Beyond the Test: Connecting Communities Through Pathology
Episode #1: Pathology for Change: Global Solutions

Ranya Gabb (00:02)
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Konstandina Dulu (00:04)
And I'm Konnie. We're part of the CAP Foundation team and we want to share why your support makes such a difference.

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Ranya Gabb (00:50)
Thank you for supporting the CAP Foundation.

Joanna Cermak (00:58)
Hi everyone, I'm Joanna, the producer of Behind the Test Connecting Communities Through Pathology. This is the show that spotlights the powerful, often unseen impact of pathologists in building a healthier, more equitable world.

Joanna Cermak (01:11)
In this first episode, we're focusing on the global diagnostic gap, especially in low and middle resource countries, and the central role pathology plays in closing it. Today, access to diagnosis is still one of the most significant barriers to timely treatment and better outcomes, and solutions require more than science.

They demand strategy, partnerships, and a commitment to building capacity worldwide.

Joanna Cermak (01:32)
To help us explore this issue, I'm turning things over to our host and executive director of the CAP Foundation, Maya Ogden, who's here with three globally respected leaders in pathology. Maya?

Maya Ogden (01:46)
Thank you, Joanna. I'd first like to introduce Dr. Kenneth Fleming, a senior pathologist and former head of medical sciences division at Oxford.

In recent years, he's focused on global diagnostics, including chairing the Lancet Commission on Diagnostics, which helped shape a World Health Assembly resolution to strengthen access to testing worldwide. Welcome, Dr. Fleming.

Ken Fleming (02:09)
Happy to be here. Thanks.

Maya Ogden (02:11)
Next, Dr. Henry Tazelaar, the Geraldine Zeiler Golby Professor of Cytopathology and former Chair of Pathology at Mayo Clinic, Arizona. He's currently president of the International Academy of Pathology and has long championed global pathology, mentoring trainees from around the world.

Welcome, Dr. Tazelaar

Henry Tazelaar (02:32)
Happy to be here. Thank you.

Maya Ogden (02:33)
And finally, Dr. Runjan Chetty, a distinguished anatomical pathologist specializing in GI and pancreatic pathology. He has led pathology departments in South Africa, Glasgow, Oxford, Brighton, and most recently at the University Health Network and the University of Toronto, where he served as medical director and chief of pathology. Welcome, Dr. Chetty.

Runjan Chetty (02:55)
Thank you very much, Delighted to join you.

Maya Ogden (02:57)
Thank you all for being with us. In today's episode, we'll explore four key themes, understanding the diagnostic gap, the role of pathologists, technology and global infrastructure, and most importantly, how we can move from talk to transformation.

Maya Ogden (03:15)
Let's dive into the first topic, understanding the diagnostic gap. Dr. Fleming, your work on the Atlantic Commission on Diagnostics frames access to diagnosis as a public health inequity issue. Can you explain what is meant by diagnostic gap and why pathology is central to closing it?

Ken Fleming (03:34)
Yeah, very interesting question. A phrase that perhaps is not too familiar to pathologists. But basically, the way to look at it is let's say there are 100 patients with condition X.

Many of them have been diagnosed. And actually what we found in the Lancet Commission looking at the evidence we had is roughly between 35 and 60 % of patients get diagnosed. So in other words, between 40 and 70 % of patients depending on the condition don't get diagnosed. And that gap between people who have a condition

and who are diagnosed is called the diagnostic gap. It's part of the cascade of care. And its component of it is the treatment gap. So once you get diagnosed, do you get treated? And the interesting thing is that the diagnostic gap is much larger than the treatment gap. So in general, if patients get diagnosed, get, the majority of them do get some form of therapy. And then the third component of the cascade are

their final component is do they have a successful outcome? Do they get cured? Are they maintained in a stable environment and all the rest of it? And that is also one of the, if you like, the outcome gap. And so there are these components on the care scale of which as I say, diagnostic gap is the single most important because that defines what subsequently happens. And that currently is the largest.

And it's a really very interesting problem and there's a variety of reasons why that diagnostic gap is so large. But as you can understand, it's a fundamental. In fact, just recently I read in the Lancet Global Health, they've done a survey in India looking at the incidence or the prevalence of diabetes. And the estimate is something like 20 % of the population of India has diabetes. 20 % of 1.4 billion people, huge number.

but only about 40 % are diagnosed and they don't get treated. 60 % don't get treated. So pathology can help to close that gap because basically pathology is one of the two major diagnostic modalities. Imaging is probably the other major And if you don't have access to pathology and or imaging, you don't get diagnosed.

Runjan Chetty (05:46)
I think that's a fair comment, Ken. And we see it play out even in the developed world. And so, as you know, I'm based here in the UK and the cancer turnaround times, guidelines are there. But very, very few trusts actually manage to hit those targets and guidelines. So it plays out across the world, really, in the so-called underdeveloped countries where there's a dearth of pathologists and expertise.

and so too in so-called development.

Ken Fleming (06:14)
Can I maybe just add on to that actually, because again people tend to think of this as a problem with low and middle income countries and it's certainly a problem in low and middle income

countries. But actually in many high income countries in the US, Canada, good example, South of A and other parts, in the rural communities, people who are

in a relatively poor, have poor little access to diagnostics, even in high income countries. So this is not a problem that's unique or confined to Africa, it's a poster child that people look at. But it's a problem that affects every society, but in varying ways. So it's really an important issue we need to deal with. I keep saying, I can't understand why the first step in any healthcare system is an accurate, timely diagnosis. And if you don't have access to that, then you're really struggling. And the data we have

quite important. We found that roughly half the world, 50 % of the world's population has little or no access to diagnosis. And in lower middle-income countries it rises to 80%.

