other people who were involved, I'd say I wasn't the bravest or consultants weren't the bravest. I mean, I remember the cleaners up on C7 at the beginning of the pandemic. The single rooms up there had lots of men who were a little bit overweight and maybe around fifty who were fighting for their lives. And yet the cleaners still volunteered on very small salaries to go in and clean the room. I don't think it's doctors who worked the hardest either, I think the nurses probably got the prize for working the hardest. You know, pre-pandemic respiratory support with Airvo and CPAP would have been a ratio of one-to-two. During the pandemic it was one-to-six and as well as dealing with all the technical aspects of that, the nurses had to deal with the dying patients and the patients who wanted to take their CPAP off because they were claustrophobic and frightened and it was uncomfortable. So I think that the nurses worked the hardest.

I wasn't the cleverest either. My Canadian modeller, who took the information that I gave her and added to all her understanding of what she could find in the literature on respiratory pandemics in the past. And she managed to get the prediction of the spike in cases in the first winter within three days and within ten percent. And she not only modelled the whole of Northern Ireland demand, she did, she modelled who would be in intensive care and what each individual trust would be coping with.

I was one of a seven man team on my site, but two more in Causeway and the two more in Causeway were separate, which was a problem for

me at the beginning of the pandemic because I couldn't see them and I was worried about them and I wanted to [gap in recording] satisfied with Zoom. Though at the beginning of the pandemic in March 2020, there was a virtual pile of things on the desk that needed to be done. And this virtual pile slowly went down, without anybody really even organising it – all the protocols were done, all the teaching was done, and we were locked and loaded by the time the pandemic actually arrived.

Day-to-day there were large numbers of patients on respiratory support and at the weekends my consultant colleagues doubled up. We didn't get double pay, but we did what we had to do because it was a war and we all needed to do it. I think like, I think all of us felt the same way. In my mind's eye I picture my consultant colleagues in greatcoats on Fairhead on an autumn day and in the wind, and that's, I don't know why that's my...but I think I did feel like they were generals in a war.

What I personally did, I was interested in numbers and I looked to the modelling out, at the beginning I wanted better modelling than I was getting, so I went and found another modeller and got the modelling that I wanted, and as I say she's a system dynamics modeller and she finished up dealing a lot with the formations and actually working with Cambridge and some of the London-based modellers because she was so good, her modelling was so much, so good that other people wanted to hear from her. So the other advantage for me was that was she brought me into the national discussion at the UK Health Security Agency, every time I noticed something when – 'cause I was leading with the team in Northern Ireland and my, for example, at the beginning, everyone was saying we need to warn overweight, middle-aged men and feeding that up the line. At a later point, suddenly pregnant women were getting sick and we hadn't expected that and they hadn't taken vaccine – and there was an urgency about sharing that information, and the UK Health Security Agency came and said, "speak to us about your data", here's our data, this is what we need to do about this. So it was very validating and caused me to have a sense of relief that someone was listening.

I think that's most of what I did in the pandemic. I think one of the important things to do in these kind of situations is, if you think the emperor has no clothes, whether that's about not having enough oxygen

or having modelling, the modelling right or whatever, if you're in these kind of emergency situations, you've got to raise that and deal with it. You can't just think, "ah, I'm not sure if that's right". Now you may be wrong when you raise it, they may say, "actually, we've got that covered, it's all alright", but it's important to raise things if you've got concerns. So I guess that was, as I say, it was the privilege of my life to be part of that response. But there were lots of people involved.

Daisy: No, thank you. And I completely agree of course that it's, you know, it's important to talk about the collaborative nature of it and everybody working together, and my mother is a nurse so she will very much appreciate the nurses being pointed out. But having said that I think you're being quite modest in that what you haven't mentioned is the fact that you got an MBE for your work during the pandemic and so I think it is a collaborative effort, but also you obviously played a very important role in that, so...

Wendy: Well, thank you for that, but I do think I got it on behalf of a lot of people. I prefer to think of it that way because otherwise I can't accept it as fair, because it is true that other people were braver and worked harder.