So it's an enormous problem where there's an awful lot of resource being wasted. Patients are suffering a huge impact in society when people are iller for much longer than the otherwise would be the case because there's not an effective diagnostic. I can go back to my figure I've just quoted from Alliance for Global Health last week. 40 % of the patients in India who have diabetes are not diagnosed.

Maya Ogden (07:31)
Let's move to the second topic. This is for the full group. In systems where pathologists are few, under-resourced, or not well integrated into care teams, what can be done to elevate their impact?

Maya Ogden (07:43)
Dr. Tazelaar?

Henry Tazelaar (07:45)
Pathologists are often underappreciated and our role in the healthcare system is not always recognized. Patients don't even know we exist. And so they get their reports from pathology from their internist or their general medical physician, their surgeon, their specialist, but they don't know perhaps that a pathologist is even behind that and what has gone into making their diagnosis.

staging their cancer if it happens to be a case of cancer. Patients often don't have any idea about those sorts of things. So some is just the fact that we're not even recognized as being part of the care team. I think surgeons and medical providers certainly understand the role of pathology, but when, to get back to a point that was already made, but when results are not given in a timely fashion and a patient is

crashing under duress, know, in chronic pain, they need to do some, you know, the clinical team needs to do something maybe before they get an appropriate diagnosis. And, you know, as Dr. Fleming said, it's a problem really worldwide. Some of it is to make an accurate diagnosis in 2025, it takes longer than it used to because we have a lot of ancillary tools that we use.

So it used to be you could sign out a case and it would be done tomorrow. Now, depending on the tumor type, so let's pick brain and endometrial carcinoma, you can't properly diagnose and or stage those tumors without molecular testing. Well, that is something that's not going to exist in many parts of the world. And even in the developed world, those tests take time.

It contributes to not a failure on our part, but it contributes to the frustration with a clinical team wanting to treat a patient, but then not having a correct path because they still don't have a diagnosis three weeks later or four weeks later. It just depends, right? And then if you have to send it out to an expert, it might even be six weeks before you get a response on a major diagnosis.

Those are just some of the things I think.

Ken Fleming (09:45)
Can I just expand on that because in fact when you move to outside of the high income countries it's not three or four weeks it's three or four months in many cases and what then happens as a result of that is clinicians do not in fact waste their time waiting for three or four months before instigating therapy moving on and what therefore you have instigated or put in place is an environment and ambiance where it's acceptable to treat a patient.

on basis of syndromic or critical estimations. And that course works quite a lot of the time, don't get me wrong, but it does mean that there are many occasions when that's clearly wrong. And it back to this whole issue of the reason why we're in this problem is.

What is him is just said, what we contribute is not recognized and it's been not enough resource put in and therefore you then get a situation or not enough people are not enough equipment and so on. And therefore you get these problems of long turnaround times and so on and so forth. And it's a fairly very interesting and difficult problem. My personal view is actually to some extent we've been a worst on worst enemies. We have not as a group as a discipline.

shouted and stamped our feats and tried to raise the issue as strongly as we should have done. I can't imagine surgeons would have tolerated this, for instance, the way it's happened.

But that's not to say now we should be doing something about it in a podcast. This is a good way of starting to try and get that message out there. This is really fundamental, central to any healthcare system, an accurate, timely diagnosis. And it's not just diagnosis, it's monitoring the response of the patient subsequently down the line.

Are they improving? Are they regressing? And so on. So what we do is absolutely fundamental to health care. As an oft quoted figure of 70 % of all clinical decisions rely on pathology. And I think it's probably fairly accurate.

Maya Ogden (11:34)
just to expand on that a little bit. So I heard you say, you know, pathologists can be their own worst enemies. Well, what is it that pathologists should be doing? What is the message that

should be shouted from the rooftops to help this, right? I mean, I've heard it so many times that they feel like they're an invisible specialty, but like, okay, well, we want you to be heard. We want you to be seen, but.

Ken Fleming (11:45)
Ha!

Maya Ogden (12:00)
What's the message?

Henry Tazelaar (12:01)
So I'll just point out a recent article that's been published and there have been a few others. And at national meetings, I've seen presentations on pathologists meeting with patients. been championed by other pathology societies and several institutions, including my own in Mayo Clinic Rochester, are currently meeting with patients. meeting

with the families of autopsy of patients who have died and have had autopsies. They are also meeting with the patients who have received transplants. And we regularly actually provide here patients with images from their transplanted organs. So they know what their pathology looked like. What did their lungs look like? What did their liver look like when it was taken out? That's a way to, think, to begin to engage them with

what pathology's role is in their care. I think the other piece continues to be education. I know we probably do want to move into global efforts at education and scalability and how AI can help and all those sorts of things. But I think there are some inroads in making us more visible. And now you can actually be reimbursed for that. they are able to make a

appointment with a pathologist and the pathologist's time gets reimbursed. So that of course was a hurdle. Now this is in the US but you know if you're willing to meet with a patient and not get paid that's a first step right. That may not be scalable depending on the institution but those sorts of things are happening.

Runjan Chetty (13:28)
Perhaps I can give you bit of my personal perspective. When I embarked on Korean pathology 30 years ago, it was perceived as being a non-glamorous specialty. It meant that we didn't like patient contact. And that paradigm really was very difficult to shift because it was entrenched in medical thinking, even amongst our colleagues. And pathology has often been relegated not only physically to the basement of buildings, as we have seen pathology departments all over the world.

but also in terms of patient care, we're a support service and not seen as the pivotal, really important diagnostic feature on which treatment is based. And that perception is played out in the media and pathologists are only associated with autopsies and forensic pathology is the sort of association with a pathologist and not really what we do on a day-to-day basis in the way we influence and guide patient care.

That is one aspect which we need to change. We have pathology days and I've been on several radio shows and TV, etc. But not enough of that is happening really to capture the imagination of the public who, after all, are going to be the patients on which we make the diagnosis. For them to understand the pivotal role that pathologists play in it, alluding to what Henry said, we had a patient portal when I worked at UHN in Toronto where the

patients would be able to access their pathology and we would have it in a form that they could understand and then we had our names and phone numbers where they could come in and meet with us and we could explain to them what the resection margins were, how deep the tumor had penetrated and what it meant to them. And one of the most rewarding experiences for me was having patients in my office and explaining this to them and it empowered them. And I think their knowledge of their disease really does help them with their healing process as well.

And another very important thing that really is a bit of a bugbear for me is the way the current medical curricula have been reformed, where pathology, when I was in medical school, was a self-standing one-year-long course in which we interacted with pathologists, we were lectured to by pathologists, and we got to see a bit more than they do today. Pathology is now assimilated into modules and into disease entities, and

medical students don't really see this as a career path. And this all feeds into this idea that pathology is just a backroom specialty.

Ken Fleming (15:49)
Can I just add a little bit to that? It's very interesting. I actually think the pathology societies like Cap and others have a huge role to play in this. It seems to me this should be one of their key priorities, just to try and address this problem of lack of visibility or understanding of what we do. And they do, don't get me wrong, I understand they do, but we need to do more. There are colleges of pathologies which I'm a member of. Its logo or its motif or its mission statement says the science behind the cure.

And I've argued with them about this because it says we're behind the cure and it immediately puts us in a subsidiary position. And I think that's really the wrong. It's a good example of in a way our own must fight enemies. We don't visualize ourselves as actually we're guiding the cure. We decide what we advise.

very often determines what the therapy is and what the prognostication is and all the rest of it. And I think there's a mindset that we have to change as much as anything else. And it's both at a personal level and seeing patients is a great idea. But also I think our societies and our representative bodies have to take this on more and be much more aggressive about identifying how central we are to effective healthcare.

Maya Ogden (16:59)

So I'm sorry, one other question. So I get that pathologists need to be more visible, need to be recognized for their vital part in ~ a patient's healthcare journey. But how does that visibility impact low resource countries like what we started out talking about? How does that impact that?

that gap that we were talking about. it? it? know, if okay, all of a sudden now patients know they're a pathologist, will we see that gap that you were talking about Dr. Fleming get smaller?

Ken Fleming (17:33)
I'd like to think so because if patients, I often say actually our best advocate should be patients. I often say when I'm presenting to people, every person in this room, every person at some time in their life will be a patient. And the number one thing when you're ill, you want to know what's wrong with you and what can be done, what therapy, what treatment can I get? And that's what we do.

And so we have to really try and get that message and use the voice of the patient to get that message out, which then affects, because at the end of it, it's a resource allocation issue. And the people who, sorry, just finished, to say, you know, until we get the people who resource allocate and put it into providing training programs, to providing access to pathology, it's going to be difficult, but you know, it's doable.

Henry Tazelaar (18:19)
Yeah, I wanted to pick up on that theme because you've relayed when we were chatting earlier about your experience in some of the sub-Saharan African countries where they may have two pathologists, two or three pathologists for an entire country. And if patients say, you know, we aren't getting diagnoses because you don't have, you haven't allocated enough resources for pathologists in our country.

We need you to begin to do that. mean, they're going to have to work with the government or whatever the, whatever the structure is in each individual country, but to push for allocation for resources for training pathologists. So I don't know what that's like in other countries. Maybe you both have experience with that, but when funding from the central government for residency programs is doled out, if there's one pathology residency in the country,

That's insufficient for millions of people. you know, so I think maybe that's where the beginning at the grassroots with patients and having them demand more resources be put towards pathology education, which will then lead to pathologists.

Ken Fleming (19:25)
I was just going to say actually, one of the things I actually got involved in a long time ago, 2009, was setting up a training program for postgraduate pathologists in Zambia. And that came about because the Zambian government looked at their healthcare system and identified over three areas that were deficient, psychiatry, anesthetics and pathology.

and they decided that they had to put in place training programs to try and build their numbers. When I went there and helped to set up that program, there were four pathologists in a country of

13 million people. And that program is now running, still running, still successful. It's graduating two to four pathologists every year.

And so that's a very good example. If you can get the attention of the folks who actually make the resource allocation, you can make a difference in the long run. It takes time, but again, it's really trying to get that message out to the decision makers that actually your healthcare system, one of its central pillars is an effective pathology system.