Daisy: Thank you. So before we finish up, I just wanted to ask you, you know, following on from what you've just said, what do you think the long-term impact of the pandemic will be? Has it fundamentally changed things?

Wendy: Well, I think the first thing I'm going to say there is I think the UK hasn't given itself enough credit for what it did well. So I think, for example, data – we had the most honest data in the world. South Africa did something like we did, Ireland did something like we did, but really we were an outlier in the Western world. All the European countries hugely underestimated their mortality, hugely underestimated their numbers. Within the UK it wasn't completely uniform, but broadly we did a sterling job and in Northern Ireland our, I think our dashboard was best in class. So I think our data was good and in terms of reacting to a situation like this, data (as I say, as I said earlier) is critical. You need to have that to understand how to move forward. And I heard one of the – is it Fauci's team, the American man who's leading on this? – in America, saying that they rely on our UK data to make their American

plans because their American data isn't as good. So I think we did well with data.

We clearly had vaccine early and we clearly helped the evolution of vaccines early. The other thing that we did was the RECOVERY study, which gave us the first cheap effective treatment of COVID with dexamethasone. Nowhere else in the world could have delivered that study or would have that delivered that study because the medication was cheap, so, and drug companies had no incentive to do it. And yet it saved many, many lives, it was a game changer.

So there were things that we did well, but there were things that we went into the pandemic in a bad situation with. So for example, the gap between the rich and the poor in the UK is too big and that meant that we lost a lot of poor people, because the poor people were definitely more vulnerable to COVID. I think there's organisational learning as well. I also think that many respiratory patients who've been healthy during the pandemic 'cause they haven't got viral illnesses, will all go on wearing masks, particularly in the winter indefinitely. And maybe we'll finish up wearing masks in the hospital for the rest of my lifetime and maybe going forward, although I do think we have to think about waste as well as the impact on transmission and also on the social impact of wearing a mask, particularly in places like nursing homes. But, yeah, I think there has been learning and there undoubtedly will be more learning. I hope there will be more learning and it has been, as I say, the privilege of my life to be part of it.

Daisy: So thank you so much for joining us today, Wendy, this has been really fascinating.

Wendy: My pleasure.

[musical interlude]

Now it's time for our respiratory medicine case study. You might think, with all the talk in the introduction to this podcast about the many famous figures who were diagnosed with tuberculosis, that we would pick one of those figures for our case study. Whether Keats, Burns, D.H. Lawrence or Robert Louis Stevenson, there are dozens of celebrated writers and artists who suffered from TB. But these have all been

studied and discussed in so much detail that it seems much more interesting to go for a less considered respiratory disease – asthma. And our asthma patient in this episode is the English author Charles Dickens.

Dickens suffered from a range of medical complaints. What exactly these complaints were is a matter of conjecture. Some historians have argued that he suffered from obsessive compulsive disorder, epilepsy, gonorrhoea, post-traumatic stress disorder and depression. But we have to be careful about applying what is known as retrospective diagnosis – or deciding what historical diseases were using modern definitions.

The argument for asthma is a bit clearer though, because Dickens himself used the term asthma in both his fiction and his letters. 'Asthma' is derived from the Greek, meaning "gasp for breath". Like a lot of medical terms, the term asthma was first used as a general way to describe a lot of different types of symptoms, in this case all respiratory symptoms, so it didn't mean quite what we would think of it as being in the twenty-first century.

But the symptoms Dickens described in his letters are very familiar. In 1844 he described wheezing from morning to night. In 1849, while on holiday, he detailed having a cough which was deep and constant, and in 1856 he wrote, "All night I snort and wheeze". Asthma is also a recurring feature in a number of Dickens' novels, in *Dombey and Son[s]* and *House[hold] Words*. In *David Copperfield* the character Mr Omer says "I smoke, myself, for the asthma", revealing one treatment for asthma that hasn't exactly stood the test of time.

There were many supposed treatments for asthma in the 1800s. These included cold showers and ointments made from tar and mustard. The French writer Marcel Proust, believing his asthma was caused by parasitic worms, tried a range of enema treatments. Dickens' approach was a little more conventional and he tried a range of medicines, many of which contained strong doses of opium.

[musical interlude]

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