Runjan Chetty (20:20)
you've got a two-tier system. You've got a public health sector and then you've got a private health sector. And unfortunately...

public health sector is not well staffed, it's not well remunerated, it's not well equipped, working conditions aren't the best. And there's this exodus once trainees qualify into the private sector for all the reasons I've mentioned, to the point that now there aren't enough trainers within the public sector, medical school sector, to adequately train the upcoming group of trainees. So this repatriated into the private sector.

And once disparity exists, and I guess South Africa is a paradigm for the rest of Africa in terms of this inequity between the private sector and the public sector, this is going to exacerbate the problem. So it's going to be ~ at a government level, in my opinion, to understand, right, pathology is very important. Let's fund it. Let's make it as attractive as possible to retain the talent that we have instead of people going out into the private sector.

Henry Tazelaar (21:18)
or leaving their country of origin to go retrain in another country and then stay there.

Runjan Chetty (21:23)
Absolutely, absolutely. And I mean, we see that all the time. And that's one of the downfalls of having fellows come over to, you know, I've had hundreds of fellows come over to Toronto and then they see the way we practice there. And then of course, when they go back, they can't do it. And so therefore, you know, their appetite has been whetted for practicing in the fashion that we do. And therefore they make every move to come to North America as you well know, Henry. So it's, you know, they

you're losing talent to whichever way you look at it internally and then externally. And it's a difficult problem to address. mean whilst I say it somewhat glibly that we've got to do something that's very hard, it's been entrenched and somewhat endemic for decades really.

Ken Fleming (22:05)
But again, surely this is something that there are representative organizations like CAP, like the Royal College of Methodology and other organizations, part of their job should be to try and make this case internationally and locally to say, we're really important, you need to put more resource, more time in, it? And my feeling is our organizations don't do enough on that. I'm, of course, I'm biased, of course, but I do feel...

We're too introverted and we're too inward looking in that. We actually need to take on a bigger role in helping to organize the patient voice, for instance, helping to organize local pathologists to advocate to their local politicians and so on. I think to some extent, the solution is in our own hands. We should actually take the opportunity and really try and make it happen. But maybe I'm wrong.

Runjan Chetty (22:55)
No, I think the Royal College has engaged with government here in the UK. But I mean, I don't know to what extent and obviously clearly not as successfully as I would like or you would like. But I think they have reached out. There are various fora that ~ are held and I think government input is welcome, but it just hasn't percolated to the right people in government. We're decision makers, in other words.

Ken Fleming (23:18)
Well, exactly. You're making my point for doing it, but we're not doing it effectively. So should really make us try harder and try and find more effective ways doing it. Because just accepting the situation is really not a useful outcome.

Runjan Chetty (23:26)
Yeah, I know. I totally agree.

Maya Ogden (23:33)
What also sounds like a big part of what's missing is that patient advocacy, right? So I heard you mention Dr. Fleming that in Zambia, it was because patients sort of spearheaded the, and maybe I'm incorrect here, but I thought what I've heard you say was patients played a significant role in the government to, go ahead, elaborate a little more on what happened in Zambia.

Ken Fleming (23:58)
No,

I don't know that that was the case. It was the government, as I understood it, the government was concerned that they identified three priority areas of which pathology was one. And I don't know how that was done and why the influence was in that. But it does, it just illustrates the point. It can be done if you get access to the right people who've got the right decisions. They can make decisions that have, you know, 10, 20, 30 year impact down the line.

Maya Ogden (24:24)
Yeah, well, so even if it weren't the patient spearheading that, but let's pretend that it were. I mean, there is, I think, a case to be made that patients play a significant role in helping to elevate the voice of pathologists. I think from just, you know, the few examples that each of you have given, the patients seem to be the key in that. And so,

Ken Fleming (24:36)
Yeah.

Maya Ogden (24:51)
One question that I know was not on the agenda here is, what would you tell a patient then about the role of the pathologist in their care? Aside from like, I looked at your slide, what is it that you tell a mom who brought in her daughter for a screening of some sort because she may have ovarian cancer? What is it that you tell her about why you're

the pathologist is important in her daughter's treatment.

Runjan Chetty (25:20)
because we make the definitive diagnosis that directs the treatment. Often times, you know, we're not given that opportunity to say like, I've called it the high-grade serous ovarian cancer, for instance, since you raised that as an example, as opposed to something else and the implications thereof and why we've done it and explain now we've now empowered your oncologist and surgeon with the right diagnosis to now ensue.

with the correct treatment. And there's a gap there. The patients don't connect the dots in the sense that, I've got something, I've had surgery, and then I come back to the surgeon who tells me what the diagnosis is. So there's that gap where the pathologist and the role of the pathologist is not accredited enough, unless, of course, the report is delayed or there's a mistake. Of course, then it's the pathologist's fault. And ~ that clearly happens quite

Ken Fleming (26:10)
Ha ha ha.

Runjan Chetty (26:13)
not frequently, mercifully, but that is always the case. The football that gets kicked around by the various clinical groups and the patients aren't completely aware of the significant role that we play. It's very difficult reaching that gap, think, and reaching out. We've had patient groups for renal cancer, so we've spoken to renal cancer survivors. We've spoken to...

pancreatic cancer survival and whilst they're all very interested and understand etc. They still gravitate to their clinical treatment team and Henry you probably would notice the vast majority of philanthropy in terms of Chairs that are doing you know chairs that are donated to institutions go way to the clinical people right here and pathology gets the thin end of the wedge and I used to fight with our foundation at UHN to get

funds for research, funds for fellows and eventually we got an endowed chair in oncologic pathology from the author of an anatomy textbook whose family donated the proceeds to the establishment of that chair. So very, very few patients really understand that, it's a pathologist and so therefore I'll donate money to the formation of a breast.

the theology chair or something like that. And it's a bit more prevalent in the US where you do get philanthropy and chairs donated, but I think across the world it isn't as much.

Henry Tazelaar (27:36)
No, I think true. And at our institution, were two main ones and they were donated by a pathologist. So there were some others that pathologists have received, but you're exactly right. Most of the development funds go towards the clinical surgical teams.

Ken Fleming (27:52)
Just thinking about this again, I'm sorry I'm going to be boring about this, but I actually think we should be here complaining about what's happening. We should be doing something more about it ourselves. Do, for instance, any of our institutions have a professor of the public understanding of pathology?

And also we have a professor for public understanding of science. It's Dawkins. And you know, that's, you know, it's not a trivial example, but it's trying to say, look, this is a really important thing we should do. How can we capture that patient voice and focus it and use it to drive the recognition of the fundamental importance and how politicians will then start to listen.

And I think that happens all around the world. It's the same everywhere. It's not just us.

Runjan Chetty (28:35)
You have

to have a powerful lobby, right? And we don't have that. I'd love to be part of it. I was just going to say, well, why don't we go to the University of Oxford and create it? No, but on a serious note, I would love to do that. I mean, I've tried in my own way, and I'm just a small player in the grand scheme of things of trying to get attention.

Ken Fleming (28:39)
What would you should create him?

Your new job, your new job rundown is to be Professor of Public Understanding of the Folk.

Runjan Chetty (29:00)
politicians and you know I've got no responses I've sent emails etc but I just can't get a foot in the door as an individual so it's it's I really don't know the answer other than in broad terms agreeing with what you're saying it should be at an organizational level lobby the government, lobby you know help ministers and that sort of thing ~

Ken Fleming (29:19)
mean, if international organizations, I don't know, many there are around the world, professional pathology organizations, but it must be 10, 20, 30, I don't know. They should be getting together and saying, look, let's have a coherent, persistent, consistent message. And we're all going to say the same thing in our local regions, in our local countries. And actually, and as I say, allocate people to do this.

Runjan Chetty (29:31)

Hmm.

Ken Fleming (29:39)
This is your job, your contribution to the society is to go out there and make the case with patients, get patients together and go and lobby the Minister of Health.

Henry Tazelaar (29:48)
Yeah, I don't know whether the WHO has a role to play there as well. think that the CAP foundation, think as it is involved as CAP is actually involved in numerous other countries other than the U S because many labs across the world are accredited by the CAP, even though it's an American organization, I think might be another way for there to be some role for

Ken Fleming (29:52)
Absolutely.

Henry Tazelaar (30:17)
this foundation your, your cap foundation to perhaps be engaged and, and begin to have a dialogue with the local pathologists that whose laboratories you're accrediting and say, Hey, as, as part of our role here, we notice X, Y, or Z who are your elected officials who oversee these sorts of things.

You know, I don't know that I've ever seen anything from the WHO, for example. I mean, some of the organizations, so you, if we take the IAP as an example, it's an educational organization. And I know CAP, part of its mission is, to be politically active, to be on Capitol Hill in Washington, DC.

making pathologists needs known, but I don't know how many of those sorts of organizations exist worldwide. So can I, or, you know, run John, what exists in Canada? Is there anything similar or in the UK, for example, or is there anything similar? Cause most of the pathology organizations I'm engaged with are educational organizations, unlike CAP, which is educational, but also has another mission. And that is advocacy.

Runjan Chetty (31:19)
Thank

Ken, mean, you would know better than I about the Royal College. I mean, it's always been an educational institution body, if you like, and has been apolitical. I mean, is there a will in any of the committees now to sort of become a lobbying faction for pathologists?

Ken Fleming (31:22)
Sweet.

Yep.

I don't know, because I'm not up to date as of while since I've been involved. But I go back to the mission statement is that the science behind the cure. It just says it all as far as I'm concerned

that we're just underplaying ourselves. I think there's more strength of our elbow if we got together as an assembly of groups around the world and said, one of our roles should be getting together, organizing, I mean, for instance, go back to Henry, I don't know, in the US.

Do you actually take patients, variant pancreas patients for example, to lobby and say, know, it was very important to me that my, or my breast tumor or whatever it might be. Do we do that? I just don't know the answer to that. But it seems to me that should be a consistent component of any professional pathology organization in any country is to actually try and harvest and try and focus all of that energy.

Runjan Chetty (32:28)
Yeah, pathology needs its Erin Brockovich,

Maya Ogden (32:31)
I love that. So I wanna continue this, but now I'm kinda curious, what role does technology play in this, right? So, okay, we need to mobilize patients. We gotta get patients to start advocating on behalf of pathologists in some way. I'm putting in air quotes, you can't see that, but we need them with us. Yes, yes, exactly.

Ken Fleming (32:51)
with us, with us, Maya, enjoy a joint endeavor.

Maya Ogden (32:54)
Yes, we need a joint endeavor of like a coalition of patients and pathologists on, you know, the Hill, but also, you know, at the door of these ministries of health. That's what we need to do. Start there. Okay. Let's pretend in this utopia that we did. Yeah.

Ken Fleming (33:12)
Can, sorry just to interrupt, actually we should also involve our clinical colleagues. Because many of them, you your surgeons, your physicians and all of us, they want a better service as well. So anyway, sorry, I'll shut up.

Maya Ogden (33:18)
~ I think that's a no-brainer, right? Yeah, yeah.

Yes, but

I will, but I'll say that from the conversation, it sounds like the pathologist needs to lead it though, right? Because that's, that has tended to be the problem is, or at least one, I'm pulling words from you, but we've sort of, we pathologists have sort of leaned on other clinicians to say like,

Runjan Chetty (33:36)
Yeah, of course.

Ken Fleming (33:42)

No, no, I agree.

Runjan Chetty (33:50)
Mm-hmm.

Maya Ogden (33:50)
~

I got that from the pathologist, but they're not doing that, right? Like they're going to the patient and they're like, this is what I've come up with. And here you go. Right. Yeah.

Runjan Chetty (33:59)
And Maya, if I could just interject, the reason

why we've relied on colleagues to fight our corner is that they have a seat at the table. Oftentimes pathologists are not at the highest level. And no, seriously, I don't mean that, at the hospital level. that has changed. That has changed even in my own career. I sat at the same table as the head of internal medicine and surgery, et cetera, et cetera. But initially,

We weren't at that table. So I think things have changed to a certain extent. Now we need to press on. And as you said, we need to be in the vanguard of improving our image and our resources.

Ken Fleming (34:36)
Who's going to sell pathology if it's not pathologists?

Runjan Chetty (34:39)
Yeah, precisely.

Joanna Cermak (34:40)
This is a great conversation. Let's take a quick break and we'll be right back.

Julia Rankenburg (34:51)
Hi everyone, Julia here.

I've got something exciting to share with you. The CAP Foundation's Global Pathology Development Grant Webinar Series is back, and it's your chance to learn how pathologists around the world are transforming patient care. This complimentary three-part series spotlights incredible projects funded by the CAP Foundation Global Pathology Fund that are expanding access to diagnostic services and under-resourced communities. You'll hear firsthand about the challenges and the breakthroughs that are advancing global health through pathology. On September 30th, hear how a pathologist in Ghana is tackling the diagnosis of oral fungal infections and how new training initiatives are transforming breast cancer care across Africa. Then on November 12th, discover groundbreaking innovations from Uganda and Rwanda, including how a 3D printed low-cost microscope is opening the door to life-saving diagnostics like

never before. And don't worry if you can't attend live, Your registration gives you access to the recordings too. So what are you waiting for? Register today. The link is right there in the show notes.

Maya Ogden (36:17)
Dr. Cheney, I'm glad you responded to that because my next question is, all right, so you've got the pathologist leading, the patients are right there alongside the pathologist, but the world is changing, technology is changing, access to technology is changing. What does that do to the role of pathologists?

Runjan Chetty (36:34)
Mm-hmm.

Sure, think throughout the course of pathology, you know, in the last 30, 40 years, we've gone through various revolutions and innovations and improvements and we've embraced it. And to the betterment of our practice, to the betterment of the diagnoses we render, I think Henry touched upon it, the complexity of disease now, the whole molecular landscape, the biomarker landscape, which all plays into, you know, personalized medicine and precision treatments, et cetera. So,

The next wave, I don't know if you're pushing me into it, via digital pathology and AI, and clearly pathologists have to embrace this. It's there for our use to augment our practice, to make us better, improve quality, make us more efficient, and then play this role that we all envisage and welcome in being a pivotal part of the circle of care of patients. They're discussing the disease with the oncologist, with the surgeon, and with the patient.

And I think that is really the end goal. I mean, the fight for resources and a working environment and salaries, and that is also a very important issue. But I think we've got to segment what we are trying to tackle and what we're trying to achieve. But it is a gamut of issues that have held pathology back. We're touching on a few of them, but they are, you working conditions for instance is very important factor in different parts of the world.

Ken Fleming (38:01)
can I maybe ship in more? Technology will actually, and the likes of AI and digital, cetera, will help to expand our footprint even without necessarily increasing the numbers of pathologists. And therefore, where there's currently a deficit or a lack of, that's the sort of thing, that technology can actually help to produce that. did, know, Roger's got very good examples of this where...

the organization he's working with is able to provide a pathology service where currently it can't be provided in a normal way. And that's a very good example of how you can help to fill that diagnostic gap. Technology can help to address some of that. Not all of it, but some of it.

Henry Tazelaar (38:40)
Of course, you do need the first step, and that is to get the patient sample properly fixed, properly cut, properly stained in order to get a reasonable slide so that when you go to digitize it, whatever

AI tool you are using, if that's partly what we're talking about here. you know, that means you have to have histotechs who are trained. You have to have laboratory staff who are trained. And so, you

Runjan Chetty (38:47)
Mm-hmm.

Henry Tazelaar (39:04)
All of that doesn't happen without all of those prior steps happening. And I think many places don't even have those basics. Or, you know, and I know that you've all traveled enough and looked at pathology slides from a lot of different places and there's a huge discrepancy and there's no way an AI tool is going to be able to analyze an H &E section that's been cut at nine microns and is folded and shattered. And so...

Runjan Chetty (39:12)
Absolutely.

Henry Tazelaar (39:30)
You know, it really is all part of the system of medicine and the broader system of pathology if we just want to take pathology, but it's training at the pathology level, but then it's also running the laboratory. And of course, the CAP is actively engaged in trying to assure that this is happening, but only in those laboratories that seek your expertise and are willing to be accredited, right? Because not everybody wants to pay that or do that.

Ken Fleming (39:55)
Henry, I absolutely totally agree. One of the messages I try to say to people is there's no magic bullet. AI will not solve this. Digital path won't solve it. It's just building a system from workforce, infrastructure, power, and all of those things to get the right outcome. And this is what our message should be.

It's not just employing a few more pathologists because if they don't have the right slides and they don't have the right technique, it won't work either. And so you have to be approached in a system wide way. But again, you know, it's getting that message, getting it in a coherent, readily understandable, powerful way and be consistent in keeping and persistent about getting that message out and making sure that it won't be easy and it won't be quick.

Runjan Chetty (40:33)
Hmm.

Ken Fleming (40:38)
But unless you until such time you just start and then do it, we can make it can be done. It can be done.

Maya Ogden (40:44)

so Dr. Chetty can you tell us a little bit about what Deciphex does and how, what role it might play in some of this?

Runjan Chetty (40:51)
Yes, so Deciphex is the parent company that is an AI and software company that I joined in 2020, having spent my entire career up to that point in academia. And the reason was that the company wanted to improve diagnostics, transform diagnostics by providing subspecialty expertise and any kind of expertise.

two parts of the world that we alluded to earlier on. And part of it was to harness the power of AI and digital pathology. And the clinical service that was born out of that company, which has a strong history in clinical research trials and has a platform that's used for drug assessments by 18 of the top 20 pharma companies in the world.

platform called Patholytics and off the patholytic backbone, which was hosting and the ability to digitize slides and view them and use AI to quantify things like necrosis and hydropic degeneration in the liver, etc. We built a clinical platform called Diagnexia. And Diagnexia was built by pathologists for pathologists, so we tweaked it and refined it with input from pathologists, not only me.

And the initial premise was to offer secondary opinions around the world where there's a shortage of pathologists. And using a digital strategy to get these slides, we would also help with scanner placements and get slides uploaded into our platform. And we've got a global network of about 250 pathologists based in North America and the UK primarily, but growing in Australia and South Africa and other parts of the world.

to provide second opinions pro bono. in those countries that could afford to provide it, then we had ~ a rate as well. And the advantages of using digital pathology were manifold in terms of time savings, immediacy of the results and the ability to communicate quite rapidly with the pathologists. And instead of this sending glass slides across oceans and risking them being broken and then...

logging them into your own system, etc. We circumvented quite a few of these issues. But still some of the fundamental issues that Henry touched on in terms of the quality of the slides needed to have attention. And we as a company advise hospitals to how they should be cut and how they should be digitized. And so we provide that education as well. However,

Having gone down the route of providing secondary consults, we soon discovered there was a need for primary diagnostics in the UK, for instance, parts of the US and in Canada, because of the shortage of pathologists that's global. And as a result of this, we actually now do a primary diagnostic service here supporting the NHS in the UK. And we're on track for about 150,000 cases, servicing 30 plus NHS trusts.

on track for at least 10,000 cases in the US and about 5,000 in Canada, primarily to support the gaps that departments have for sudden illnesses, for vacations, and the inability to recruit. having

pathologists registered in these regions has helped that, of course, you need to fulfill the regulatory aspects. And what we've done is increased capacity

in the UK for instance because several of the UK trained pathologists have relocated to North America and what we've done is reactivated their UK medical licenses and if trusts allow us to send cases outside of the UK space and you know its banking level security and all GDPR is respected we have now increased the pool of reporting pathologists and this has really transformed the

delivery of service here in the UK.

And so we have the now an education portal in which slight collections of individual pathologists who are willing to donate it to us are posted on it. We're beginning to annotate it, make it available.

and also have the ability for trainees to utilize that and have discussions, etc. And I think a very powerful differentiator for what we do is that everyone talks about diagnostic AI and using AI to make the diagnosis. What we've done is we've deployed AI judiciously across the entire process from pre-analytical through to analytical.

We build the cases with smart optical character reading tools, which doesn't require manual entry of the clinical data and the specimen request card. So the cases are built using smart AI. We have smart AI in scanning of slides. So instead of a poorly scanned slide going to a pathologist who then says, oh, I can't read it, we have the tool that detects these before they go to the pathologist.

They rescanned and the issue is resolved before it goes to the pathologist. And then other tools in the diagnostic process that recognizes from the clinical history, gastritis, query H-pylori will reflexively order, for instance, the H-pylori immunostaining, and that again increases the efficiency for the pathologist to get it before they look at the case. And, you know, we've deployed PC7, a boring tool,

Runjan Chetty (46:02)
biomarker evaluation and then finally what I call the holy grail of AI tools is where we have got companies that we've partnered with that can take an H &E slide and this has been FDA approved and CE marked etc in Europe and give you the molecular profile, drug sensitivities, predictive value of the cancer, breast cancer in this case, in 45 minutes.

Similarly, there's a tool for prostate cancer where only a proportion of men respond to androgen deprivation and ~ radiation and instead of giving them a trial, an empirical trial, they will now be selected on the basis of this AI tool. So it's really refining and taking treatment to the next level and this is all within the realm of pathology. So we've deployed AI

across the board in various facets of the diagnostic process, whilst the pathologist is still in control. At the end of the day, we've got a colorectal tool which detects, say, for bowel cancer screening and segments the cases in terms of priority. It's at the urgent ones at the top which are high-grade in cancer and the pathologist doesn't know, so that removes the bias there. And at the time of diagnosis, if the pathologist says low-grade tubular adenoma, for instance, and the AI model thinks it's high-grade,

up pops a bubble and says, the model thinks there's high grade here, have a look. The pathologist looks and says, oops, I've missed it or no, I'm overruled and the pathologist's opinion prevails. So there are various ways in which AI can improve our diagnostic and our efficiency and quality as well. And we use it for internal quality assurance as well. So cases are auto-selected by the model where it detects the discrepancy. I get to review it.

and oftentimes the pathologist is correct and there is no tool as Ken said is 100 % foolproof and perfect but it has picked up seven to eight cases where the pathologists have missed important diagnoses as well. So I think AI is here to stay and play a vital role in the way we practice pathology into the future but pathologists are still in control and should use it judiciously as I said.

Maya Ogden (48:16)
So I just have one more question for Dr. Fleming. what else can the CAP Foundation do? So this podcast is a start for us. I heard several different solutions come out of this conversation. We need to pull together patient stories. We've got to get the pathologists to advocate alongside the patients. We've got to talk to...

Ministries of Health. But Dr. Fleming, I'd like to hear from you kind of a very direct and don't sugarcoat it for us. What could organizations like the CAP Foundation do? And I don't think you will. tell me what would you like to see us do more of or do period?

Ken Fleming (48:56)
Well, actually, it's very interesting and I support all of what has been said. I would like to say, why don't your foundation organize an international meeting, one day meeting or two day meeting, whatever, pulling together international organizations interested in this problem and thrashing out, what are we actually going to do? What's the message? And have patients as part of that or patient organizations. What's the message we can do? Refine that message.

and then go forth and plan with people how you're going to go and influence your resource allocators, how you're going to do your politicians, how you're going to do your international funders and philanthropists. Thrash out a message. Can we create a post of advocacy or whatever it is? I don't know what it is. But if CAP Foundation set up a meeting just to explore this problem and how we might best address it. As I say, I think we need a consistent.

coherent, persistent message which all says pathology is central to effective healthcare. It's under-recognized, it's an often specialty, resource needs to be put into the betterment of patient care. And I think if we go out and make that story, it take 10 years, 20 years. It's not gonna be easy, but we can start and do it.

Runjan talking about the thirst for knowledge amongst trainees. I remember I was the International Director for the College of Pathologists and going to Northern Iraq in 2010, 11. And in those horrible circumstances, we met trainees and they all were desperate to get involved in the latest.

things which were happening. They wanted to be at the forefront of what was happening internationally and not be struggling in a back way. I think it's a huge, huge untapped reservoir of energy and enthusiasm out there that we as an international leading international organization should provide leadership for that. see CIP Foundation organizing an international today to thrash out how you're best going to do this.

Runjan Chetty (50:38)
Mm-hmm.

Ken Fleming (50:50)
Is that satisfactory, man?

Maya Ogden (50:52)
That was perfect.

Runjan Chetty (50:53)
And I would add that the key stakeholders should come from the countries that need it the most.

Ken Fleming (50:58)
Yeah, they wanted the funding, the likes of companies like Diagnexia and Deciphex, they also put their hands in their pockets and help to fund that, a meeting like that. And you should be held every year. What have we done? How far are we going? We made any progress? What works, what doesn't?

Runjan Chetty (51:14)
Well actually, Rubin College, which is an AI and digital college in Oxford, and Diagnexia, they host a global diagnostics seminar every year and we're certainly going to play a role in that. It's potential for CAP to get involved in that as well. We get people from around the world as well as

you know, from government attending. So I think that could be a very good forum actually as a starting point.

Maya Ogden (51:42)
I was just, let me just say one final time. This means so much to the foundation. It means so much to me personally, because when I started in this role, one of the things that I set out to do was to really think outside of the box and touch on topics that we tend to kind of brush under the rug.

and caring about business as usual. And I didn't want to do that. And so I really, really appreciate all three of you joining and being a part of my mission to resistance and unknowingly signing on to that. I truly, truly appreciate it. I personally have learned so much even with just the few emails.

Dr. Fleming that you and I had. It really pushed me to do some research on my own and I hope that that's what happens to whoever listens to this podcast. I hope they do the same. So thank you.

Ken Fleming (52:33)
Well, let's let's let's be captains of our own destiny. See the initiative and provide the leadership. mean, why not? Who's going to talk for pathology, but pathologists, for God's sake, let's do it.

Maya Ogden (52:39)
I love it.

love it. love it.

Thank you all.

Maya Ogden (52:49)
Joanna, would you like to wrap up this episode for us?

Joanna Cermak (52:53)
Absolutely. A heartfelt thank you to Maya for guiding today's conversation and to doctors Fleming, Tazelaar and Chetty for sharing your insights and experiences with us. You can find more information about our guests in the show notes and thank you to our listeners for joining us on this very first episode of Beyond the Test.

This podcast is brought to you by the CAP Foundation, dedicated to expanding access to care through pathology. To learn more, visit foundation.cap.org. Be sure to follow and subscribe so you don't miss future episodes. Until next time, my friends, I'm Joanna, and thank you for listening.